

## Horizon 2020

### Call: H2020-MSCA-ITN-2018

(Marie Skłodowska-Curie Innovative Training Networks)

### Topic: MSCA-ITN-2018

**Type of action: MSCA-ITN-ETN**  
(European Training Networks)

**Proposal number: 813667**

**Proposal acronym: DECIFER**

**Deadline Id: H2020-MSCA-ITN-2018**

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#### [How to fill in the forms?](#)

The administrative forms must be filled in for each proposal using the templates available in the submission system. Some data fields in the administrative forms are pre-filled based on the previous steps in the submission wizard.

Proposal ID **813667**

Acronym **DECIFER**

## 1 - General information

Topic MSCA-ITN-2018

Call Identifier H2020-MSCA-ITN-2018

Type of Action MSCA-ITN-ETN

Deadline Id H2020-MSCA-ITN-2018

Acronym DECIFER

Proposal title Distilling Ensemble Climate Information for Food sEcuRity

*Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &*

Duration in months 48

Panel ENV - Environmental and Geosciences (ENV)

Please select up to 5 descriptors (and at least 3) that best characterise the subject of your proposal, in descending order of relevance. Note that descriptors will be used to support REA services in identifying the best qualified evaluators for your proposal.

Descriptor 1 *Climatology and climate change*

Add

Descriptor 2 *Agriculture production systems (crops), including fertilisat*

Add

Remove

Descriptor 3 *Meteorology, atmospheric physics and dynamics*

Add

Remove

Free keywords

*Climate information distillation, impacts on cereal crop, bias correction, uncertainty, epistemic-ethical analysis, responsible information provision; values and perception; stakeholder engagement*

### Abstract

*DECIFER wishes to establish a truly interdisciplinary and intersectoral research and training community to distill user-relevant and defensible information about agricultural impacts of climate change in the Mediterranean region and northern Africa. DECIFER will bring together academic and non-academic participants based in Europe, Africa and at international organisations. DECIFER participation will be from internationally renowned experts ranging from global and regional climate modelers, experts in statistical bias correction and agricultural modeling, social scientists, academic and non-academic institutions involved in climate services and climate smart agriculture, as well as private companies in the climate and food sectors.*

*Zero hunger, or food security, is one of the most fundamental of the United Nations Sustainable Development Goals, and is intricately linked to climate change. Stakeholders and decision makers urgently demand user-relevant climate information, but are confronted by a plethora of climate projections. Thus, a call has emerged for climate information distillation: in a given user case, one has to understand the limitations of climate projections, how to construct relevant climate information based on these projections, and how to optimally and responsibly communicate and use this information.*

*The research and training needed for climate information distillation is highly interdisciplinary and intersectoral, and needs to*



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*bring together climate scientists, social scientists, non-academic, public and private stakeholders, and decision makers in a new and inspirational way. Training of climate researchers is traditionally rather disciplinary with very little interaction across the full range of involved disciplines. ITNs are an ideal platform to widen the training of ESRs for climate information distillation.*

Remaining characters

132

Has this proposal (or a very similar one) been submitted to a H2020-MSCA-ITN call?

☐ Yes ☒ No

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## Declarations

|   |                                     |
|---|-------------------------------------|
| 1) The coordinator declares to have the explicit consent of all applicants on their participation and on the content of this proposal.  | <input checked="" type="checkbox"/> |
| 2) The information contained in this proposal is correct and complete.  | <input checked="" type="checkbox"/> |
| 3) This proposal complies with ethical principles (including the highest standards of research integrity — as set out, for instance, in the <a href="#">European Code of Conduct for Research Integrity</a> — and including, in particular, avoiding fabrication, falsification, plagiarism or other research misconduct).  | <input checked="" type="checkbox"/> |
| 4) The coordinator confirms:  |                                     |
| - to have carried out the self-check of the financial capacity of the organisation on <a href="http://ec.europa.eu/research/participants/portal/desktop/en/organisations/lfv.html">http://ec.europa.eu/research/participants/portal/desktop/en/organisations/lfv.html</a> or to be covered by a financial viability check in an EU project for the last closed financial year. Where the result was “weak” or “insufficient”, the coordinator confirms being aware of the measures that may be imposed in accordance with the H2020 Grants Manual (Chapter on Financial capacity check); or | <input type="radio"/>               |
| - is exempt from the financial capacity check being a public body including international organisations, higher or secondary education establishment or a legal entity, whose viability is guaranteed by a Member State or associated country, as defined in the H2020 Grants Manual (Chapter on Financial capacity check); or  | <input checked="" type="radio"/>    |
| - as sole participant in the proposal is exempt from the financial capacity check.  | <input type="radio"/>               |
| 5) The coordinator hereby declares that each applicant has confirmed:   |                                     |
| - they are fully eligible in accordance with the criteria set out in the specific call for proposals; and   | <input checked="" type="checkbox"/> |
| - they have the financial and operational capacity to carry out the proposed action.  | <input checked="" type="checkbox"/> |
| The coordinator is only responsible for the correctness of the information relating to his/her own organisation. Each applicant remains responsible for the correctness of the information related to him/her and declared above. Where the proposal is to be retained for EU funding, the coordinator and each beneficiary applicant will be required to present a formal declaration in this respect.   |                                     |

According to Article 131 of the Financial Regulation of 25 October 2012 on the financial rules applicable to the general budget of the Union (Official Journal L 298 of 26.10.2012, p. 1) and Article 145 of its Rules of Application (Official Journal L 362, 31.12.2012, p.1) applicants found guilty of misrepresentation may be subject to administrative and financial penalties under certain conditions.

### Personal data protection

The assessment of your grant application will involve the collection and processing of personal data (such as your name, address and CV), which will be performed pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Unless indicated otherwise, your replies to the questions in this form and any personal data requested are required to assess your grant application in accordance with the specifications of the call for proposals and will be processed solely for that purpose. Details concerning the purposes and means of the processing of your personal data as well as information on how to exercise your rights are available in the [privacy statement](#). Applicants may lodge a complaint about the processing of their personal data with the European Data Protection Supervisor at any time.

Your personal data may be registered in the Early Detection and Exclusion system of the European Commission (EDES), the new system established by the Commission to reinforce the protection of the Union's financial interests and to ensure sound financial management, in accordance with the provisions of articles 105a and 108 of the revised EU Financial Regulation (FR) (Regulation (EU, EURATOM) 2015/1929 of the European Parliament and of the Council of 28 October 2015 amending Regulation (EU, EURATOM) No 966/2012) and articles 143 - 144 of the corresponding Rules of Application (RAP) (COMMISSION DELEGATED REGULATION (EU) 2015/2462 of 30 October 2015 amending Delegated Regulation (EU) No 1268/2012) for more information see the [Privacy statement for the EDES Database](#).

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Acronym **DECIFER**

## Information on participants

| Participants number | Organisation legal name                    | Academic Sector | Role of Participants     |                          | Country | Partner Organisation                |
|---------------------|--|-----------------|--------------------------|--------------------------|---------|-------------------------------------|
|                     |  |                 | Provide training         | Host secondments         |         |                                     |
| 1                   | UNIVERSITAET GRAZ                          | true            | <input type="checkbox"/> | <input type="checkbox"/> | AT      |                                     |
| 2                   | BARCELONA SUPERCOMPUTING CENTER - CE       | true            | <input type="checkbox"/> | <input type="checkbox"/> | ES      | <input type="checkbox"/>            |
| 3                   | CENTRE NATIONAL DE LA RECHERCHE SCIEN      | true            | <input type="checkbox"/> | <input type="checkbox"/> | FR      | <input type="checkbox"/>            |
| 4                   | AGENCIA ESTATAL CONSEJO SUPERIOR DEIN      | true            | <input type="checkbox"/> | <input type="checkbox"/> | ES      | <input type="checkbox"/>            |
| 5                   | KOBENHAVNS UNIVERSITET                     | true            | <input type="checkbox"/> | <input type="checkbox"/> | DK      | <input type="checkbox"/>            |
| 6                   | LUNDS UNIVERSITET                          | true            | <input type="checkbox"/> | <input type="checkbox"/> | SE      | <input type="checkbox"/>            |
| 7                   | UNIVERSITY OF CAPE TOWN                    | true            | <input type="checkbox"/> | <input type="checkbox"/> | ZA      | <input type="checkbox"/>            |
| 8                   | UNIVERSITY OF DURHAM                       | true            | <input type="checkbox"/> | <input type="checkbox"/> | UK      | <input type="checkbox"/>            |
| 9                   | UNIVERSIDAD POLITECNICA DE MADRID          | true            | <input type="checkbox"/> | <input type="checkbox"/> | ES      | <input type="checkbox"/>            |
| 10                  | THE UNIVERSITY OF READING                  | true            | <input type="checkbox"/> | <input type="checkbox"/> | UK      | <input type="checkbox"/>            |
| 11                  | AFRICAN CENTRE OF METEOROLOGICAL APPL      | true            | <input type="checkbox"/> | <input type="checkbox"/> | NE      | <input checked="" type="checkbox"/> |
| 12                  | THE CLIMATE DATA FACTORY                   | false           | <input type="checkbox"/> | <input type="checkbox"/> | FR      | <input checked="" type="checkbox"/> |
| 13                  | DANMARKS METEOROLOGISKE INSTITUT           | true            | <input type="checkbox"/> | <input type="checkbox"/> | DK      | <input checked="" type="checkbox"/> |
| 14                  | FOOD AND AGRICULTURE ORGANIZATION OF       | false           | <input type="checkbox"/> | <input type="checkbox"/> | IT      | <input checked="" type="checkbox"/> |
| 15                  | HORTA SRL                                  | false           | <input type="checkbox"/> | <input type="checkbox"/> | IT      | <input checked="" type="checkbox"/> |
| 16                  | International Livestock Research Institute | true            | <input type="checkbox"/> | <input type="checkbox"/> | KE      | <input checked="" type="checkbox"/> |
| 17                  | ISARDSAT SL                                | false           | <input type="checkbox"/> | <input type="checkbox"/> | ES      | <input checked="" type="checkbox"/> |
| 18                  | JRC -JOINT RESEARCH CENTRE- EUROPEAN C     | true            | <input type="checkbox"/> | <input type="checkbox"/> | BE      | <input checked="" type="checkbox"/> |



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|    |                                       |       |                                  |                                  |    |                                     |
|----|---------------------------------------|-------|----------------------------------|----------------------------------|----|-------------------------------------|
| 19 | UNION DE PEQUENOS AGRICULTORES Y GANA | false | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | ES | <input checked="" type="checkbox"/> |
| 20 | THE WORLD BANK GROUP                  | false | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | US | <input checked="" type="checkbox"/> |

Proposal ID **813667**

Acronym **DECIFER**

Short name **UNI GRAZ**

## 2 - Administrative data of participating organisations

### Coordinator

| PIC       | Legal name        |
|-----------|-------------------|
| 999873188 | UNIVERSITAET GRAZ |

Short name: **UNI GRAZ**

#### Address of the organisation

Street UNIVERSITATSPLATZ 3

Town GRAZ

Postcode 8010

Country Austria

Webpage <http://www.uni-graz.at>

#### Legal Status of your organisation

##### Research and Innovation legal statuses

|   |                          |
|---|--------------------------|
| Public body .....yes                                    | Legal person .....yes    |
| Non-profit .....yes                                     | Academic Sector .....yes |
| International organisation .....no                      |                          |
| International organisation of European interest .....no |                          |
| Secondary or Higher education establishment .....yes    |                          |
| Research organisation .....yes                          |                          |

##### Enterprise Data

SME self-declared status.....2014 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **UNI GRAZ**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **UNI GRAZ**

### Person in charge of the proposal

Title

Sex ☒ Male ☐ Female

First name **Douglas**

Last name **MARAUN**

E-Mail **douglas.maraun@uni-graz.at**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

### Other contact persons

| First Name | Last Name | E-mail                   | Phone |
|------------|-----------|--------------------------|-------|
| Elisabeth  | Mrvka     | euportal@uni-graz.at     |       |
| Karin      | Eisner    | karin.eisner@uni-graz.at |       |



Proposal ID **813667**

Acronym **DECIFER**

Short name **BSC**

## Participant

### PIC

999655520

### Legal name

BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION

*Short name: BSC*

### *Address of the organisation*

Street Calle Jordi Girona 31

Town BARCELONA

Postcode 08034

Country Spain

Webpage www.bsc.es

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2011 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **BSC**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b><i>Character of dependence</i></b> | <b><i>Participant</i></b> |  |
|---------------------------------------|---------------------------|--|
|---------------------------------------|---------------------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **BSC**

*Person in charge of the proposal*

Title

Sex ☒ Male ☐ Female

First name **Francisco**

Last name **Doblas-Reyes**

E-Mail **francisco.doblas-reyes@bsc.es**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

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Country

Website

Phone

Phone 2

Fax



Proposal ID **813667**

Acronym **DECIFER**

Short name **CNRS**

## Participant

### PIC

999997930

### Legal name

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

*Short name: CNRS*

### *Address of the organisation*

Street RUE MICHEL ANGE 3

Town PARIS

Postcode 75794

Country France

Webpage www.cnrs.fr

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2013 - no

SME self-assessment ..... unknown

SME validation sme.....2013 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **CNRS**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b>Character of dependence</b> | <b>Participant</b> |  |
|--------------------------------|--------------------|--|
|--------------------------------|--------------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **CNRS**

### Person in charge of the proposal

Title

Sex ☒ Male ☐ Female

First name **Mathieu**

Last name **Vrac**

E-Mail **mathieu.vrac@lsce.ipsl.fr**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

### Other contact persons

| First Name   | Last Name | E-mail                          | Phone        |
|--------------|-----------|---------------------------------|--------------|
| Nathalie     | de Noblet | nathalie.de-noblet@lsce.ipsl.fr | +33169087726 |
| Laurence     | Bayard    | laurence.bayard@cea.fr          | +33169089657 |
| Marie-Hélène | Papillon  | delegue@dr4.cnrs.fr             | +33169823272 |



Proposal ID **813667**

Acronym **DECIFER**

Short name **CSIC**

## Participant

### PIC

999991722

### Legal name

AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

*Short name: CSIC*

### *Address of the organisation*

Street CALLE SERRANO 117

Town MADRID

Postcode 28006

Country Spain

Webpage <http://www.csic.es>

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status .....2015 - no

SME self-assessment ..... unknown

SME validation sme .....2007 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**





Proposal ID **813667**

Acronym **DECIFER**

Short name **CSIC**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **CSIC**

*Person in charge of the proposal*

Title

Sex ☒ Male ☐ Female

First name **Jose Manuel**

Last name **Gutierrez**

E-Mail **gutierjm@unican.es**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax



Proposal ID **813667**

Acronym **DECIFER**

Short name **UCPH**

## Participant

### PIC

999991043

### Legal name

KOBENHAVNS UNIVERSITET

*Short name: UCPH*

### *Address of the organisation*

Street NORREGADE 10

Town KOBENHAVN

Postcode 1165

Country Denmark

Webpage www.ku.dk

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2012 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **UCPH**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b><i>Character of dependence</i></b> | <b><i>Participant</i></b> |  |
|---------------------------------------|---------------------------|--|
|---------------------------------------|---------------------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **UCPH**

### Person in charge of the proposal

Title

Sex ☒ Male ☐ Female

First name **Jens Hesselbjerg**

Last name **Christensen**

E-Mail **jhc@nbi.ku.dk**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

### Other contact persons

| First Name | Last Name               | E-mail               | Phone       |
|------------|-------------------------|----------------------|-------------|
| SCI-FI     | research and innovation | sci-fi@science.ku.dk | +4535324236 |



Proposal ID **813667**

Acronym **DECIFER**

Short name **LUNDS UNIVERSITET**

## Participant

| <b>PIC</b> | <b>Legal name</b> |
|------------|-------------------|
| 999901318  | LUNDS UNIVERSITET |

*Short name: LUNDS UNIVERSITET*

### *Address of the organisation*

Street Paradisgatan 5c

Town LUND

Postcode 22100

Country Sweden

Webpage www.lu.se

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **LUNDS UNIVERSITET**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b><i>Character of dependence</i></b> | <b><i>Participant</i></b> |  |
|---------------------------------------|---------------------------|--|
|---------------------------------------|---------------------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **LUNDS UNIVERSITET**

*Person in charge of the proposal*

Title

Sex ☐ Male ☒ Female

First name **Emily**

Last name **Boyd**

E-Mail **emily.boyd@lucsus.lu.se**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax





Proposal ID **813667**

Acronym **DECIFER**

Short name **UCT**

## Participant

### PIC

999849229

### Legal name

UNIVERSITY OF CAPE TOWN

*Short name: UCT*

### *Address of the organisation*

Street PRIVATE BAG X3

Town RONDEBOSCH

Postcode 7701

Country South Africa

Webpage www.uct.ac.za

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status .....2012 - no

SME self-assessment ..... unknown

SME validation sme ..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **UCT**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b><i>Character of dependence</i></b> | <b><i>Participant</i></b> |  |
|---------------------------------------|---------------------------|--|
|---------------------------------------|---------------------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **UCT**

*Person in charge of the proposal*

Title

Sex ☒ Male ☐ Female

First name **Bruce**

Last name **Hewitson**

E-Mail **hewitson@csag.uct.ac.za**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax



Proposal ID **813667**

Acronym **DECIFER**

Short name **UNIVERSITY OF DURHAM**

## Participant

| <b>PIC</b> | <b>Legal name</b>    |
|------------|----------------------|
| 999866010  | UNIVERSITY OF DURHAM |

*Short name: UNIVERSITY OF DURHAM*

### *Address of the organisation*

Street STOCKTON ROAD THE PALATINE CENTRE

Town DURHAM

Postcode DH1 3LE

Country United Kingdom

Webpage www.dur.ac.uk

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....no

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2013 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **UNIVERSITY OF DURHAM**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b><i>Character of dependence</i></b> | <b><i>Participant</i></b> |  |
|---------------------------------------|---------------------------|--|
|---------------------------------------|---------------------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **UNIVERSITY OF DURHAM**

*Person in charge of the proposal*

Title

Sex ☐ Male ☒ Female

First name **Wendy**

Last name **Parker**

E-Mail **wendy.parker@durham.ac.uk**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

*Other contact persons*

| First Name | Last Name  | E-mail                      | Phone         |
|------------|------------|-----------------------------|---------------|
| Anna       | Hutchinson | a.k.hutchinson@durham.ac.uk | +441913349224 |
| Luke       | Garnham    | luke.garnham@durham.ac.uk   |               |
| Sally      | Hewlett    | lear.admin@durham.ac.uk     | +441913349244 |



Proposal ID **813667**

Acronym **DECIFER**

Short name **UPM**

## Participant

### PIC

999974844

### Legal name

UNIVERSIDAD POLITECNICA DE MADRID

*Short name: UPM*

### *Address of the organisation*

Street CALLE RAMIRO DE MAEZTU 7 EDIFICIO REC

Town MADRID

Postcode 28040

Country Spain

Webpage www.upm.es

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2007 - no

SME self-assessment ..... unknown

SME validation sme.....2007 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **UPM**

### *Department(s) carrying out the proposed work*

#### **Department 1**

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### *Dependencies with other proposal participants*

| <b>Character of dependence</b> | <b>Participant</b> |  |
|--------------------------------|--------------------|--|
|--------------------------------|--------------------|--|





Proposal ID **813667**

Acronym **DECIFER**

Short name **UPM**

### Person in charge of the proposal

Title

Dr.

Sex



Male



Female

First name **Margarita**

Last name **Ruiz Ramos**

E-Mail **margarita.ruiz.ramos@upm.es**

Position in org.

Associate Professor at UPM and Researcher at CEIGRAM

Department

CEIGRAM - Crop production

☐ Same as organisation

☐ Same as organisation address

Street

Calle Senda del Rey, 13

Town

Madrid

Post code

28040

Country

Spain

Website

www.upm.es; www.ceigram.upm.es

Phone

+34914524815

Phone 2

+34650218941

Fax

+34914524818

### Other contact persons

| First Name | Last Name    | E-mail                 | Phone        |
|------------|--------------|------------------------|--------------|
| Esperanza  | Luque Merelo | esperanza.luque@upm.es | +34914524815 |



Proposal ID **813667**

Acronym **DECIFER**

Short name **UREAD**

## Participant

### PIC

999984156

### Legal name

THE UNIVERSITY OF READING

*Short name: UREAD*

### *Address of the organisation*

Street WHITEKNIGHTS CAMPUS WHITEKNIGHTS H

Town READING

Postcode RG6 6AH

Country United Kingdom

Webpage <http://www.rdg.ac.uk>

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....yes

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2011 - no

SME self-assessment ..... unknown

SME validation sme.....2011 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **UREAD**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **UREAD**

### Person in charge of the proposal

Title

Sex ☒ Male ☐ Female

First name **Theodore**

Last name **Shepherd**

E-Mail **theodore.shepherd@reading.ac.uk**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

### Other contact persons

| First Name | Last Name | E-mail                      | Phone         |
|------------|-----------|-----------------------------|---------------|
| EU-Unit    | Reading   | eu-unit@reading.ac.uk       |               |
| Steve      | Woolnough | s.j.woolnough@reading.ac.uk | +441183784544 |
| Mischa     | Phillips  | m.phillips@reading.ac.uk    |               |



Proposal ID **813667**

Acronym **DECIFER**

Short name **ACMAD CAAM**

## Participant

### PIC

998883012

### Legal name

AFRICAN CENTRE OF METEOROLOGICAL APPLICATION DEVELOPMENT

*Short name: ACMAD CAAM*

### *Address of the organisation*

Street AVENUE DES MINISTERES 85

Town NIAMEY

Postcode 13184

Country Niger

Webpage <http://www.acmad.ne>

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....yes

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status .....2007 - yes

SME self-assessment ..... unknown

SME validation sme .....2007 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **ACMAD CAAM**

### Department(s) carrying out the proposed work

#### No department involved

Department name

☒ not applicable

☐ Same as organisation address

Street

*Please enter street name and number.*

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **ACMAD CAAM**

*Person in charge of the proposal*

Title

Dr.

Sex



Male



Female

First name **Benjamin**

Last name **Lamprey**

E-Mail **bllamprey@gmail.com**

Position in org.

Acting Director General

Department

AFRICAN CENTRE OF METEOROLOGICAL APPLICATION DEVELOPMENT

☒ Same as organisation

☒ Same as organisation address

Street

AVENUE DES MINISTRES 85

Town

NIAMEY

Post code

13184

Country

Niger

Website

www.acmad.net

Phone

+22720734992

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

Short name **THE CLIMATE DATA FACTORY**

## Participant

### PIC

920209028

### Legal name

THE CLIMATE DATA FACTORY

Short name: THE CLIMATE DATA FACTORY

### Address of the organisation

Street 12 RUE DE BELZUNCE

Town PARIS

Postcode 75010

Country France

Webpage www.theclimatedatafactory.com

### Legal Status of your organisation

#### Research and Innovation legal statuses

Public body .....no

Legal person .....yes

Non-profit .....no

Academic Sector .....no

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

### Enterprise Data

SME self-declared status .....2015 - yes

SME self-assessment ..... unknown

SME validation sme ..... unknown

Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.





Proposal ID **813667**

Acronym **DECIFER**

Short name **THE CLIMATE DATA FACTORY**

### Department(s) carrying out the proposed work

#### No department involved

Department name

☒ not applicable

☐ Same as organisation address

Street

*Please enter street name and number.*

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **THE CLIMATE DATA FACTORY**

*Person in charge of the proposal*

Title

Dr.

Sex



Male



Female

First name **Harilaos**

Last name **Loukos**

E-Mail **harilaos.loukos@gmail.com**

Position in org.

CEO

Department

THE CLIMATE DATA FACTORY



Same as organisation



Same as organisation address

Street

12 RUE DE BELZUNCE

Town

PARIS

Post code

75010

Country

France

Website

theclimatedatafactory.com

Phone

+33688908994

Phone 2

+XXX XXXXXXXXX

Fax

+XXX XXXXXXXXX



Proposal ID **813667**

Acronym **DECIFER**

Short name **DANMARKS METEOROLOGISKE INSTITUT**

## Participant

| <b>PIC</b> | <b>Legal name</b>                |
|------------|----------------------------------|
| 999509438  | DANMARKS METEOROLOGISKE INSTITUT |

*Short name: DANMARKS METEOROLOGISKE INSTITUT*

### *Address of the organisation*

Street Lyngbyvej 100

Town KOBENHAVN

Postcode 2100

Country Denmark

Webpage www.dmi.dk

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **DANMARKS METEOROLOGISKE INSTITUT**

### Department(s) carrying out the proposed work

#### Department 1

Department name

Research and Development

☐ not applicable

☒ Same as organisation address

Street

Lyngbyvej 100

Town

KOBENHAVN

Postcode

2100

Country

Denmark

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **DANMARKS METEOROLOGISKE INSTITUT**

*Person in charge of the proposal*

Title

Dr.

Sex



Male



Female

First name **Ole**

Last name **Christensen**

E-Mail **obc@dm.dk**

Position in org.

Senior scientist

Department

Research and Development

☐ Same as organisation

☒ Same as organisation address

Street

Lyngbyvej 100

Town

KOBENHAVN

Post code

2100

Country

Denmark

Website

Phone

+45 39 15 75 00

Phone 2

+xxx xxxxxxxx

Fax

+45 39 15 74 60



Proposal ID **813667**

Acronym **DECIFER**

Short name **FOOD AND AGRICULTURE ORGANIZATIO**

## Participant

### PIC

999608281

### Legal name

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS FAO

*Short name: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS FAO*

### *Address of the organisation*

Street Viale delle Terme di Caracalla

Town ROMA

Postcode 00153

Country Italy

Webpage www.fao.org

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Legal person .....yes

Non-profit .....yes

Academic Sector .....no

International organisation .....yes

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

#### Enterprise Data

SME self-declared status.....2012 - no

SME self-assessment ..... unknown

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **FOOD AND AGRICULTURE ORGANIZATIO**

### Department(s) carrying out the proposed work

#### Department 1

Department name  ☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

#### Department 2

Department name  ☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **FOOD AND AGRICULTURE ORGANIZATIO**

### Person in charge of the proposal

Title

Dr.

Sex



Male



Female

First name **Hideki**

Last name **Kanamaru**

E-Mail **hideki.kanamaru@fao.org**

Position in org.

Natural Resources Officer

Department

Regional Office for Asia and the Pacific

☐ Same as organisation

☐ Same as organisation address

Street

39 Phra Athit Road

Town

Bangkok

Post code

10200

Country

Thailand

Website

www.fao.org

Phone

+6626974313

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx

### Other contact persons

| First Name | Last Name | E-mail                  | Phone        |
|------------|-----------|-------------------------|--------------|
| Mariko     | Fujisawa  | mariko.fujisawa@fao.org | +39657052442 |





Proposal ID **813667**

Acronym **DECIFER**

Short name **HORTA SRL**

## Participant

### PIC

985480134

### Legal name

HORTA SRL

*Short name: HORTA SRL*

### *Address of the organisation*

Street VIA GORRA 55

Town PIACENZA

Postcode 29122

Country Italy

Webpage www.horta-srl.com

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....no

Legal person .....yes

Non-profit .....no

Academic Sector .....no

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

#### Enterprise Data

SME self-declared status .....2013 - yes

SME self-assessment .....2013 - yes

SME validation sme .....2009 - yes

**Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **HORTA SRL**

### Department(s) carrying out the proposed work

#### No department involved

Department name

☒ not applicable

☐ Same as organisation address

Street

*Please enter street name and number.*

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **HORTA SRL**

*Person in charge of the proposal*

Title

Dr.

Sex



Male



Female

First name **Pierluigi**

Last name **Meriggi**

E-Mail **p.meriggi@horta-srl.com**

Position in org.

President

Department

HORTA SRL

☒ Same as organisation

☒ Same as organisation address

Street

VIA GORRA 55

Town

PIACENZA

Post code

29122

Country

Italy

Website

www.horta-srl.it

Phone

+390544483261

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

Short name **ILRI**

## Participant

### PIC

998330791

### Legal name

International Livestock Research Institute

*Short name: ILRI*

### *Address of the organisation*

Street Old Naivasha Rd

Town Nairobi

Postcode 00100

Country Kenya

Webpage www.ilri.org

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2011 - no

SME self-assessment .....2011 - no

SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **ILRI**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **ILRI**

*Person in charge of the proposal*

Title

Dr.

Sex



Male



Female

First name **Dawit**

Last name **Solomon**

E-Mail **d.solomon@cgiar.org**

Position in org.

Regional Programme Leader

Department

ILRI Campus Ethiopia

☐ Same as organisation

☐ Same as organisation address

Street

Gurd Shola Campus / P.O. Box 5689

Town

Addis Ababa

Post code

Country

Ethiopia

Website

www.ilri.org/ethiopia ccafs.cgiar.org/regions/east-africa

Phone

+251116172194

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

Short name **isardSAT**

## Participant

### PIC

997054077

### Legal name

ISARDSAT SL

*Short name: isardSAT*

### *Address of the organisation*

Street CONGRES 49 51

Town Barcelona

Postcode 08031

Country Spain

Webpage www.isardsat.cat

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....no

Non-profit .....no

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

Legal person .....yes

Academic Sector .....no

#### Enterprise Data

SME self-declared status.....2016 - yes

SME self-assessment .....2016 - yes

SME validation sme.....2009 - yes

**Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **isardSAT**

### Department(s) carrying out the proposed work

#### No department involved

Department name

☒ not applicable

☐ Same as organisation address

Street

*Please enter street name and number.*

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|





Proposal ID **813667**

Acronym **DECIFER**

Short name **isardSAT**

*Person in charge of the proposal*

Title

Ms

Sex



Male



Female

First name **Laia**

Last name **Romero**

E-Mail **laia.romero@isardsat.cat**

Position in org.

Director of Operations and Strategy

Department

ISARDSAT SL

☒ Same as organisation

☐ Same as organisation address

Street

Carrer Marie Curie 8-14

Town

Barcelona

Post code

08042

Country

Spain

Website

www.isardSAT.cat

Phone

+34933505508

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

Short name **JRC**

## Participant

| <b>PIC</b> | <b>Legal name</b>                               |
|------------|---|
| 999992304  | JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION |

*Short name: JRC*

### *Address of the organisation*

Street Rue de la Loi 200

Town BRUSSELS

Postcode 1049

Country Belgium

Webpage <http://www.jrc.ec.europa.eu>

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....yes

Legal person .....yes

Academic Sector .....yes

#### Enterprise Data

SME self-declared status.....2007 - no

SME self-assessment ..... unknown

SME validation sme.....2007 - no

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**

Proposal ID **813667**

Acronym **DECIFER**

Short name **JRC**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

#### Department 2

Department name

☐ not applicable

☐ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|

Proposal ID **813667**

Acronym **DECIFER**

Short name **JRC**

### Person in charge of the proposal

Title

Sex ☒ Male ☐ Female

First name **Andrea**

Last name **Toreti**

E-Mail **andrea.toreti@ec.europa.eu**

Position in org.

Department

☐ Same as organisation

☐ Same as organisation address

Street

Town

Post code

Country

Website

Phone

Phone 2

Fax

### Other contact persons

| First Name | Last Name | E-mail                         | Phone         |
|------------|-----------|--------------------------------|---------------|
| Stefano    | Galmarini | stefano.galmarini@ec.europa.eu | +390332785382 |
| Alessandro | Dosio     | alessandro.dosio@ec.europa.eu  | +390332786626 |



Proposal ID **813667**

Acronym **DECIFER**

Short name **UPA**

## Participant

| <b>PIC</b> | <b>Legal name</b>                          |
|------------|--|
| 937914535  | UNION DE PEQUENOS AGRICULTORES Y GANADEROS |

*Short name: UPA*

### *Address of the organisation*

Street CALLE AGUSTIN DE BETANCOURT 17/3

Town MADRID

Postcode 28003

Country Spain

Webpage upa@upa.es

### *Legal Status of your organisation*

#### Research and Innovation legal statuses

|   |     |                       |     |
|---|-----|-----------------------|-----|
| Public body .....                                     | no  | Legal person .....    | yes |
| Non-profit .....                                      | yes | Academic Sector ..... | no  |
| International organisation .....                      | no  |                       |     |
| International organisation of European interest ..... | no  |                       |     |
| Secondary or Higher education establishment .....     | no  |                       |     |
| Research organisation .....                           | no  |                       |     |

#### Enterprise Data

SME self-declared status.....2016 - no  
SME self-assessment ..... unknown  
SME validation sme..... unknown

**Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.**



Proposal ID **813667**

Acronym **DECIFER**

Short name **UPA**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☒ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **UPA**

*Person in charge of the proposal*

Title

Mr.

Sex



Male



Female

First name **Javier**

Last name **Alejandro**

E-Mail **jalejandro@upa.es**

Position in org.

Farmer

Department

Technical Department

☐ Same as organisation

☒ Same as organisation address

Street

CALLE AGUSTIN DE BETANCOURT 17/3

Town

MADRID

Post code

28003

Country

Spain

Website

www.upa.es

Phone

+34672486255

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

Short name **THE WORLD BANK GROUP**

## Participant

### PIC

994857803

### Legal name

THE WORLD BANK GROUP

Short name: *THE WORLD BANK GROUP*

### Address of the organisation

Street H STREET 1818

Town WASHINGTON DC

Postcode 20433

Country United States

Webpage [www.worldbank.org/](http://www.worldbank.org/)

### Legal Status of your organisation

#### Research and Innovation legal statuses

Public body .....yes

Non-profit .....yes

International organisation .....no

International organisation of European interest .....no

Secondary or Higher education establishment .....no

Research organisation .....no

Legal person .....yes

Academic Sector .....no

### Enterprise Data

SME self-declared status..... unknown

SME self-assessment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.





Proposal ID **813667**

Acronym **DECIFER**

Short name **THE WORLD BANK GROUP**

### Department(s) carrying out the proposed work

#### Department 1

Department name

☐ not applicable

☒ Same as organisation address

Street

Town

Postcode

Country

### Dependencies with other proposal participants

| Character of dependence | Participant |  |
|-------------------------|-------------|--|
|-------------------------|-------------|--|



Proposal ID **813667**

Acronym **DECIFER**

Short name **THE WORLD BANK GROUP**

*Person in charge of the proposal*

Title

Dr.

Sex

☐

Male

☒

Female

First name **Ana Elisa**

Last name **Bucher**

E-Mail **abucher@worldbank.org**

Position in org.

Senior Climate Change Specialist

Department

Climate Change Group

☐ Same as organisation

☒ Same as organisation address

Street

H STREET 1818

Town

WASHINGTON DC

Post code

20433

Country

United States

Website

www.worldbank.org

Phone

+12024585249

Phone 2

+xxx xxxxxxxxx

Fax

+xxx xxxxxxxxx



Proposal ID **813667**

Acronym **DECIFER**

### 3 - Budget

| Researcher Number | Recruiting Participant<br>(short name) | Planned start month | Duration<br>(months) |
|-------------------|--|---------------------|----------------------|
| 1                 | UPM                                    | 7                   | 36                   |
| 2                 | CNRS                                   | 7                   | 36                   |
| 3                 | BSC                                    | 7                   | 36                   |
| 4                 | UREAD                                  | 7                   | 36                   |
| 5                 | UCPH                                   | 7                   | 36                   |
| 6                 | UNI GRAZ                               | 7                   | 36                   |
| 7                 | CSIC                                   | 7                   | 36                   |
| 8                 | CNRS                                   | 7                   | 36                   |
| 9                 | UNI GRAZ                               | 7                   | 36                   |
| 10                | UNIVERSITY OF DURHAM                   | 7                   | 36                   |
| 11                | UCT                                    | 7                   | 36                   |



Proposal ID **813667**

Acronym **DECIFER**

| Researcher Number | Recruiting Participant<br>(short name) | Planned start month | Duration<br>(months) |
|-------------------|--|---------------------|----------------------|
| 12                | LUNDS UNIVERSITET                      | 7                   | 36                   |
| Total             |  |                     | 432                  |

| Participant<br>Number | Organisation Short Name | Country | IOEI | No of<br>researchers | Number of<br>person.months | Researcher Unit Cost |                       |                     | Institutional Unit Cost                          |                             | TOTAL     |
|-----------------------|-------------------------|---------|------|----------------------|----------------------------|----------------------|-----------------------|---------------------|--|-----------------------------|-----------|
|                       |                         |         |      |                      |                            | Living<br>allowance  | Mobility<br>Allowance | Family<br>Allowance | Research,<br>training and<br>networking<br>costs | Management<br>and overheads |           |
| 1                     | UNI GRAZ                | AT      | no   | 2                    | 72                         | 251214,48            | 43200,00              | 18000,00            | 129600,00  | 86400,00                    | 528414,48 |
| 2                     | BSC                     | ES      | no   | 1                    | 36                         | 112304,88            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 250904,88 |
| 3                     | CNRS                    | FR      | no   | 2                    | 72                         | 272404,08            | 43200,00              | 18000,00            | 129600,00  | 86400,00                    | 549604,08 |
| 4                     | CSIC                    | ES      | no   | 1                    | 36                         | 112304,88            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 250904,88 |
| 5                     | UCPH                    | DK      | no   | 1                    | 36                         | 158922,00            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 297522,00 |
| 6                     | LUNDS UNIVERSITET       | SE      | no   | 1                    | 36                         | 143382,96            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 281982,96 |
| 7                     | UCT                     | ZA      | no   | 1                    | 36                         | 59801,76             | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 198401,76 |
| 8                     | UNIVERSITY OF DURHAM    | UK      | no   | 1                    | 36                         | 164572,56            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 303172,56 |
| 9                     | UPM                     | ES      | no   | 1                    | 36                         | 112304,88            | 21600,00              | 9000,00             | 64800,00   | 43200,00                    | 250904,88 |



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| Participant Number | Organisation Short Name | Country | IOEI | No of researchers | Number of person.months | Researcher Unit Cost |                    |                  | Institutional Unit Cost                 |                          | TOTAL      |
|--------------------|-------------------------|---------|------|-------------------|-------------------------|----------------------|--------------------|------------------|---|--------------------------|------------|
|                    |                         |         |      |                   |                         | Living allowance     | Mobility Allowance | Family Allowance | Research, training and networking costs | Management and overheads |            |
| 10                 | UREAD                   | UK      | no   | 1                 | 36                      | 164572,56            | 21600,00           | 9000,00          | 64800,00                                | 43200,00                 | 303172,56  |
| 11                 | ACMAD CAAM              | NE      | yes  | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 12                 | THE CLIMATE DATA FACT   | FR      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 13                 | DANMARKS METEOROLO      | DK      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 14                 | FOOD AND AGRICULTURE    | IT      | yes  | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 15                 | HORTA SRL               | IT      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 16                 | ILRI                    | KE      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 17                 | isardSAT                | ES      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 18                 | JRC                     | BE      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 19                 | UPA                     | ES      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| 20                 | THE WORLD BANK GROU     | US      | no   | 0                 | 0                       | 0,00                 | 0,00               | 0,00             | 0,00                                    | 0,00                     | 0,00       |
| Total              |                         |         |      | 12                | 432                     | 1551785,04           | 259200,00          | 108000,00        | 777600,00                               | 518400,00                | 3214985,04 |

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## 4 - Ethics

|  |   |      |
|--|---|------|
| <b>1. HUMAN EMBRYOS/FOETUSES</b>   |   | Page |
| Does your research involve <a href="#">Human Embryonic Stem Cells (hESCs)</a> ?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Does your research involve the use of human embryos?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Does your research involve the use of human foetal tissues / cells?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>2. HUMANS</b>   |   | Page |
| Does your research involve human participants?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Does your research involve physical interventions on the study participants?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>3. HUMAN CELLS / TISSUES</b>  |   | Page |
| Does your research involve human cells or tissues (other than from Human Embryos/ Foetuses, i.e. section 1)?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>4. PERSONAL DATA</b>  |   | Page |
| Does your research involve personal data collection and/or processing?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>5. ANIMALS</b>  |   | Page |
| Does your research involve animals?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>6. THIRD COUNTRIES</b>  |   | Page |
| In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)? | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Do you plan to import any material - including personal data - from non-EU countries into the EU?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Do you plan to export any material - including personal data - from the EU to non-EU countries?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| In case your research involves <a href="#">low and/or lower middle income countries</a> , are any benefits-sharing actions planned?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Could the situation in the country put the individuals taking part in the research at risk?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>7. ENVIRONMENT &amp; HEALTH and SAFETY</b>  |   | Page |

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|   |   |      |
|---|---|------|
| Does your research involve the use of elements that may cause harm to the environment, to animals or plants?                          | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Does your research deal with endangered fauna and/or flora and/or protected areas?  | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| Does your research involve the use of elements that may cause harm to humans, including research staff?                               | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>8. DUAL USE</b>  |   | Page |
| Does your research involve dual-use items in the sense of Regulation 428/2009, or other items for which an authorisation is required? | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>9. EXCLUSIVE FOCUS ON CIVIL APPLICATIONS</b>   |   | Page |
| Could your research raise concerns regarding the exclusive focus on civil applications?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>10. MISUSE</b>   |   | Page |
| Does your research have the potential for misuse of research results?   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |
| <b>11. OTHER ETHICS ISSUES</b>  |   | Page |
| Are there any other ethics issues that should be taken into consideration? Please specify   | <input type="radio"/> Yes <input checked="" type="radio"/> No |      |

I confirm that I have taken into account all ethics issues described above and that, if any ethics issues apply, I will complete the ethics self-assessment and attach the required documents. ☒

[How to Complete your Ethics Self-Assessment](#)

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## 5 - Call Specific Questions

### *Extended Open Research Data Pilot in Horizon 2020*

If selected, applicants will by default participate in the [Pilot on Open Research Data in Horizon 2020](#)<sup>1</sup>, which aims to improve and maximise access to and re-use of research data generated by actions.

However, participation in the Pilot is flexible in the sense that it does not mean that all research data needs to be open. After the action has started, participants will formulate a [Data Management Plan \(DMP\)](#), which should address the relevant aspects of making data FAIR – findable, accessible, interoperable and re-usable, including what data the project will generate, whether and how it will be made accessible for verification and re-use, and how it will be curated and preserved. Through this DMP projects can define certain datasets to remain closed according to the principle "as open as possible, as closed as necessary". A Data Management Plan does not have to be submitted at the proposal stage.

Furthermore, applicants also have the possibility to opt out of this Pilot completely at any stage (before or after the grant signature). In this case, applicants must indicate a reason for this choice (see options below).

Please note that participation in this Pilot does not constitute part of the evaluation process. Proposals will not be penalised for opting out.

We wish to opt out of the Pilot on Open Research Data in Horizon 2020.

☐ Yes

☒ No

Further guidance on open access and research data management is available on the participant portal:

[http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination\\_en.htm](http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination_en.htm) and in general annex L of the Work Programme.

<sup>1</sup> According to article 43.2 of Regulation (EU) No 1290/2013 of the European Parliament and of the Council, of 11 December 2013, laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006.



## **START PAGE**

MARIE Skłodowska-CURIE ACTIONS

**Innovative Training Networks (ITN)  
Call: H2020-MSCA-ITN-2018**



**Distilling Ensemble Climate Information  
for Food sEcuRity**

## **PART B**

**This proposal is to be evaluated as:**

**[ETN]**

**Table of Content****DOCUMENT 1 (813667-DECIFER-Part B1)**

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| TABLE OF CONTENTS                                 | 2 |
| LIST OF PARTICIPATING ORGANISATIONS (max 2 pages) | 3 |

**START page count (max 30 pages SECTIONS 1-3)**

|   |    |
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| 3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION | 21 |

**STOP page count (MAX 30 PAGES Sections 1-3)**

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***NO OVERALL PAGE LIMIT APPLIED***

|  |    |
|--|----|
| 4. Gantt CHART                                   | 35 |
| 5. Capacities of the PARTICIPATING ORGANISATIONS | 36 |
| 6. Ethical ISSUES                                | 51 |
| 7. Letters of commitment                         | 55 |

**LIST OF PARTICIPATING ORGANISATIONS**

| Consortium Member   | Legal Entity Short Name | Academic | Non-academic | Awards Doctoral Degrees                     | Country      | Dept./ Division / Laboratory  | Scientist-in-Charge  | Role of Partner Organisation  |
|---|-------------------------|----------|--------------|---|--------------|---|--|---|
| <b>Beneficiaries</b>  |                         |          |              |   |              |   |  |   |
| University of Graz  | UG                      | X        |              | X   | Austria      | Wegener Center for Climate and Global Change  | Prof. Dr. Douglas Maraun                                   |   |
| Barcelona Supercomputing Center                               | BSC                     | X        |              | X with Universitat Politecnica de Catalunya | Spain        | Earth Sciences Department   | Prof. Dr. Francisco Doblas-Reyes                           |   |
| LSCE/CNRS   | CNRS                    | X        |              | X with U Paris-Saclay                       | France       | ESTIMR/Laboratoire des Sciences du Climat et de l'Environnement                           | Senior Scientists Dr. Nathalie de Noblet, Dr. Mathieu Vrac |   |
| Spanish Research Council                                      | CSIC                    | X        |              | X with U Cantabria                          | Spain        | Institute of Physics of Cantabria   | Prof. Dr. Jose Gutierrez                                   |   |
| Lund University   | LU                      | X        |              | X   | Sweden       | Lund University Center for Sustainability Studies   | Prof. Dr. Emily Boyd                                       |   |
| University of Cape Town                                       | UCT                     | X        |              | X   | South Africa | Environmental and Geographical Science  | Prof. Dr. Bruce Hewitson                                   |   |
| University of Copenhagen                                      | UCPH                    | X        |              | X   | Denmark      | Niels Bohr Institute  | Prof. Dr. Jens Christensen                                 |   |
| University of Durham  | UD                      | X        |              | X   | UK           | Department of Philosophy  | Prof. Dr. Wendy Parker                                     |   |
| Universidad Politecnica de Madrid                             | UPM                     | X        |              | X   | Spain        | Research Centre for the Management of Agricultural and Environmental Risks                | Senior Scientist Dr. Margarita Ruiz-Ramos                  |   |
| University of Reading   | UR                      | X        |              | X   | UK           | Department of Meteorology   | Prof. Dr. Ted Shepherd<br>Prof. Dr. Steve Woolnough        |   |
| <b>Partner Organisations</b>                                  |                         |          |              |   |              |   |  |   |
| African Centre of Meteorological Applications for Development | ACMAD                   | X        |              |   | Niger        |   | Dr. Benjamin L. Lamptey, Acting Director General           | host secondments; training courses; dissemination   |
| The Climate Data Factory                                      | TCDF                    |          | X            |   | France       |   | Dr. Harilaos Loukos  | co-supervision; host secondment; training courses; participate in career and climate information workshop |
| Danish Meteorological Institute                               | DMI                     | X        |              |   | Denmark      | Dpt. of Research & Development  | Senior Scientist Dr. Ole B. Christensen                    | co-supervision of UCPH-based ESR  |
| United Nations Food and Agriculture Organisation              | FAO                     |          | X            |   | Italy        | Climate, Biodiversity, Land and Water Management Regional Office for Asia and the Pacific | Dr. Hideki Kanamaru, Dr. Mariko Fujisawa                   | co-supervision, host secondments; keynote lectures; training courses; participate in career workshop      |
| HORTA   | HORTA                   |          | X            |   | Italy        |   | Pierluigi Meriggi, President                               | host secondments; contribution to training; participate in career workshop                                |

|   |          |   |   |  |                 |   |  |  |
|---|----------|---|---|--|-----------------|---|--|--|
| International Livestock Research Institute/ CCAFS East Africa | CCAFS    | X |   |  | Kenya/ Ethiopia | ILRI Ethiopia Campus                              | Dr. Dawit Solomon, Regional Programme Leader                       | co-supervision; hosting secondments; training courses; dissemination.                                |
| IsardSAT  | IsardSAT |   | X |  | Spain           |   | Laia Romero<br>Dr. Maria J. Escorihuela<br>Bernat Martinez         | host one secondment (data and model evaluation)  |
| European Commission, Joint Research Centre                    | JRC      | X |   |  | Belgium/ Italy  | Sustainable Resources Space, Security & Migration | Dr. Stefano Galmarini<br>Dr. Andrea Toreti<br>Dr. Alessandro Dosio | co-supervision; host secondments; contribution to training; participate in career workshop           |
| Unión de Pequeños Agricultores y Ganaderos                    | UPA      |   | X |  | Spain           | Technical Department                              | Javier Alexandre, Farmer   | host one secondment (citizen science)  |
| The World Bank  | WB       |   | X |  | USA             | Environment Department                            | Dr. Ana E. Bucher  | co-supervision, host secondments; keynote lectures; training courses; participate in career workshop |

### Data for non-academic beneficiaries:

| Name | Location of research premises (city / country) | Type of R&D activities | No. of full-time employees | No. of employees in R&D | Web site | Annual turnover (in Euro) | Enterprise status (Yes/No) | SME status (Yes/No) |
|------|--|------------------------|----------------------------|-------------------------|----------|---------------------------|----------------------------|---------------------|
| NA   | NA   | NA                     | NA                         | NA                      | NA       | NA                        | NA                         | NA                  |

### Declarations

| Name (institution / individual) | Nature of inter-relationship |
|---------------------------------|------------------------------|
| NA                              | NA                           |

# 1. Excellence

## 1.1 *Quality, innovative aspects and credibility of the research programme*

### 1.1.1 Introduction, objectives and overview of the research programme

“Zero hunger” (i.e. food security) is one of the most fundamental of the United Nations (UN) 17 **Sustainable Development Goals** (SDGs). European and African food security are interconnected: Europe exports substantial amounts of wheat to African countries, and food shortage in Africa increases migration pressure to Europe. The European Union (EU) thus developed a policy framework to assist developing countries in addressing food security challenges and initiated joint actions such as the PRIMA program on Food Security in the Mediterranean.

**Climate change (CC) affects food security.** The Mediterranean experienced water shortage and reduced crop yield in recent years, and Sub-Saharan Africa is often affected by drought and flooding. The Mediterranean is a CC hotspot and in many African countries, food production is projected to decline<sup>1</sup>. These impacts add to social drivers such as poverty and political conflicts. In response, the UN Framework Convention on Climate Change<sup>2</sup> and the 2015 Paris agreement of the 21st Conference of the Parties highlight the importance of food security and climate-smart agriculture.

**Defensible climate information is therefore urgently needed** to better serve climate service providers and decision makers: government agencies, international organisations (e.g. UN Food and Agriculture Organisation, FAO, World Bank), the disaster risk community (e.g. Red Cross/Red Crescent), city communities relying on peri-urban farming, and private companies. Food producers, e.g., need to strategically plan investments into specific growing regions, and breeding of new varieties takes a decade. International projects have been initiated to produce and analyse ensemble projections of CC and its impacts such as CMIP (global modelling), CORDEX (regional modelling), ISIMIP and AgMIP (impact modelling). The World Climate Research Programme (WCRP) has explicitly dedicated one of its **Grand Challenges** to “**Water for the Food Baskets of the World**”.

But Barsugli et al.<sup>3</sup> point out the **practitioner’s dilemma**: web-based access to a proliferation of climate projections is available, but only little information about their credibility. Recently<sup>4</sup>, **substantial uncertainties about regional CC** have been highlighted. In fact, results from different sources are often contradictory<sup>5</sup>. Users often demand bias correction of climate models, but this approach - if applied without process understanding - may introduce severe artefacts<sup>6</sup>. In particular for Africa, **observational data are often poor**. Adams et al.<sup>7</sup> lay out the **ethical-epistemic dimension**: should we provide uncertain climate information, if it affects the livelihoods of millions of people? As a result, **decision makers often ignore climate information**.

Thus, a **call for climate information distillation (CID)** has emerged<sup>8</sup>: in a given user case, we have to understand the limitations of our climate projections, how to construct relevant climate information based on these projections, and how to optimally and responsibly communicate and use this information. CID is particularly important in Africa: the continent is very vulnerable to CC, and at the same time cannot afford wasting money for maladaptation resulting from inadequate or incomplete climate information.

The research and training needed for CID is highly **interdisciplinary and intersectoral**: it spans understanding of climate processes, statistical post-processing of model output, communicating climate information, and assessing ethical responsibilities. It needs to bring together scientists, climate service providers, (non-academic) public and private decision makers, and private companies. In the context of food security, **international collaboration** is essential. Thus, **ITNs are an ideal platform to train ESRs for CID**.

The **aim of DECIFER** is to shape an **interdisciplinary and intersectoral research and training community to distill defensible and user-relevant information about agricultural impacts of CC in the Mediterranean (MED) and Northern Africa (NA, mediterranean and warm semi-arid Sub-Saharan climates)**.

<sup>1</sup> Giorgi, F. and Bi, X. (2009), Time of emergence (TOE) of GHG-forced precipitation change hot-spots, Geophys. Res. Lett. 36, L06709; Müller, C., Cramer, W., Hare, W.L., and Lotze-Campen, H. (2011), Climate change risks for African agriculture, Proc. Nat. Acad. Sci. 108(11), 4313-4315.

<sup>2</sup> UNFCCC, United Nations, 1992. FCCC/INFORMAL/84 GE.05-62220 (E) 200705. Available at [www.unfccc.int](http://www.unfccc.int).

<sup>3</sup> Barsugli, J. J. et al. (2013), The practitioner’s dilemma: How to assess the credibility of downscaled climate projections, EOS 94(46), 424–425.

<sup>4</sup> Shepherd, T.G. (2014), Atmospheric circulation as a source of uncertainty in climate change projections, Nat. Geosci. 7, 703–708; Hall, A. (2014), Projecting regional change, Science 346(6216), 1461–1462.

<sup>5</sup> Hewitson, B. C. et al. (2014), Interrogating empirical-statistical downscaling, Clim. Change 122, 539–554.

<sup>6</sup> Maraun, D., Shepherd, T. G., Widmann, M., Zappa, G., Walton, D., Gutierrez, J.M., et al. (2017), Towards process-informed bias correction of climate change simulations, Nat. Clim. Change 7, 764–773.

<sup>7</sup> Adams, P., Eitland, E., Hewitson, B., Vaughan, C., Wilby, R. and Zebiak, S. (2015), Toward an ethical framework for climate services. A white paper of the climate services partnership working group on climate services ethics.

<sup>8</sup> WCRP WGRC Expert Meeting on Climate Information “Distillation”. 10/2014, Santander, Spain; IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies, 9/2015, São José dos Campos, Brazil.

A focus will be on exceeding thresholds critical for crop phenology. We will (1) advance the understanding of uncertainties of climatic changes and their impact on agriculture; (2) develop and apply procedures to better integrate users in the research process and to tailor and communicate information for decision making; and (3) improve the understanding of how to responsibly provide climate change information under substantial uncertainties. Specifically we address the following **objectives**:

- 1) Co-design the details of DECIFER research with users (represented by partner organisations) and co-produce and co-explore defensible and salient information about CC impacts on agriculture in our target regions.
- 2) Understand the sensitivity of agricultural impact assessments to climate model biases, and the complementarity of agricultural modelling approaches (statistical/process-based) for contrasting modelling challenges.
- 3) Assess the credibility of climate change simulations for agricultural impact assessments in our target regions by understanding the causes and consequences of climate model errors.
- 4) Understand the statistical correctability of climate model biases for agricultural modelling, improving bias correction methods and developing process-informed bias correction methods.
- 5) Understand what defensible information we have about agricultural impacts in our target regions, what information we can in principle provide based on climate and agricultural models, and how research to provide this information can take account of the values and perceptions in the adoption of climate information.
- 6) Examine what it means to provide climate information in a responsible way and understand the cross-cultural and relational ways in which multiple modelers and users can interact.

**Stakeholders and users** relevant for DECIFER are, beyond the climate and climate impacts research communities: government agencies, international organisations involved in climate services, climate impacts adaptation and climate-smart agriculture, the disaster risk community, city communities relying on peri-urban farming, and private companies (e.g., food producers, insurance companies, seed companies). A close interaction with users will be ensured by our partner organisations, and focussing on specific **target countries (Spain, France, Italy, Niger, Ethiopia)** in addition to the broader assessments across the whole MED and NA.

Addressing food security, we will consider **cereal crops such as sorghum, millet, maize and wheat**. DECIFER addresses the entire seasonal cycle from sowing to harvest and crop status throughout its life cycle, and the resulting yield. This will be achieved using both specific crop models, and eco-climatic indicators (which describe meteorological stress per phenological stage of the crop).

In the MED and in particular in NA (where agriculture is predominantly rainfed), yield is strongly impaired by heat- and water stress and their compound effect, by flooding, and by shifts away from favourable climatic conditions during the growing season. Thus, the meteorological phenomena relevant for DECIFER are **changes in mean temperature and precipitation and their seasonality, changes in the interannual variability, as well as changes in extremes, e.g. drought, heatwaves, and heavy precipitation**.

Drought and heatwaves are controlled by persistent patterns of the atmospheric circulation and are amplified by land-atmosphere feedbacks. In the target regions, heavy precipitation is caused by deep, organised convection which is embedded in larger-scale systems such as Medicanes and the West African monsoon. Climate variability in Africa is strongly affected by interannual El Nino/Southern Oscillation (ENSO) variability and remote influences of the Madden Julian oscillation (MJO). Changes in mean climate as well as climate variability and extremes will depend on the possible expansion and weakening of the Hadley circulation. DECIFER thus has to address the representation of these climate processes and their response to climate change in state-of-the-art global and regional climate models (GCMs/RCMs), and the statistical correctability of related biases.

In the spirit of the abovementioned WCRP Grand Challenge, DECIFER focuses on long-term climatic changes from **decadal to centennial time-scales**. On these time-scales, the skill of current models in predicting surface climate changes over land stems essentially from anthropogenic forcings. Thus DECIFER will explore non-initialised ensembles of climate change simulations (known as climate projections; additionally, we will employ decadal predictions, but interpreted as climate projections) and address - for a given case - at what lead times we can identify emergence of risk from internal climate variability.

We are aware of the **limited quality and availability of observational data**, in particular in NA. Improving observational data quality and availability is beyond the project scope. But we will consider uncertainties of gridded data sets for the African continent, which have been assessed by UTC within the FRACTAL project.

Climate information provision has a deep **ethical-epistemic dimension**: knowing that our models have substantial limitations and cannot be evaluated now against future observations, which information can we responsibly provide? Do we have to withhold information if the uncertainties are so large such that our projections

may result in wrong adaptation decisions? DECIFER will address this question informed by our specific case studies. Thereby, DECIFER also explicitly contributes to **responsible research and innovation**.

Climate and climate change information is often not provided in a way that is useful for users. Often, the information is not relevant, because the way it is aggregated does not match the user problem, uncertainties and their interpretation in a given context are not precisely communicated, or they are misunderstood. **How information should be integrated and communicated**, and how a fruitful interaction between users and providers could be organised, is central to DECIFER.

DECIFER deliberately does not address social or economic impacts beyond the agricultural impacts. Its focus is on climate science and the social and ethical aspects of climate information provision.

The **early stage researcher (ESR) projects** will be aligned with the interdisciplinary objectives. Each ESR will work on **disciplinary tasks**, and additionally in an **interdisciplinary collaboration** (via secondments and/or co-supervision) with other beneficiaries. Further details can be found in Section 1.1.2. and Table 3.1d.

### 1.1.2 Research methodology and approach

DECIFER is interdisciplinary and integrates methodologies from agricultural science, meteorology, seasonal climate prediction and climate change research, statistics, philosophy and social sciences. Defining and learning a

common vocabulary will thus be a key part of DECIFER (via workshops and interdisciplinary training schools).

A key element in DECIFER is the **integration of climate information users** in the project, from the proposal writing stage to the exploration and dissemination. DECIFER thus does not apply a top-down approach but rather an iterative process involving **Co-Design, Co-Production and Co-Exploration**. The overarching role of users is emphasised in the design of work-packages (WPs, see Fig. 1 and Table 1.1 below).

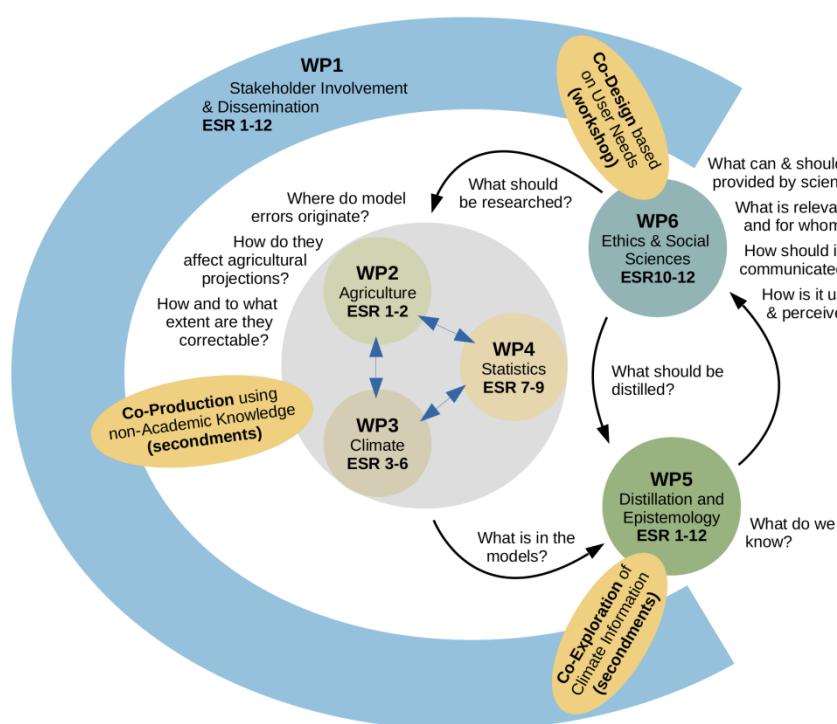


Fig 1. DECIFER Workpackages and involved ESRs.

Table 1.1: Work Package (WP) List

| WP No. | WP Title                                  | Lead Beneficiary No. | Start Month | End Month | Activity Type                   | Lead Beneficiary Short Name | ESR involvement     |
|--------|---|----------------------|-------------|-----------|---------------------------------|-----------------------------|---------------------|
| 1      | Stakeholder Involvement and Dissemination | 3                    | 1           | 48        | user interaction, dissemination | CNRS                        | ESR1-12             |
| 2      | Agriculture                               | 9                    | 1           | 48        | research                        | UPM                         | ESR1-2              |
| 3      | Climate                                   | 7                    | 1           | 48        | research                        | UCPH                        | ESR3-6              |
| 4      | Statistics                                | 4                    | 1           | 48        | research                        | CSIC                        | ESR7-9              |
| 5      | Distillation & Epistemology               | 6                    | 1           | 48        | research                        | UCT                         | ESR1-12             |
| 6      | Ethics & Social Sciences                  | 5                    | 1           | 48        | research                        | LU                          | ESR10-12            |
| 7      | Management                                | 1                    | 1           | 48        | management                      | UG                          | ESR1-12 (contrib.)  |
| 8      | Training                                  | 8                    | 1           | 48        | training                        | UD                          | ESR1-12 (particip.) |

**WP1** is the anchor for all **user interaction and dissemination** activities. User needs will be integrated in the earliest stage at the very beginning of the project by scientific debate during the kick-off meeting, and by early secondments. These are organised to better understand the requirements of our partners (e.g., the World Bank,

FAO, and others), and to optimally link to their existing activities and projects. During the course of the project, secondments with non-academic partner organisations will enable the co-production of user-relevant climate and agronomic information. During the final phase, WP1 will build upon the results of all other WPs and work with the non-academic partner organisations to co-analyse, interpret and further communicate the results.

**WP2** will address uncertainties in **agricultural projections** (yield and other adaptation-relevant agro-information). The main objective is to understand how climate model errors and bias correction translate into biases in agro-indicators and yields. A key issue is to target the most important variables to correct, and diagnose which ones may not too strongly influence the results. Important foci will be the crossing of critical biophysical thresholds, the frequency and magnitude of extreme events, and their impact on risks/opportunities for crops.

**Two complementary approaches** will be used: ESR1 will focus on **physical agricultural models** (own simulations and existing simulations from AgMIP & MACSUR), and ESR2 on **eco-climatic indicators (ECIs)**. Models and indicators will be calibrated for our target regions (likely Spain, France, Italy, Niger, Ethiopia, to be decided in consultation with partner organisations) and a small number of crops (sorghum, millet, maize, wheat, potentially others depending on partner organisations and data availability/quality for the calibration of models/indicators). ECI are derived from hydro-meteorological data and represent weather and climate stress for specific crops. They can easily be calculated for a wide range of crops and the whole MED and NA regions. The results for both approaches will be compared over the target regions.

Models and indicators will be driven with ensembles of raw and bias corrected climate model simulations (reanalysis driven RCM simulations, historical and future GCM and RCM-downscaled GCM simulations). We will investigate the following issues: (1) the influence of different climate model errors and (2) different bias correction methods on agricultural simulations; (3) the occurrence of artefacts in agricultural simulations when attempting to bias correct severe model errors; (4) the potential added value of RCMs for agricultural modelling.

The agricultural model evaluation will have a **citizen science** component: In collaboration with the partner organisation UPA, farmers will inform us via a simple app (to be developed by ESR1+2 and a programmer) about meteorological stress on their crop, and we will evaluate whether our tools correctly predict these conditions.

**WP3** will provide the **physical climate science basis** for the agricultural projections and distillation. The main objective is **to understand major model biases and uncertainties** in meteorological and climatic processes relevant for crop yield in MED and NA, their time dependence, and how they affect climate projections. We will focus, at the large scale, on biases in teleconnections (**ESR3**) and the atmospheric circulation (**ESR4**); and at the local scale on biases in soil-moisture temperature (**ESR5**) as well as soil-moisture precipitation feedbacks and convection (**ESR6**). ACMAD and CCAFS with their knowledge of local climatic conditions will provide relevant input to the identification of these processes.

Large-scale errors will be analysed in existing GCM-based climate change (mainly CMIP5) and decadal prediction simulations, local-scale errors in existing GCM and RCM (CORDEX-Africa, Euro-CORDEX and Med-CORDEX) simulations as well as in targeted short but very high-resolution sensitivity studies of individual meteorological events carried out within DECIFER.

We will analyse which misrepresentations of processes cause biases in relevant surface weather variables in the target regions, and to what extent such misrepresentations affect future projections (known as ‘emergent constraints’). Moreover we will investigate how biases in climate predictions and free-running climate projections are linked, i.e., what can be learned about the credibility of future projections from climate predictions. Credible, physically coherent storylines (representing different plausibly simulated changes in the physical climate system) of future projections will be developed, conditional on particular levels of global warming. Regarding soil-moisture feedbacks and convection, we will investigate how the representation changes between GCMs, standard RCMs and high-resolution convection permitting (event-based) simulations; how value is added by more complex models; and what this means for the credibility of existing projections based on state-of-the-art models.

**WP4** tackles all issues related to **statistical bias correction and evaluation**. The overarching objective is to understand how and to what extent biases can sensibly be corrected, and how model ensembles are evaluated and selected to serve for impact studies under future climate conditions. Thus, the biases we analyse are biases in both meteorological and agricultural (AgM and ECI) variables.

We will address **which model biases** (specific misrepresented processes as identified in WP3) **are correctable (ESR7-9)**, i.e., (1) for which severe model biases does the attempt to correct these biases introduce unacceptable artefacts (unwanted side effects in, e.g., spatial and temporal structure)? (2) which bias correction methods - in particular novel process-based approaches - could mitigate these artefacts, and to what extent? In particular we will address the question to what extent biases in the temporal structure are defensibly correctable.



Moreover we will **develop novel, process-based bias correction approaches**. We will address whether the inclusion of physical predictors can improve state-dependent biases (e.g., ENSO/no ENSO, **ESR7**), biases in the temporal variability (e.g., wrong wet-day probability in a non-resolved valley; **ESR8**), and the representation of sub-grid-scale processes (e.g. convection; **ESR9**). Finally, we will **develop process-based evaluation diagnostics (ESR7-9)**. The key idea is to connect the distillation question to the model's ability in representing relevant processes controlling future changes in surface weather and their impacts on agriculture.

**WP5** is a cross-cutting WP and addresses the **overall synthesis and distillation, from both a natural sciences and philosophical point of view**. All ESRs are involved in this WP; a network meeting will be dedicated to discussing the results of WPs 2-4 and their synthesis, and to coordinating the collaboration.

From a natural sciences perspective, the following questions will be addressed based on the results from WPs 2-4: which climate model errors crucially limit which statements about future crop impacts? Which statements can robustly and defensibly be drawn (about mean climate, extreme events and critical thresholds)? To what extent can we discriminate between threshold exceedances under different scenarios of climate change and for different time horizons (also in the light of internal climate variability)? At the root of all these questions is a determination, for any particular application, of the optimal amount of model information to bring in: including models with physically implausible representations of key processes (and therefore uncorrectable biases) may artificially inflate uncertainty, but too limited a set of models will underestimate uncertainty. Here we will **combine expert knowledge with process-based evaluation** into new ensemble techniques.

From a philosophical perspective: given that climate models are imperfect representations of reality, used to simulate unobserved future conditions for which they cannot be directly evaluated, and that climate is a complex system involving processes at non-resolved scales, **what constitutes epistemically responsible provision of information about agricultural risk** in response to climate change? What counts as credible and defensible information? Drawing on a theoretical framework that jointly attends to epistemic and ethical responsibility, these questions will be addressed (**ESR10**) in close collaboration with natural scientists for specific case studies.

**WP6** addresses scientific questions regarding **co-design, distillation and communication from an ethical and social science perspective**. The results from WP6 directly support WP1 and WP5.

First, ethical and epistemic questions are linked (**ESR10**): **how do and should the values of climate information users shape the scientific research question?** How do scientific uncertainties create challenges for responsibly providing climate information? What constitutes responsible provision of information in the face of these uncertainties? Does responsible provision require more than that information be credible and defensible?

From a social-science perspective, we address how climate change information is and should be integrated, and how uncertainty is aggregated, communicated, understood and perceived by users and influencers. And how does this information have to be communicated or shared to be of relevance? **What methodologies of engagement (such as stories) are useful to link modelers and users?** (**ESR11**) Are there relational (such as how **gender and identity** interact with scientific culture of modellers and users) or cross-cultural issues in the ways in which knowledge is communicated, valued or understood? How can these be overcome (**ESR12**)?

As illustrated in Fig. 1, DECIFER requires strong interdisciplinary collaboration between WPs. This collaboration will be facilitated by **interdisciplinary co-supervisors and interdisciplinary secondments**. We will also encourage interdisciplinary collaboration between ESRs where relevant and feasible. Importantly, we organise the work such that no individual ESR depends crucially on the results of another ESR (also Section 3.1 & Table 3.1d).

### 1.1.3 Originality and innovative aspects of the research programme

A rapidly increasing amount of data from climate projections is published (e.g., CMIP, CORDEX, AgMIP, ISIMIP) and used in impact studies. Its application for adaptation planning and policy decisions is more and more operationalised by easily accessible online portals (e.g. CC knowledge portal of the World Bank, Copernicus Climate Change Service Climate Data Store). But it is becoming recognised that **data is not the same as information**. A series of WCRP and IPCC workshops as well as the CORDEX initiative highlight the need for climate information distillation (CID).

**Process understanding is important for a successful CID**, in particular given the substantial uncertainties in regional climate projections<sup>9</sup>. The ongoing CMIP6 initiative emphasizes the timeliness of advancing our understanding of the causes and consequences of model biases. The upcoming IPCC Sixth Assessment Report will dedicate three chapters (10-12) to understanding regional climate change. DECIFER addresses these needs.

<sup>9</sup> Maraun et al. (2017), Towards process-informed bias correction of climate change simulations, Nat. Clim. Change 7, 764-773; Shepherd, T.G. (2014), Atmospheric circulation as a source of uncertainty in climate change projections, Nat. Geosci. 7, 703-708; Hall, A. (2014), Projecting regional change, Science 346 (6216), 1461-1462.

Within IPCC, climate impacts (WGII in the IPCC) were traditionally separated from physical climate science (WGI), with limited interaction between the two corresponding working groups. This separation is mirrored in the organisation of climate research: projects such as CMIP and CORDEX advance our modelling capacities and understanding of model biases, whereas the international AgMIP initiative, or the MACSUR, PESETA and C3S AgriCLASS projects advance our understanding of agricultural response to a chosen set of climate projections. Only in its most recent assessment report did IPCC WGII publish regional cross cutting chapters<sup>10</sup> that provide an integrated interdisciplinary view of regional climate change and its impacts. DECIFER follows this new spirit and **spans the full range of climate and climate impact modelling** by focusing on the causes of climate model biases and their effect on projections of agriculturally relevant variables.

For NA, projects are missing to improve our physical understanding of region-specific climate changes. The AMMA project was a key project to understand processes controlling the West African Monsoon, and to improve weather forecasting, but had no focus on multi-decadal time scales. CORDEX Africa so far has typically only evaluated reanalysis-driven simulations<sup>11</sup>. By construction these studies did not consider the impact of GCM errors on regional projections (see Dosio et al.<sup>12</sup> for an exception). But it is known that GCMs have substantial imperfections limiting the value of regional climate projections such as misplaced storm tracks, SST biases in the Eastern tropical Atlantic, and a misplaced ITCZ.

All in all, the credibility of climate change projections at the regional scale, in particular for NA, is not well established beyond using model spread as an uncertainty measure. **A key topic of DECIFER is to assess the credibility and added value of regional climate and impact projections by improving our understanding of model errors and their influence on crop simulations.**

The BCMIP and the EU COST Action VALUE have recently conducted comprehensive intercomparisons and evaluations of bias correction methods. Both initiatives, however, did not investigate the impacts of bias correction on impact modelling. It is becoming established that not all biases are correctable. Recently, it was shown that bias correction may cause severe artefacts if carried out without understanding the underlying climatic processes and their misrepresentation. DECIFER addresses these problems: for the first time, it will **systematically address the correctability of different types of biases** resulting from a range of large- and local-scale model errors. Moreover, it will investigate the influence of model biases and their correction on agricultural simulations, including the climate change signal. As such DECIFER will complement the recently started initiative BadJAM (Bias Adjustment for Agricultural Modelling).

Over recent years a debate has arisen about the ethical aspects of climate information provision. DECIFER puts this debate into a broader ethical-epistemic context, i.e., it links the ethical question to model uncertainties.

There are significant barriers to the adoption of climate information in the decision space that relate to the value systems, decision contexts, time and space scales, and modes of communication. **DECIFER acknowledges and will give greater visibility to these barriers, and identify transdisciplinary approaches to overcome them.**

## 1.2 Quality and innovative aspects of the training programme

DECIFER **aims** to educate a new generation of ESRs that understand the full breadth of user-focussed climate research. To optimally achieve this aim, the **training programme is explicitly co-designed with the DECIFER partner organisations**. Based on our own experience, discussions with the academic and non-academic project partners and colleagues, and results from national and international projects (e.g., European Research Area for Climate Services, ERA4CS, from JPI-Climate), we identified the typical job market for our graduates (see Fig. 2)

and the required **employability profiles**. The training programme will be designed to optimally meet these profiles. Starting with the kickoff meeting, the employability profile will be further specified and serve as a basis for the career development plans. The **programme will be continually revised** to account for these specifications as well as topical and emerging fields.

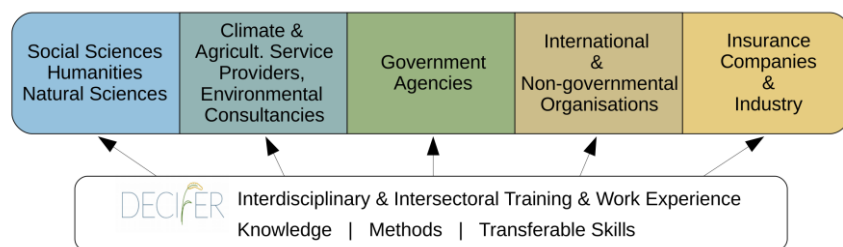


Fig. 2 potential employers of DECIFER graduates.

<sup>10</sup> Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, 688 pp.

<sup>11</sup> Kalognomou, E.-A. et al. (2013), A diagnostic evaluation of precipitation in CORDEX models over southern Africa. J. Climate 26, 9477-9506; Kim, J. et al. (2014), Evaluation of the CORDEX-Africa multi-RCM hindcast: systematic model errors. Clim. Dynam 42, 1189-1202.

<sup>12</sup> Dosio, A. et al. (2015), Dynamical downscaling of CMIP5 global circulation models over CORDEX- Africa with COSMO- CLM: evaluation over the present climate and analysis of the added value, Clim. Dynam. 44, 2637-2661.

A multitude of **training gaps** limits the research and career success in these sectors. In addition to the persistent lack of education in transferable skills, these are

- the **lack of interdisciplinary training and collaboration** in climate research, impeding the development of defensible climate data as key interdisciplinary knowledge is not considered;
- the **limited intersectoral contact with users**, which limits the consideration of user needs and the understanding of transdisciplinary aspects;
- ESRs are **not trained as autonomous, entrepreneurial actors** with the relevant experiential knowledge. They are not well prepared to develop an independent research profile and career vision, to identify and address training needs, and thus have difficulties developing a career as independent scientists;
- **a strong gender disparity, which has not been sufficiently addressed**. This includes awareness raising with both female and male researchers as well as targeted career training and networking for women.

To address these training gaps DECIFER pursues three **training objectives**:

- 1) To provide the most stimulating international environment for excellent research, in particular also for female researchers, and to educate a new generation of leading experts.
- 2) To provide interdisciplinary training to overcome the structural separation of disciplines in climate research and thereby have sustained impact on the research and decision making process.
- 3) To expose the ESRs to different work environments across sectors and thereby raise awareness of user needs, and to increase their employability by building an inter-sectoral career network.

We **envision** that DECIFER graduates become **independent, creative and entrepreneurial researchers** with (1) excellent disciplinary knowledge, (2) a broad interdisciplinary overview to develop their own independent research profile in topical and emerging subjects, (3) high-level methodological understanding to easily tackle technical challenges, (4) intersectoral and interdisciplinary work experience to understand user needs, to collaborate with stakeholders and to pursue a career in non-academic climate services in NGOs, government agencies, international institutions and private companies, (5) a solid background in transferable skills and relevant knowledge in open science, RRI, intellectual property rights and ethical issues, (6) leadership qualities and considerable persistence in following their objectives.

We will follow the **European Commission Principles for Innovative Doctoral Training**. In particular a supervisory agreement will be signed by all supervisors and ESRs, an individual career development plan will be developed for each ESR and continually revised (Section 1.3), and the ESR's progress will be monitored by the supervisory committee (Section 3). The ESR recruitment will follow the **Code of Conduct for the Recruitment of Researchers** (Table 1.2a and Section 3.2).

**Table 1.2 a Recruitment Deliverables per Beneficiary**

| ESR No. | Recruiting Participant (short name) | Planned Start Month 0-45 | Duration (months) 3-36 |  | ESR No. | Recruiting Participant (short name) | Planned Start Month 0-45 | Duration (months) 3-36 |
|---------|-------------------------------------|--------------------------|------------------------|--|---------|-------------------------------------|--------------------------|------------------------|
| 1.      | UPM                                 | 7                        | 36                     |  | 7.      | CSIC                                | 7                        | 36                     |
| 2.      | CNRS                                | 7                        | 36                     |  | 8.      | CNRS                                | 7                        | 36                     |
| 3.      | BSC                                 | 7                        | 36                     |  | 9.      | UG                                  | 7                        | 36                     |
| 4.      | UR                                  | 7                        | 36                     |  | 10.     | UD                                  | 7                        | 36                     |
| 5.      | UCPH                                | 7                        | 36                     |  | 11.     | UCT                                 | 7                        | 36                     |
| 6.      | UG                                  | 7                        | 36                     |  | 12.     | LU                                  | 7                        | 36 (48) <sup>13</sup>  |

### 1.2.1 Overview and content structure of the training

Our training addresses scientific knowledge, methodologies and transferable skills. Theoretical training is complemented by interdisciplinary and intersectoral work experience. Our partner organisations not only ensure the greatest scientific impact, but also provide optimal work experience and training. We will also liaise with external experts (academic and non-academic) from relevant national and international initiatives (e.g., as lecturers) to provide the best possible training.

In particular the training in transferable skills will build upon existing local courses to avoid unnecessary travel and to integrate the ESRs and the project into the home institutions. These **local courses will be open to ESRs from other beneficiaries (in case the corresponding courses are not offered there)**. Network-wide training will as far as possible be specifically organised and designed for the ESR needs at individual beneficiaries (e.g. by the Doctoral Academy at UG) and open to all DECIFER ESRs and further ESRs supervised by the beneficiaries. The

<sup>13</sup> Additional funding will be provided by the LUCSUS department for the 4th PhD year required at LU.

requirements in terms of structured training and ECTS points differ between the beneficiaries. All beneficiaries requiring ECTS points will accredit those awarded during the scientific training courses (Table 1.2b) to avoid unnecessary extra work by the ESRs. Independent of the requirements at the home institutions, DECIFER requires the ESRs to follow mandatory courses of 16 ECTS. These requirements will be specified in the career development plans and referred to in the supervisory agreements. We will also encourage the ESRs to apply to existing relevant international training schools (if they fit, ECTS will be accredited).

**Secondments** are at the core of DECIFER and will be arranged with beneficiaries and (non-)academic partners (see ESR descriptions, Table 3.1d). They aim at knowledge exchange in interdisciplinary cooperation and intersectoral work experience. They are a key element in the **co-design** of the research programme, the **co-production** of the results and **co-exploration** and dissemination of the resulting climate information (see Fig. 1). For instance, the World Bank (WB) will invite ESRs as trainees to learn about the specific user needs in WB projects, ESRs will collaborate to provide information for these projects, and will integrate the produced information into the WB Climate Change Knowledge Portal. The secondments will also help to create a career network and work with potential employers. Prior to the secondments, specific targets will be defined. The ESR will submit a **secondment report** demonstrating to what degree the targets have been met. The project manager will review the report and pass it on to the supervisory board as a **measure for quality assurance**.

**Network-wide training (NWT)** will integrate the Action by fostering collaboration and the development of a personal and trustful research network. The NWT will also be used to interact with existing initiatives at the national and international level (e.g., AgMIP, ISI-MIP, by inviting key people as lecturers). We will open NWT workshops and training schools to a limited number (5-10) of other European ESRs. NWT events will, as far as possible, be organised back-to-back with other meetings to avoid unnecessary traveling.

An important element of our training will be **capacity building for Africa**. Together with the partner organisations ACMAD and CCAFS we will select 3-4 ESRs employed as PhD students at northern African institutions to join our NWT activities. These ESRs will thus receive continual training, transfer high-level scientific knowledge to their home institutions and thus have a sustained impact on African climate research.

Several NWT events will be based on **interactive web-streaming**. All beneficiaries have ensured that they can offer this service. Additionally, an **internet platform** with forum and wiki functions will be set-up to foster the exchange and collaboration within the Action. The following events will be organised:

**Table 1.2 b Main Network-Wide Training Events, Conferences and Contribution of Beneficiaries**

|    | Main Training Events & Conferences                   | ECTS | Lead Institution | Contributing Institutions                          | Action Month (estimated) |
|----|--|------|------------------|--|--------------------------|
| 1  | Co-Design Workshop with Partners and Stakeholders    | -    | CNRS             | All benef. and partner orgs.                       | 9                        |
| 2  | Network Meetings                                     | -    | UG               | All benef., partner orgs. invited                  | 1,13,25,37               |
| 3  | Regular Webinar (talks by ESRs/participants)         | 2    | UD/UG            | All benef., partner orgs. invited                  | monthly                  |
| 4  | Grand Challenges Webinar (invited keynotes)          | -    | UG               | All benef., partner orgs. invited                  | 4 per year               |
| 5  | Introductory Interdisciplinary Training School       | 3    | UR               | All benef., ACMAD, DMI, FAO, HORTA, CCAFS, JRC, WB | 12                       |
| 6  | Advanced Interdisciplinary Training School           | 3    | UCPH             | All benef., ACMAD, DMI, HORTA, CCAFS, JRC, WB      | 24                       |
| 7  | Science & Transferable Skills Webinars               | 1    | UD/UG            | All benef., TCDF, FAO, HORTA                       | 2-4 /year                |
| 8  | Transfer. Skills Workshop on Communication           | 1    | LU               | All benef., TCDF, FAO, HORTA                       | 19                       |
| 9  | Methodological Workshop 1 (Co-Production)            | 1    | LU               | UCT, UG, CNRS, UCPH, UD, FAO, HORTA, CCAFS         | 9                        |
| 10 | Methodological Workshop 2 (Programming)              | 1    | CSIC             | UG, CNRS, DMI, UCT, UPM, UR                        | 9                        |
| 11 | Methodological Workshop 3 (Statistics)               | 1    | CNRS             | UG, CSIC, FAO, JRC, WB                             | 13                       |
| 12 | Methodological Workshop 4 (Interpreting Information) | 1    | UCT              | UG, CNRS, UCPH, LU, UD, UR, TCDF, FAO, JRC         | 25                       |
| 13 | Career & Women in Science Workshop                   | -    | UPM              | All benef., TCDF, FAO, HORTA, CCAFS, JRC, WB       | 31                       |
| 14 | Guest Scientist Proposals                            | -    | UG               | All benef.   | 2 calls/year             |
| 15 | Web Forum (Writing lab, journal club, etc.)          | -    | UG               | All benef., partner orgs. invited                  | permanent                |
| 16 | Dissemination Training School                        | -    | CNRS             | All benef., ACMAD, CCAFS, WB                       | 42                       |
| 17 | ESR International Workshop                           | -    | BSC              | All benef., TCDF                                   | 30                       |
| 18 | International Network Conference                     | -    | UG               | All benef., ACMAD, HORTA, CCAFS, WB                | 42                       |



| <b>Content of the Network-Wide Training Activities</b>  |
|---|
| <b>Co-Design Workshop:</b> 4 days (incl. Co-Design Training, MW1, see below), to fine-tune the training and research programme to optimally address user needs and enable the best interaction with the non-academic partner organisations. About two months after the ESRs commence their work.  |
| <b>Annual Meetings:</b> 2 days; supervisory committee meeting (3h), ESR meeting (3h), progress presentations, invited keynote lectures (e.g. from relevant international initiatives), feedback discussion (on previous year).  |
| <b>Regular Webinar:</b> presentations by ESRs and DECIFER participants. Broadcast via video streaming (available at all beneficiaries), interaction via Skype, Zoom or comparable software. Presentations will be made available via DECIFER webpage. Changes location regularly from beneficiary to beneficiary.   |
| <b>Grand Challenges Webinar:</b> as above, but invited keynotes (e.g., experts from partner organisations or relevant international projects). To provide inter-/transdisciplinary context and to liaise with international initiatives.  |
| <b>Introductory Interdisciplinary Training School:</b> 5 days, to ensure a common interdisciplinary understanding. <b>Topics:</b> agriculture/climate in the MED & NA, agricultural and climate modelling uncertainties, bias correction and its limitations, needs of climate information users (in general, World Bank, FAO, HORTA, CCAFS, etc.), epistemic aspects of climate modelling, ethical aspects of climate information provision, social aspects of climate-user interaction. Where appropriate with hands-on sessions or role games. Lectures will be available prior to the school to foster discussions. Supervisors may attend to broaden their interdisciplinary knowledge.  |
| <b>Advanced Interdisciplinary Training School:</b> 5 days. Similarly to the introductory training school, but providing more in depth knowledge, in particular on <ul style="list-style-type: none"> <li>- climate modelling (primitive equations, finite differencing, parameterisations, evaluation, uncertainties),</li> <li>- climate analysis (observations and simulations, process understanding - see also statistics workshop MW3),</li> <li>- agricultural modelling (eco-physiological basis, process modelling, calibration and validation, uncertainties),</li> <li>- ethical-epistemic aspects (conceptual issues of model evaluation, ethics of uncertainty evaluation)</li> <li>- social-science aspects (methodologies for eliciting information and stakeholder engagement)</li> </ul>  |
| <b>Science Training Webinars:</b> to accommodate ESR requests and complement local training and the interdisciplinary training schools. If necessary, external experts will be invited. <b>Topics:</b> climate policy, economic aspects of climate change, ethical aspects of climate services, and other relevant issues.  |
| <b>Transferable Skills Training Webinars:</b> to accommodate ESR requests and to fill gaps in local training. If necessary, external experts will be invited. <b>Topics:</b> responsible research and innovation, scientific misconduct, intellectual property rights, open science, and other relevant topics.   |
| <b>Transferable Skills Workshop on Communication:</b> 2 days, on working with the media and stakeholder communication. Drawing upon own expertise and external experts.   |
| <b>Methodological Workshops:</b> 1-2 day courses, back-to-back with other meetings, for subgroups of ESRs:<br><b>MW1: Co-Producing Climate Information</b> (tools to work in an interdisciplinary project, stakeholder dialog, addressing user needs), integrated into Co-Design workshop (see above);<br><b>MW2: Programming in Climate Research</b> (R/Python, NetCDF, visualisation), back-to-back with Co-Design Workshop;<br><b>MW3: Statistics</b> (advanced regression models, extreme value theory, multivariate statistical models, bias correction methods) ; back-to-back with Annual Meeting;<br><b>MW4: Interpreting Climate Information for Decision Making</b> , back-to-back with Annual Meeting.<br><b>A few additional courses may be organised on demand.</b> Additionally, ESRs may attend more in-depth existing courses at the participant's institutions (see local training below). |
| <b>Career &amp; Women in Science Workshop:</b> 3-4 days. Day 1 (women only): sharing experiences, networking. Day 2 (women/men): discussion of day-1 results, presentations by major male and female academics/non-academics (role models, also external) discussing career paths, reasons for success, challenges. Presentations of potential employers (also beyond our partner organisations, e.g., representing insurance companies), networking. Day 3-4: training courses on entrepreneurial skills with individual coaching (e.g., developing research vision and profile, becoming independent researcher, leadership qualifications).  |
| <b>Guest Scientist Proposals:</b> regular calls for inviting external guest scientists for small collaborative projects (up to 3000 EUR each). To train proposal writing, entrepreneurial and supervisory skills.   |
| <b>Web Forum</b> (Writing Lab, Journal Club, etc.): an online forum and wikipage (project internal) to share knowledge and ideas and to foster collaboration, e.g., ESRs could upload their paper drafts to receive feedback, relevant papers could be shared and commented on, projects and WP tasks could be discussed.   |

**Dissemination Training School:** 5 days. Based on the project outcomes, the project participants will train climate service providers (governmental, international institutions, NGOs, private companies), including lectures, hands-on sessions, discussions of specific case studies from the audience. The school will be jointly organised by senior participants and ESRs. The ESRs will practice teaching, management and entrepreneurial skills. Organised well before ESRs hand in thesis (see Table 3.1c).

**ESR International Workshop:** 2-3 days, organised by the ESRs. They are free to choose the specific topic, but it could contain both a scientific and a networking and career building component. The ESRs will train management and entrepreneurial skills. Prior to Annual Meeting (location selected by ESRs).

**International Network Conference:** 3 day, organised by whole Action. The aim is to present the Action results in a broad international science and stakeholder context, i.e., also external keynote speakers will be invited to give perspective presentations. Advice will be sought from international initiatives such as GEWEX & AgMIP.

**Local training** will be the backbone of the Action. All beneficiaries offer MSc courses on relevant **disciplinary knowledge** (e.g., climate modelling at UR & UG, agricultural modelling at UPM). If needed, the ESRs may attend these courses. We will also send individual ESRs to existing relevant in-depth training courses (e.g. NCAS climate modelling school, CLM courses, BSC courses on computing and data analysis for climate modelling). Additionally, most of the teaching on **transferable skills** will be offered locally (e.g., DocAcademy at UG, mandatory at some institutions). We will require to visit a minimum selection of courses in accordance with the individual Career Development Plan. These courses may complement or deepen NWT events and will comprise:

|   |  |
|---|--|
| <b>Local Transferable Skills Training</b>   | <ul style="list-style-type: none"> <li>- scientific writing and presentation; proposal writing; teaching skills;</li> <li>- project management; leadership skills; team skills; multicultural awareness; gender issues.</li> <li>- intellectual property rights; responsible research and innovation; open science.</li> </ul> |
| <b>The training manager (W. Parker) will oversee that all these courses are of comparable quality. If no appropriate local courses exist, ESRs will visit these courses at other beneficiaries.</b> |  |

Additionally, the ESRs will have the opportunity to **train teaching, supervision, entrepreneurial and management skills in practice** (e.g., to supervise MSc/MSc theses; teach at a maximum of 15h per year; to apply for guest scientist funding, see also network-wide training; to coordinate network-relevant tasks, such as organising dissemination and outreach activities and assisting in WP management).

### 1.2.2 Role of non-academic sector in the training programme

The non-academic sector is central to the training programme. Partners such as the World Bank and the FAO have expressed specific interest in the results of DECIFER and are thus dedicated to the success of the research and the training. They will be involved in the **design of the training** (e.g., developing an employability profile and training courses) and in the training itself. Our non-academic partners include different sectors ranging from **international organisations** to **private companies**.

The **intersectoral secondments** will be organised such that they maximise the benefit for the ESRs and the partners, i.e., they provide **real-life work experience**. At the World Bank, e.g., the ESRs will contribute to the Climate Change Knowledge portal. HORTA will provide insight into the work and requirements in **industry**. The Climate Data Factory (TCDF) is a small climate service company. Secondments with the TCDF will thus be virtual (the ESR will remain at the home institution and collaborate on a day-by-day basis via skype and online exchange over the time of the secondment with the TCDF) and provide insight into modern work organisation. For details on the planned secondments refer to the ESR descriptions (Table 3.1d).

Additionally, the non-academic sector will **contribute to the training**. For instance, WB and FAO staff will give a detailed insight into the structure, work, and user requirements of WB/FAO, and career options in the organisation. But they will also contribute to lectures (e.g., adaptation and policy challenges). Also some partner organisations have offered **co-supervision** of ESRs (see table 3.1d; e.g., World Bank, JRC, CCAFS, TCDF, HORTA). The non-academic partner organisations are also key to the exploitation and dissemination of the results, e.g., via the World Bank Climate Change Knowledge portal or FAO publications (Sections 2.3/2.4).

### 1.3 *Quality of the supervision*

#### 1.3.1 **Qualifications and supervision experience of supervisors**

All beneficiaries have endorsed the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. BSC, UCPH, UD and UR have been awarded the HR Excellence in Research Award. If they have not done so yet, supervisors will be encouraged to participate in supervisory training courses.

**UG: D. Maraun** (WoS 1750 citations, h-index 18; Google Scholar 2814 citations, h-index 22) is Associate Professor and head of the regional climate group at the Wegener Center for Climate and Global Change at UG. Maraun is currently supervising 4 postdocs, 1 PhD and 3 MSc students, and has supervised 3 postdocs, 3 PhD and 6 MSc students to completion. He gained experience in structured PhD supervision from the Integrated School of Ocean Sciences (Kiel) and the PhD school “Climate Change” at UG. He chaired the interdisciplinary EU COST Action VALUE (29 countries), was PI of 6 national and international projects and is executive committee member of the World Climate Research Programme’s CORDEX-ESD. Maraun will be supported by senior scientist **H. Truhetz**, an expert in regional climate modelling at convection permitting scale.

**BSC: F.J. Doblas-Reyes** (WoS 4039 citations, h-index 33; Google Scholar 8906 citations, h-index 46) is Research Professor at ICREA (Institutió Catalana de Recerca i Estudis Avançats) and Head of the BSC Earth Sciences department. He has supervised 3 PhD students and is currently supervisor of one and co-supervisor of 2 more. Doblas-Reyes has supervised over 37 European and national projects as well as international contracts on climate dynamics/prediction. He was lead author of the IPCC’s 5th assessment report and serves on many international scientific committees: e.g. co-chair of the Working Group on Seasonal-to-Interannual Prediction (WGSIP) and Decadal Climate Prediction Panel (DCPP) of the World Climate Research Programme (WCRP), European Climate, Observations and Modelling for Services panel of the European Commission.

**CNRS: N. de Noblet** (WoS 6718 citations, h-index 36; Google Scholar 10914 citations, h-index 48) is a Senior Research Scientist at the “Laboratoire des Sciences du Climat et de l’Environnement” (LSCE-IPSL). She has supervised 10 PhD students, and more than 8 postdocs and engineers over the past 5 years. Recently she has been elected deputy vice-president of the University Versailles Saint-Quentin-en-Yvelines, and contributes to the emergence of a new university: Université Paris-Saclay. She has contributed to the creation of a new interdisciplinary international Master: CLUES, Climate, Land-Use and Ecosystem Services. She has been elected into the French Academy of Agriculture in 2016 where she works to help the Ministry of Agriculture to better understand and face the challenges in climate change issues.

**M. Vrac** (WoS 1795 citations, h-index 21; Google Scholar 2895 citations, h-index 27) is CNRS Senior Research Scientist at the LSCE-IPSL. He has supervised 13 postdocs, 7 PhD and 9 MSc students. He belongs to the doctoral school “Sciences de l’Environnement” in the University Paris Saclay. Vrac was PI of 3 national and international projects, Co-I in 7 projects, and member of more than 10 others. He is currently the leader of the research group “Extremes, Statistics, Impacts, Regionalization” at LSCE, board member of the IPSL “Regional Climate and Environment” group and member of the IPSL “Climate Services” cell.

**CSIC: J.M. Gutiérrez** (WoS 1775 citations, h-index 24; Google Scholar 4745 citations, h-index 34) is CSIC (Spanish Research Council) research professor at the Institute of Physics of Cantabria (CSIC and University of Cantabria - UC). He has supervised 8 PhD and 5 MSc students. He is part of the “Science and Technology program” of the UC PhD School, and co-director of the “data science” UC-UIMP Master program. He was the coordinator of a strategic action on regional climate change scenarios for the Spanish National Plan on Climate Change Adaptation and over the last ten years he has participated in nine EU projects on regional climate prediction, projection and impacts. He has been FAO consultant for climate change adaptation and food security.

**LU: E. Boyd** (WoS 1775 citations, h-index 20; Google Scholar 3958 citations, h-index 30) is Professor and Director of LUCSUS (Lund University Centre for Sustainability Studies) at Lund University. She has supervised over 10 PhD and 20 MSc students. Boyd’s unique focus has been on the interdisciplinary nexus of the multi-dimensions of poverty, livelihoods and resilience in relation to climate change. She has worked extensively in the field, e.g. as co-lead on a UN award-winning project with informal settlements adapting to climate change in Maputo. She has been a research associate at the Stockholm Resilience Centre and led the Global Development Division at University of Reading. She is a lead author for IPBES and the UK Climate Risk Assessment.

**UCT: B. Hewitson** (WoS 3425 citations, h-index 27; Google Scholar 29794 citations, h-index 45) is the South African National Research Chair in Climate Change, Professor of Climatology, and Director of the Climate System Analysis Group’s research centre at UCT. He has previously supervised 15 postdocs, 26 PhD students, and 15 MSc students to completion. He is currently supervising 3 postdocs and 5 PhD students. He co-chairs the World Climate Research Program’s Working Group on Regional Climate and the IPCC Task Force on data and scenario support, and was a coordinating lead author in the IPCC’s 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> Assessment Reports. He leads a research team of ~35 in multidisciplinary aspects of climate change, and is PI on a broad profile of research projects and international research consortia with an annual budget value of in excess of €1 million.

**UCPH: J.H. Christensen** (WoS 6199 citations, h-index 39; Google Scholar 18589 citations, h-index 58) is a full professor in climate physics at the Niels Bohr Institute (NBI). For more than a decade he was a lead scientist and scientific head of climate research at DMI. He was the coordinator of EU FP5 PRUDENCE project and PI at FP7 IMPRESSIONS (transdisciplinary approach, intense stakeholder involvement). He directed a multi-disciplinary national Centre for Regional Change in the Earth System (CRES) including advanced PhD training courses. With colleagues at NBI and the University of Bergen, he received acknowledgement and financial support from an ERC Synergy grant for the project Ice2Ice (2014-2019), which has a strong PhD program component. He participated in the IPCC AR2, AR3, AR4 and AR5; in the latter two as Coordinating Lead Author.

**UD: W. Parker** (Scopus 303 citations, h-index 9; WoS 157 citations, h-index 7; Google Scholar: 689 citations, h-index 13) is Associate Professor of Philosophy and Associate Director of the Centre for Humanities Engaging Science and Society (CHESS) at UD. She is currently co-supervising 3 PhD students and has previously supervised or co-supervised 2 PhD students and 5 MA students. She was PI for two projects on philosophical issues in climate science funded by the U.S. National Science Foundation and currently leads a workstream on values in climate services in the ERC-funded “Knowledge for Use” project. She is currently Co-Editor-in-Chief of the *British Journal for the Philosophy of Science*.

**UPM: M. Ruiz Ramos** (WoS 537 citations, h-index 10; Google Scholar 886 citations, h-index: 14) is Associate Professor at the Crop Production of UPM and researcher at CEIGRAM. Ruiz-Ramos is currently supervising 1 postdoc and 1 PhD. She has co-supervised 2 PhD, and numerous MScs in 3 universities. She was PI of 4 national and 3 international projects and participates in the UPM master programme Technology for Sustainable Agriculture (TAPAS). Currently, she is scientific collaborator for the State Research Agency (AEI) and member of the Executive Committee of the Joint Programming Initiative for Climate (JPI-Climate).

**UR: T.G. Shepherd** (WoS 8200 citations, h-index 49; Google Scholar 12,100 citations, h-index 59) is Grantham Professor of Climate Science, and Climate Research Division Leader, at UR. He has previously supervised 27 postdocs and 19 PhD students to completion, and is currently supervising 5 postdocs and 3 PhD students. He has held leadership roles in international scientific assessments (IPCC and WMO/UNEP) and in the World Climate Research Programme, and is a Fellow of the American Geophysical Union and the Royal Society (of London). From 2001-2005 he was Chief Editor of the Journal of the Atmospheric Sciences. He currently holds an ERC Advanced Grant, and chairs the Science Review Group of the Met Office Hadley Centre.

**S.J. Woolnough** (WoS 1561 citations, h-index 21) is Professor of Climate Science at UR and leads the National Centre for Atmospheric Science’s Tropical Research Group. He has previously supervised 7 postdocs and 4 PhD students and is currently supervising 7 postdocs and 5 PhD students. He has led national and international projects in modelling convection and the Madden-Julian Oscillation and is co-chair of the MJO Task Force of the World Meteorological Organization’s Working Group on Numerical Experimentation and a member of the Steering Group for the WCRP/WWRP Sub-Seasonal to Seasonal (S2S) Prediction Project.

### 1.3.2 Supervisory arrangements

Every ESR will have a **clearly identified supervisory team** (see table 3.1d), a main supervisor at the home institution and two co-supervisors. One co-supervisor has to be from a different discipline (potentially also from a non-academic sector) to optimise **interdisciplinary and potentially intersectoral supervision** (see also next Section). We deliberately chose **only academic beneficiaries** to provide optimal training and supervisory conditions, where the ESRs can exchange experiences with other early career scientists. The ESRs will be enrolled in the PhD schools of the home institutions or a partner University (Barcelona for BSC, Paris Saclay for CNRS, Cantabria for CSIC); in all cases the main supervisor is formally allowed to **award the PhD**.

A **supervision agreement** will be signed by supervisors and ESRs listing duties and rights of supervisors and supervisees, including a reference to the career development plan. Supervisors and ESRs will receive a copy of the European Charter for Researchers and the European Commission Principles for Innovative Doctoral Training.

Within the first two months of the PhD work, a **career development plan (CDP)** will be written by the ESR and the main supervisor with input from co-supervisors (in particular addressing interdisciplinary aspects). The CDP will stimulate the development of an **entrepreneurial mind** of the ESRs by addressing the following questions: What do I want to achieve? How and in which sector can I best achieve it? What do I need to learn to achieve it? The CDP will be continually revised and adjusted to accommodate project requirements, individual performance, personal development, and changing career plans. The CDP will identify individual training gaps, compile a list of training courses to close these gaps, and plan for publications, participation in conferences and secondments. A key element will be interdisciplinary collaboration across the network and intersectoral secondments.

The main supervisor will be available for regular **dedicated research meetings**, within reason on demand, but generally at least every two weeks. The ESR’s progress will be monitored by **regular supervisory meetings** (every 6 months, possibly via skype). During these meetings, the ESRs present their progress, discuss the next research



steps, and identify training needs. From the second year onwards, career perspectives of the ESR will be discussed in the light of the previous performance and interests (including the discussion of funding opportunities after the PhD). The CDP may be adjusted accordingly. One of these meetings will serve for a **mid-term PhD review**. As a **quality assurance** measure, the ESR will submit a meeting report to the project manager, who reviews the report and passes it on to the training manager (TM, Section 3.2). In case of irregularities or need for improvements in the supervision, the TM will provide **feedback** to the supervisors and discuss possible solutions. In case of persistent problems, the TM may contact the ombudsperson (see below).

An **ombudsperson** (Section 3.2) will help confidentially in persistent problems in the supervision, harassment and other cases of misconduct. Additionally, the **gender balance officer** (Section 3.2) will help to ensure equal opportunities and provide confidential support in cases of any kind of harassment.

Every ESR may choose a **mentor** (in accordance with local regulations, maybe partner or other beneficiary). Mentor and mentee will have bi-annual meetings (skype or informal side meetings at network-wide events) to discuss performance and career plans confidentially. Locally, the ESRs will be supported by a **buddy** (senior PhD student/postdoc) to get help during the first weeks with administration at the institution or beyond.

### 1.3.3 Quality of the joint supervision arrangements

As discussed above, every ESR will be supervised by a team of three supervisors (see Table 3.1d for names). The main supervisor will be expert in the research area of the ESR. One co-supervisor may complement this expertise within the broader field of climate science, the other will be from a different discipline. One of the co-supervisors will be from a different institution (partner or beneficiary). These arrangements will ensure that at least one supervisor provides an **independent view** on the ESR's performance and that **interdisciplinary supervision** is optimised. The latter is a key element of DECIFER to educate ESRs who are strong in their discipline but at the same time overcome traditional disciplinary boundaries. The supervisory team will be built such that experienced **senior supervisors** complement the **more junior supervisors** with less supervisory experience.

## 1.4 *Quality of the proposed interaction between the participating organisations*

### 1.4.1 Contribution of all participating organisations to the research and training programme

Most of the participants have collaborated in interdisciplinary sub-groups previously, e.g., in EU H2020 projects, in the EU COST Action VALUE, or in CORDEX-ESD. All participants are highly committed to the research aims and cover atmospheric and climate dynamics (BSC, UR), climate modelling (BSC, UCPH, UG, DMI), statistics, bias correction and distillation (CSIC, CNRS, UG, UCT; JRC, CFT), agricultural modelling (CNRM, UPM; JRC), epistemology and ethics (UD) and social sciences (LU, UCT). This expertise is complemented by (non-)academic partners representing different sectors: international institutions (WB, FAO), region specific institutions (JRC, ACMAD, ILRI/CCAFS), small private companies (TCDF), a farmers association (UPA) and industry (HORTA). Links between disciplines and across sectors are key to the success of DECIFER (see following Section).

All participants will contribute to the training programme. Each beneficiary will organise at least one network-wide training event. In particular all beneficiaries and several partners will contribute to the training schools and webinars (see Table 1.2b and letters of commitment, Section 7). Most partners will contribute to the career workshop. Each ESR will be exposed to the full network by secondments, training schools and workshops.

### 1.4.2 Synergies between participating organisations

Several DECIFER participants initiated a non-funded international activity (Bias Correction for Agricultural Modelling, Badjam) to support the AgMIP initiative. One aim of DECIFER is to develop the scientific foundations for this activity. Additional beneficiaries and partners have been invited to optimally complement the existing expertise. Interdisciplinary collaborations are a key innovative element of DECIFER and **fill crucial gaps in climate research**: they bring together ESRs working on process understanding, bias correction, distillation and impact modelling to increase the credibility of climate impact assessments; climate modelling, epistemology and ethics to understand our responsibility when providing uncertain climate information; and physical climate science and social sciences to provide data products that are relevant and understandable for users. Additionally, DECIFER has **non-academic partners** that have strong interests in the project results and contribute to the design of the research and the production and exploration of results from a **user perspective**. Collaboration will be optimised by joint **interdisciplinary supervision** and by **interdisciplinary collaboration** (across WPs and within WP5) and **intersectoral collaboration with non-academic partners** (both backed up by secondments). All **supervisors are enthusiastic to learn** about the involved fields beyond their key expertise and will engage in discussions with several other PhD students. As such, DECIFER will develop a blueprint for collaboration that covers the **full scientific breadth of climate service provision for agriculture by internationally leading experts**.

### 1.4.3 Exposure of recruited researchers to different (research) environments, and the complementarity thereof

As discussed above, **all ESRs will work in interdisciplinary collaborations between different institutions, and intersectoral collaborations with non-academic partners.** These collaborations will be realised through secondments, complemented by regular video conferences and exchange via the internal internet platform. These collaborations are not only designed for training purposes, but are key to the integrated research approach of DECIFER as discussed in the previous section. ESRs will learn to work in interdisciplinary environments across physical sciences, humanities and social sciences, as well as in intersectoral environments with climate information users from international organisations, private companies and industry. The training programme will equip the ESRs with the necessary skills for this work.

We are confident that DECIFER will thus shape a new generation of researchers ready to face the coming challenges in climate impacts research and climate service provision (see also Section 2.1).

## 2. Impact

### 2.1 *Enhancing the career perspectives and employability of researchers and contribution to their skills development*

DECIFER will offer the ESRs optimal opportunities to develop a successful career in science and outside academia. The combination of interdisciplinary research experience, intersectoral work experience, network-wide training and the development of an entrepreneurial mind will shape ESRs with a unique profile to aspire to become leaders in climate change and climate change impact research, or climate adaptation planning.

**Impact through interdisciplinary research experience:** our ESRs will work with leading experts in their disciplines and obtain a **high-level disciplinary education** and training at their home institutions. Beyond that, DECIFER will provide urgently needed added value and help close an important structural gap: climate science is an inherently multidisciplinary problem and traditional education in meteorology and climate, statistics and - in the DECIFER case - agricultural sciences are not sufficient to provide fully defensible information for society. All researchers involved in generating climate information need to have substantial knowledge in climate dynamics, skill of climate models, uncertainties of climate projections, limitations of bias correction, sensitivity of crop phenology to climatic changes, requirements and limitations of agricultural models. Additionally, all involved require a solid understanding of the ethical dimension, about user needs and communication issues. Typically, climate scientists at best have a working knowledge in only two of these disciplines. DECIFER provides this **interdisciplinary knowledge in its full breadth** (via workshops and training schools, see also below) and collaborations with researchers from other disciplines to develop a practical **interdisciplinary research experience**. We have chosen to seek funding for an ITN because it is the optimal funding mechanism for our interdisciplinary project requirements. The interdisciplinary research experience will prepare our ESRs to tackle the big challenges in climate impact research for adaptation planning.

**Impact through intersectoral work experience:** In climate change science there has been a call for co-design, -production and -exploration to develop information that is really relevant and useful for users. DECIFER aims to become a best practice example of such project design, and the ESRs have the opportunity to experience a deep collaboration with users throughout their work. We have carefully chosen our partners to optimally provide this experience. All partners have expressed clear interest in our project results, they will directly feed into the partner's project specific or general work (e.g., the WB wants information for their knowledge portal and their project work in Africa, the FAO is interested in the concept of eco-climatic indicators and would feed our results into their general policy recommendations). Thus our ESRs will experience a real case of collaboration with high-level climate information users, both in leading international institutions and private companies. This intersectoral work experience will prepare our ESRs to successfully work in the whole range of climate service provision, be it in academia or on the user side.

**Impact through network-wide training:** we co-designed the training programme with our partners, based on a clear idea of the typical academic and non-academic job market and employability requirements. The training programme will also be individually tailored (through selection of workshops, webinars and local training) to each ESR's needs, as defined by the career development plan. The training will cover interdisciplinary scientific knowledge (complementing the research experience), scientific methodology (through workshops and local training, partly offered on demand), and transferable skills. The training will go beyond generic issues and also provide the ESRs with the broad context of climate information provision (e.g., policy issues). This training will complement the research and work experience and will equip the ESRs with the skills necessary for a successful career inside and outside academia.

**Impact on independent entrepreneurial spirit:** starting with the career development plan, the ESRs will be supported in developing an entrepreneurial spirit and a career vision. **Specific training activities** such as the guest scientist proposals or the organisation of workshops will foster this development. The supervisors, all leading researchers in their fields, and the partners, all at relevant positions in important international institutions and private companies, will provide role models. This holds in particular for female ESRs, who will benefit from the experience and example of outstanding researchers. This support will help the ESRs to become independent and mature actors, who will actively develop their future career.

## 2.2 *Contribution to structuring doctoral/early-stage research training at the European level and to strengthening European innovation capacity, including the potential for a meaningful contribution of the non-academic sector to the doctoral / research training*

### 2.2.1 Impact on ESR training

DECIFER provides high-quality PhD training following the best international standards (Section 2.1). But DECIFER will also provide resources for ESR training for researchers outside the project and after the end of the project. **The NWT workshops and training schools will be open for 5-10 ESRs from Europe**, as well as 3-4 ESRs from Africa, and thus enable a considerable knowledge transfer to other PhD programmes, and at the same time contribute to capacity building in developing countries. All network-wide training events will be open to other ESRs supervised by the beneficiaries (with their own funds).

We will make our **training resources available (open access)** to the international research community. In particular we will record and upload our streamed presentations. We will advertise these resources via our international networks, in particular IPCC, WCRP, CORDEX, CMIP, AgMIP and individual national and international projects. Additionally, we will compile a primer from the material of our training courses and publish it as a book with a major international publisher (the students will be offered co-authorship, potential title: **“Climate Change and Agriculture - an Interdisciplinary Primer”**). Depending on the feedback of the participants, we will consider offering our introductory **training school as a regular event** after the end of the Action (funded by fees covering travel expenses of trainers, and updated according to new scientific insight). Again, we would advertise this event via our networks, plus mailing lists such as CLIMLIST.

Additionally, DECIFER aims to improve structured ESR training at the beneficiaries and other European institutions beyond the lifetime of the Action. The structure of ESR training differs very much between the participating institutions. DECIFER will **collaborate with PhD schools at the beneficiaries** (e.g., with the DocAcademy at UG) and act as a role model to **support the adoption and development of best practice** in doctoral training. Examples are the promotion of a CDP, the structured supervision with feedback mechanisms, the mentoring and buddy system, and the use of virtual technology. Thus, DECIFER will help to establish joint training standards following the EU Principles for Innovative Doctoral Training.

Finally, the supervisors themselves will have sustained benefits: they will learn from each other and from the constructive feedback from the training committee and improve their supervisory skills. Moreover, the ESRs will experience best supervisory practice, which they may apply later as supervisors themselves.

### 2.2.2 Impact on European research and innovation capacity

Climate information provision is an intrinsically interdisciplinary problem, and both research and education are too disciplinary to meet this challenge. This gap is at the core of the distillation problem. Here, DECIFER will make a difference and position **Europe at the forefront of international research in climate information provision**. It will provide a best practice example and stimulate future international. DECIFER results will directly be relevant for a range of projects, initiatives and stakeholders (Section 2.3), also for seasonal and decadal predictions. We further increase this impact by organising a **Dissemination Training School**, targeted at researchers and non-academics in the field of climate services in Europe and Africa. All participants (supervisors, ESRs, partner organisations) will acquire broad interdisciplinary knowledge and build a strong and trustful network that will stay alive after end of the Action. This network will allow us to form new consortia around a well-rehearsed team and jointly apply for international competitive funding. In particular the ESRs will profit and may contribute with innovative ideas in consortia already at an early career stage.

Moreover, DECIFER will also have **direct economic value**. Food producers, e.g., strategically plan in which regions to invest in crop farming. Our partner HORTA supports farmers providing a large fraction of the wheat production for Barilla. DECIFER's information on potential future changes in crop risk may be crucial to advise Barilla's strategic planning.

### 2.2.3 Contribution of the Non-Academic Sector

The non-academic sector plays a key role in DECIFER. Climate science generates information for adaptation decisions that will likely affect our societies. A well functioning communication between users and producers of climate information is thus of utmost importance. DECIFER is specifically designed to provide defensible information that is relevant for users, and communicated in an understandable way. The non-academic partners - e.g. the World Bank, FAO, Horta - represent important users of climate information and play an integral role in the project: **they contribute to the co-design of the research questions and the training, and to the co-production and -exploration of climate information.** They will use DECIFER results for **policy advice** and **economic planning** (Section 2.2.2/2.3.1). In particular, these partners will bring a non-academic perspective to the supervisory board (all), **host secondments** (all), **contribute to workshops**, in particular the **career workshop** (all but one). But more importantly, they will offer the ESRs an invaluable work experience at leading international institutions and private companies (Section 2.1).

## 2.3 *Quality of the proposed measures to exploit and disseminate the results*

### 2.3.1 Dissemination of the research results

The main stakeholders of DECIFER are the scientific community, international and national organisations and agencies, as well as private companies. The results of DECIFER will first of all be disseminated to the scientific community via **presentations at major conferences** (e.g., EGU/AGU general assembly, AgMIP conference, Philosophy of Science Association Biennial Meeting, Adaptation Futures; every ESR is expected to present at least twice at major international conferences) and expert workshops, as well as in **leading disciplinary and interdisciplinary journals** (e.g., Nat. Clim. Change, Clim. Change, Agric. Forest Meteo., Field Crops Res., Glob. Env. Change, Brit. J. Phil. Sci., Clim. Pol., made available as preprints via **social media**, e.g. Researchgate). Also some training measures will foster dissemination: guest scientists, invited with ESR proposal grants, will act as information multipliers, and the **dissemination training school** will inform stakeholders. In particular the **capacity building programme** for Africa will have a long-term effect on our dissemination. **Offering our introductory training school as a regular event**, and publishing a **primer as book** would be a sustained means of dissemination.

Beyond these more classical approaches, our European and international collaboration enables a very broad dissemination beyond our own disciplines and beyond academia: first, our beneficiaries and partners are involved in **major international activities and networks** such as the IPCC, CORDEX, the Working Group on Regional Climate of the WCRP, the Vulnerability, Impacts, Adaptation and Climate Services (VIACS) Advisory Board of the WCRP, the Joint Scientific Committee (JSC) of the WCRP, the AgMIP initiative (comparison of agricultural models) and the VALUE network (former COST Action on bias correction evaluation). DECIFER results will be presented and considered in these initiatives.

Our partner organisations play a key role in our dissemination strategy. For instance, the World Bank will use relevant DECIFER results in their projects in the target countries, and publish them via its **Climate Change Knowledge Portal**. The FAO will use DECIFER results to promote better use of climate data for impact assessment in their global work (**influencing policy**, raising awareness, publications). At the country level, the FAO may use DECIFER results to **influence national climate change policy, adaptation plans, and contributions to the UNFCCC**. Our results will be taken up by JRC to **support the European Commission and European policy** with independent scientific evidence. DECIFER results will thus likely influence policy decisions at a national and international level. But additionally, they will have a direct **economic value**. For instance, our partner **HORTA may use DECIFER results for adaptation planning** (Section 2.2.2). We will make our results available for the European **PRIMA project on food security in the Mediterranean**. In Africa, ACMAD and CCAFS will play a key role for our dissemination by providing contacts with regional stakeholders.

To facilitate dissemination via our partners we will compile the most relevant results into a **summary for decision and policy makers**. DECIFER results will also be relevant for the AgMIP climate team (represented by JRC and the Science and Stakeholder Advisory Board) and the future assessment reports of the **IPCC**.

Our results will be published following the ideas of **open science**, i.e., open data, open access to publications, and open software code. In particular we will contribute to the **COPERNICUS C3S Climate Data Store**. This portal will provide a range of data products and scripts to post-process these data. We will apply for our scripts being uploaded as best practice examples, including guidelines on the provision of defensible data. For details on corresponding deliverables see Table 3.1b. All dissemination and data issues will be coordinated by an **outreach manager** (N. de Noblet). She will appoint **task forces** for specific activities and to compile reports.

### 2.3.2 Exploitation of results and intellectual property

Given the societal relevance of our work, we pursue - as it is a more and more accepted standard in climate science - an **open science policy**. All relevant data, software code and publications will be made publicly available via open access (e.g., in github). A **data and intellectual property manager (J. Gutierrez)** will be responsible for questions of intellectual property rights, choosing appropriate general public (GNU) licenses for our products, and dealing with our partners on potential license issues. If companies wish to commercially use IP generated by academic participants, there will be a formal, agreed contract between each party.

## 2.4 *Quality of the proposed measures to communicate the activities to different target audiences*

### 2.4.1 Communication and public engagement strategy

Climate change and food security are of high relevance for society. We will therefore design our measures such that they also reach a broad non-academic audience. Even though individual farmers do not consider long-term changes in climate for their short- and mid-term decision making, we believe that they will have a genuine interest in how their lives and that of their children may have to adapt over the next decades. The **outreach manager** will be responsible to coordinate the outreach activities. For bigger events, she will appoint specific **task forces**.

The major results will be communicated via **press reports** resulting from scientific publications. All participants are experienced in working with the media, and the ESRs will be encouraged to attend targeted courses and contribute to the preparation of press reports and resulting interviews. Additionally, we will communicate these reports via our partner organisations and other dedicated networks.

The internet will play an important role for communicating our results. We will set up a **professional webpage** (coordinated by the outreach manager with support from the project manager and professional IT services) to present the results to the general public. We will exploit our international and national networks and link the webpage with other climate change outreach pages (blogs, climate service centers, etc.). Major results will be translated to Italian, French, Spanish, German and the major languages spoken in the target regions.

Building on experience of UCT from the FRACTAL project, we will, jointly with a **professional designer**, develop **easily accessible graphics** to communicate scientific results. The idea is to prepare **easily understandable narratives** that link to the daily lives of different audiences, both online and in pdf-format for download. Similarly we will prepare a **short cartoon movie** (with a professional designer) and some **podcasts** that translates the major findings into understandable and relevant narratives. Here we will collaborate with our partners, in particular ACMAD and CCAFS. Again, these products will be provided in the major languages spoken in the target regions.

Engaging with the general public in a **two-way communication**, and raising awareness about the scientific process is important in times of growing scepticism against science. The participants and ESRs will be encouraged to set up a **blog** to interact with the public in a two-way communication (in English and other languages spoken by the ESRs). Similarly, we will engage with the public via **open science days, (European) researcher's nights and other public events** (e.g., organised by local museums). **Girl's days** at the beneficiary premises may additionally help to inspire girls to start a career in science. Finally, we have made good experiences with **local exhibitions** (e.g., by the doctoral school at the University museum of UG). We will encourage our PhD students to organise a similar event to present the DECIFER results to the general public (held at all beneficiaries, translated into the local languages). Specific deliverables will be listed in Table 3.1b.

## 3. Quality and Efficiency of the Implementation

### 3.1 *Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources*

Table 3.1 a Description of Work Packages

| WP Number  | 1  | Start Month 1 – End Month 48 |
|--|--|------------------------------|
| WP Title   | Stakeholder Involvement & Dissemination (Communication, Dissemination)   |                              |
| Lead Beneficiary   | CNRS   |                              |
| Objectives   | Co-Design the details of DECIFER research with users (represented by partner organisations), co-produce and co-explore defensible and salient information about CC impacts on agriculture in our target regions, and disseminate and communicate the results.  |                              |
| Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold): | <b>Task 1.1 Co-Design with partner organisations (CNRS; ALL contrib)</b> choose/develop a suite of crop-relevant weather-sensitive indicators; identify relevant climatic and meteorological phenomena to be considered in the region.. <b>Task 1.2 Co-Production (CNRS; ALL contrib)</b> continual exchange about user needs and progress with partner organisations, e.g., via secondments. <b>Task 1.3 Co-Exploration (CNRS; ALL contrib)</b> joint |                              |

|  |                               |                                     |
|--|-------------------------------|-------------------------------------|
| interpretation of future agricultural simulations in the light of uncertainties and user needs. <b>Task 1.4. Dissemination</b> (CNRS, UG; ALL contrib) organise dissemination activities, in particular: training school primer book (UR), dissemination training school (CNRS), WB climate change knowledge portal (UG/WB). <b>Task 1.5 Communication</b> (CNRS; ALL contrib) public outreach activities, in particular webpage (incl. movie/podcast) and public events.  |                               |                                     |
| <b>Description of Deliverables:</b> <b>D1.1</b> Set of co-designed (with partner organisations) weather sensitive indicators, per crop and region, Month 12, <b>D1.2</b> List of relevant climatic and meteorological phenomena, Month 12, <b>D1.3/4/5</b> Annual dissemination & communication report to SAB & REA, Month 12/24/36, <b>D1.6</b> Major results including podcast and movie published on webpage, Month 48, <b>D1.7</b> Dissemination Training School, Month 42, <b>D1.8</b> Book primer on training school lectures, Month 36, <b>D1.9</b> Evaluation of user-collaboration incl. SWOT analysis, Month 48, <b>D1.10</b> Impact assessment review incl. factsheets and summary for decision & policy makers, Month 48.  |                               |                                     |
| <b>WP Number</b>   | <b>2</b>                      | <b>Start Month 1 – End Month 48</b> |
| <b>WP Title</b>  | <b>Agriculture (Research)</b> |                                     |
| <b>Lead Beneficiary</b>  | <b>UPM</b>                    |                                     |
| <b>Objectives</b> Understand the sensitivity of agricultural impact assessments to climate model biases, and the complementarity of agricultural modelling approaches (statistical/process-based) for contrasting modelling challenges.  |                               |                                     |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold):</b> <b>Task 2.1 Crop modelling</b> (UPM/CNRS) 2.1.1 Description of the target cropping systems. 2.1.2 Development of App to retrieve additional local validation data from farmers 2.1.3 Data retrieving and crop model calibration and validation (DSSAT, Aquacrop models). 2.1.4 Data retrieving and calibration and evaluation of eco-climatic indicators <b>Task 2.2 Selection, analysis and application of bias corrected climate outputs</b> (UPM/CNRS, CSIC, UG contrib) 2.2.1 Analysing the key climate variables that leads impacts and uncertainty in rainfed systems. 2.2.2 Applying a set of bias correction methods (from VALUE Project and others). 2.2.3 Assessment of bias correction methods, added value of RCMs and crop models error in crop modelling processes. <b>Task 2.3. Understanding the relationship between climate bias correction and agricultural biases</b> (CNRS/UPM, ALL contrib) 2.3.1. Relating biases in climate dynamical processes/variability to bias in crop simulations. 2.3.2 Quantifying the benefit from bias correction to improve the accuracy of agricultural simulations (case study of IsardSAT outputs in GLORIUS project). |                               |                                     |
| <b>Description of Deliverables:</b> <b>D2.1</b> App to retrieve local data from farmers, Month 23, <b>D2.2</b> Physical agricultural model and eco-climatic indicator simulations, Month 32, <b>D2.3</b> Report on case studies relating biases and model resolution in climate inputs to bias and added value in crop simulations, quantifying the benefit/limitations of bias correction and added value of RCMs for agricultural modelling, Month 48, <b>D2.4</b> Report on complementarity of crop modelling and indicator approaches and extracting general guidelines and conclusions when possible, Month 48  |                               |                                     |
| <b>WP Number</b>   | <b>3</b>                      | <b>Start Month 1 – End Month 48</b> |
| <b>WP Title</b>  | <b>Climate (Research)</b>     |                                     |
| <b>Lead Beneficiary</b>  | <b>UCPH</b>                   |                                     |
| <b>Objectives</b> Assess the credibility of climate change simulations for agricultural impact assessments in our target regions by understanding the causes and consequences of climate model errors.   |                               |                                     |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold):</b> <b>Task 3.1 Characterisation of systematic errors of teleconnections in historical simulations and climate predictions</b> (BSC, UR contrib) 3.1.1 Analysis of mean systematic errors. 3.1.2 Characterisation of the main teleconnections and their systematic errors. <b>Task 3.2 Construction of physically plausible storylines of climate change conditional on particular levels of global warming</b> (UR/BSC/UCPH, UG contrib) 3.2.1 Characterize range of plausible future climates in MED/NA for particular levels of global warming, including out-of-sample behaviour not represented by CMIP. 3.2.2 Assess plausibility of different storylines in terms of their drivers and potential dependence on model bias. <b>Task 3.3 Understanding regional-scale soil-moisture feedbacks under climate change and their model representation</b> (UCPH/UG, UR contrib) 3.3.1 Assess soil-moisture temperature feedbacks in MED/NA & their representation in climate models. 3.3.2 Assess soil-moisture precipitation feedbacks and convection in MED/NA & their representation in climate models.  |                               |                                     |
| <b>Description of Deliverables:</b> <b>D3.1</b> Report on the main systematic errors affecting the meteorological variables relevant to crop modelling, Month 48, <b>D3.2</b> Report on physically-coherent storylines of large-scale aspects of climate change over the target regions, designed to probe agricultural vulnerabilities, and expressed in terms of different global warming levels, Month 48, <b>D3.3</b> Report on soil-moisture temperature feedbacks in MED/NA and their representation in climate models, Month 48, <b>D3.4</b> Report on soil-moisture precipitation feedbacks and convection in MED/NA and their representation in climate models. Month 48.   |                               |                                     |
| <b>WP Number</b>   | <b>4</b>                      | <b>Start Month 1 – End Month 48</b> |
| <b>WP Title</b>  | <b>Statistics (Research)</b>  |                                     |
| <b>Lead Beneficiary</b>  | <b>CSIC</b>                   |                                     |
| <b>Objectives</b> Understand the statistical correctability of climate model biases for agricultural modelling, improving bias correction methods and developing process-informed bias correction methods.   |                               |                                     |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold):</b> <b>Task 4.1 Assessing correctability of biases and skill/limitations of bias correction methods</b> (UG/CNRS/CSIC) biases in: 4.1.1 interannual variability; 4.1.2 spatial-temporal variability; 4.1.3 circulation errors and sub-grid variability. <b>Task 4.2 Developing new process-based bias correction</b> (CNRS/CSIC/UG) methods for: 4.2.1 biases in variability at different time-scales; 4.2.2 spatial-temporal variability; 4.2.3 sub-grid precipitation. <b>Task 4.3 Developing process-based evaluation diagnostics</b> (CNRS/UG/CSIC) for: 4.3.1 interannual phenomena; 4.3.2 circulation errors, 4.3.3 regional feedback and sub-grid processes. <b>Task 4.4 Develop an open R package implementing the resulting methods</b> (CSIC/CNRS, UG) for increasing research transferability and reproducibility.  |                               |                                     |
| <b>Description of Deliverables:</b> <b>D4.1</b> Report on bias correctability and limitations of bias correction, Month 42, <b>D4.2</b> Ensemble of bias corrected projections for target regions based on newly developed methods, Month 36, <b>D4.3</b> R package with improved and newly developed bias correction methods, Month 48.   |                               |                                     |

|   |  |                              |
|---|--|------------------------------|
| WP Number   | 5  | Start Month 1 – End Month 48 |
| WP Title  | Distillation and Epistemology (Research) |                              |
| Lead Beneficiary  | UCT                                      |                              |
| <b>Objectives</b> Understand what defensible information we have about agricultural impacts in our target regions, what constitutes applicable information, and what information we can in principle provide based on climate and agricultural models, and how research to provide this information can take account of the values and perceptions in the adoption of climate information.  |  |                              |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold): Task 5.1 Distill defensible user-relevant information (UCT/UG, ALL contrib)</b> combine results: 5.1.1 from model errors and internal variability; 5.1.2 from bias correction; 5.1.3 from agricultural modelling through process-based ensemble techniques and expert judgement. <b>Task 5.2 Analyse ethical-epistemic dimension (UD/UCT/LU)</b> Understand: 5.3.1 epistemic character of WP2-4 results; 5.3.2 how values and perceptions of climate information users determine the research needed to provide credible, defensible and relevant information in particular cases.  |  |                              |
| <b>Description of Deliverables: D5.1</b> Report on the climate and impact information available about rainfed cropping systems under climate change, Month 48, <b>D5.2</b> Report on the ethical-epistemic analysis of selected case-studies, Month 48, <b>D5.3</b> Good practice guide on distillation, information communication & user involvement, Month 48   |  |                              |
| WP Number   | 6  | Start Month 1 – End Month 48 |
| WP Title  | Ethics and Social Sciences (Research)    |                              |
| Lead Beneficiary  | LU                                       |                              |
| <b>Objectives:</b> Examine what it means to provide climate information in a responsible way and understand the cross-cultural and relational ways in which multiple modelers and users can interact.   |  |                              |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold): Task 6.1 Understanding responsible climate information provision (UD/LU/UCT)</b> examine what it means to provide climate information in a responsible way, encompassing both ethical and epistemic responsibility and interactions between them, and considering the related notions of ‘credible’ and ‘defensible’ information. <b>Task 6.2 Understanding cultural and relational ways in which modellers &amp; users interact (LU/UCT, WP1-4 contrib)</b> 6.2.1 cross-cultural issues of values and perceptions in the adoption of climate information. 6.2.2 relational issues, such as how gender and identity interact with scientific culture of modellers and users. <b>Task 6.3 Understanding Information aggregation, communication and perception (UCT/LU,DU)</b> understand how uncertainty is aggregated, communicated and understood and perceived and negotiated by users climate information. |  |                              |
| <b>Description of Deliverables: D6.1</b> Report on operationalising responsible, value driven and relational approaches to advancing climate information, Month 48, <b>D6.2</b> Report on lessons of key approaches and methodologies for engaging and linking modellers and users, Month 48, <b>D6.3</b> Report on information and uncertainty communication and perception, Month 48.   |  |                              |
| WP Number   | 7  | Start Month 1 – End Month 48 |
| WP Title  | Management                               |                              |
| Lead Beneficiry   | UG                                       |                              |
| <b>Objectives</b> To ensure a smooth and efficient overall and scientific management of DECIFER and to optimally support all beneficiaries in order to facilitate internationally leading science and top-level interdisciplinary, international and intersectoral training.  |  |                              |
| <b>Description of Work and Role of Specific Beneficiaries (lead UG): Task 7.1</b> Preparing Consortium Agreement, <b>Task 7.2</b> Recruiting ESRs and PM, <b>Task 7.3</b> Organising Annual Meetings incl. SAB meetings, <b>Task 7.4</b> Chairing Supervisory and Management Board, <b>Task 7.5</b> Managing the Budget, <b>Task 7.7</b> compiling Annual Science Report (input from all beneficiaries), <b>Task 7.7</b> Reporting to REA & SAB.  |  |                              |
| <b>Description of Deliverables: D7.1</b> Advertising ESR+PM positions, Month 1, <b>D7.2</b> Researcher declarations on conformity, Month 8, <b>D7.3</b> Consortium agreement, Month 4, <b>D7.4</b> Kickoff meeting report, Month 4, <b>D7.5</b> webpage online, Month 6, <b>D7.6/7/8</b> Annual scientific reports to SAB & REA, Month 12/24/36, <b>D7.9</b> Final scientific & training report, Month 48   |  |                              |
| WP Number   | 8  | Start Month 1 – End Month 48 |
| WP Title  | Training                                 |                              |
| Lead Beneficiary  | UD                                       |                              |
| <b>Objectives</b> to ensure a high quality supervision, and a smooth and outstanding interdisciplinary, international and intersectoral training.   |  |                              |
| <b>Description of Work and Role of Specific Beneficiaries/Partner Organisations (lead in bold): Task 8.1 (UD/all contrib)</b> Preparing Career Development Plans, <b>Task 8.2 (UD/all contrib)</b> Holding supervisory meetings, <b>Task 8.3 (UG/UD)</b> Checking ESR progress and secondment reports, <b>Task 8.4 (OB/GB/UD)</b> resolving conflicts, <b>Task 8.5 (UD/all contrib)</b> Preparing training events, <b>Task 8.6</b> Organising secondments (UD/all contrib)  |  |                              |
| <b>Description of Deliverables: D8.1</b> Supervisory agreements, Month 8, <b>D8.2</b> Career development plans, Month 10, <b>D8.3/4/5</b> Annual training progress reports to SAB & REA, Month 12/24/36, <b>D8.6</b> PhD theses (submitted), Month 48   |  |                              |

**Table 3.1 b Deliverables List**

| <i>Scientific Deliverables</i>  |  |               |                                    |                 |                            |                        |
|---|--|---------------|------------------------------------|-----------------|----------------------------|------------------------|
| <b>Deliverable Number</b>   | <b>Deliverable Title</b>   | <b>WP No.</b> | <b>Lead Beneficiary Short Name</b> | <b>Type</b>     | <b>Dissemination Level</b> | <b>Due Date</b>        |
| D1.1  | Set of co-designed weather sensitive indicators  | 1             | CNRS                               | R               | PU                         | 12                     |
| D1.2  | List of relevant climatic and meteorological phenomena   | 1             | UG                                 | R               | PU                         | 12                     |
| D2.1  | Citizen science app to retrieve local validation data from farmers                                       | 1             | UPM                                | OTHER           | PU                         | 23                     |
| D2.2  | Physical agricultural model and indicator simulations  | 2             | UPM                                | OTHER           | PU                         | 32                     |
| D2.3  | Causes for agricultural biases   | 2             | CNRS                               | R <sup>14</sup> | PU                         | 48                     |
| D2.4  | Complementarity of crop model & indicator approaches   | 2             | UPM                                | R <sup>17</sup> | PU                         | 48                     |
| D3.1  | Main systematic errors affecting meteorol. variables relevant to crop modelling                          | 3             | BSC                                | R <sup>17</sup> | PU                         | 48                     |
| D3.2  | Physically-coherent storylines of large-scale aspects  | 3             | UR                                 | R <sup>17</sup> | PU                         | 48                     |
| D3.3  | Soil-moisture temperature feedbacks  | 3             | UCPH                               | R <sup>17</sup> | PU                         | 48                     |
| D3.4  | Soil-moisture precipitation feedbacks and convection   | 3             | UG                                 | R <sup>17</sup> | PU                         | 48                     |
| D4.1  | Correctability of biases, limitations of bias correction   | 4             | UG                                 | R <sup>17</sup> | PU                         | 42                     |
| D4.2  | Ensemble of bias corrected projections for the target regions based on newly developed methods           | 4             | CSIC                               | OTHER           | PU                         | 36                     |
| D4.3  | R package with improved and newly developed bias correction methods                                      | 4             | CNRS                               | OTHER           | PU                         | 48                     |
| D5.1  | Information available about rainfed cropping systems under climate change in target regions              | 5             | UCT                                | R <sup>17</sup> | PU                         | 48                     |
| D5.2  | Ethical-epistemic analysis of selected case-studies  | 5             | UD                                 | R <sup>17</sup> | PU                         | 48                     |
| D6.1  | Operationalising responsible, value driven & relational approaches to advancing climate information      | 6             | UD                                 | R <sup>17</sup> | PU                         | 48                     |
| D6.2  | Lessons of key approaches and methodologies for engaging and linking modellers and users                 | 6             | LU                                 | R <sup>17</sup> | PU                         | 48                     |
| D6.3  | Communication and perception of climate information  | 6             | UCT                                | R <sup>17</sup> | PU                         | 48                     |
| <i>Management, Training, Recruitment and Dissemination Deliverables</i> |  |               |                                    |                 |                            |                        |
| <b>Deliverable Number</b>   | <b>Deliverable Title</b>   | <b>WP No.</b> | <b>Lead Beneficiary Short Name</b> | <b>Type</b>     | <b>Dissemination Level</b> | <b>Due Date, Month</b> |
| D1.3/4/5  | Annual dissemination and communication report to SAB & REA (incl. stakeholder & general public events)   | 8             | CNRS                               | R               | PU                         | 12, 24, 36             |
| D1.6  | Results published on webpage (incl. movie/podcast)   | 1             | UG                                 | PDE             | PU                         | 48                     |
| D1.7  | Dissemination Training School  | 1-6/8         | CNRS                               | PDE             | PU                         | 42                     |
| D1.8  | Book primer on training school lectures (full draft)   | 1-6/8         | UR                                 | PDE             | PU                         | 36                     |
| D1.9  | Evaluation of collaboration incl. SWOT analysis  | 1             | CNRS                               | OTHER           | PU                         | 48                     |
| D1.10   | Impact assessment review incl. factsheets and summary for decision and policy makers                     | 1-6           | CNRS                               | PDE             | PU                         | 48                     |
| D5.3  | Good practice guide on distillation & user involvement   | 5 (6)         | UTC                                | PDE             | PU                         | 48                     |
| D7.1  | Advertising ESR + PM positions   | 7             | UG                                 | ADM             | CL                         | 1                      |
| D7.2  | Researcher declarations on conformity  | 7             | UG                                 | ADM             | CL                         | 8                      |
| D7.3  | Consortium agreement   | 7             | UG                                 | ADM             | CL                         | 4                      |
| D7.4  | Kickoff meeting report   | 7             | UG                                 | R               | PU                         | 4                      |
| D7.5  | Webpage online   | 7             | CSIC                               | ADM             | PU                         | 6                      |
| D7.6/7/8  | Annual scientific report to SAB & REA (incl. scientific peer reviewed papers & conference contributions) | 7             | UG                                 | R               | PU                         | 12, 24, 36             |
| D7.9  | Final project report   | 7             | UG                                 | R               | PU                         | 48                     |
| D8.1  | Supervisory agreement  | 8             | UD                                 | OTHER           | CL                         | 8                      |
| D8.2  | Career development plan  | 8             | UD                                 | OTHER           | CL                         | 10                     |
| D8.3/4/5  | Annual training report to SAB & REA (incl. ESR progress and network-wide training events)                | 8             | UD                                 | R               | PU                         | 12, 24, 36             |
| D8.6  | PhD theses (submitted)   | 8             | UD                                 | OTHER           | PU                         | 48                     |

<sup>14</sup> compiled from preprints or submitted papers



Table 3.1 c Milestones List

| No | Title  | Related Work Package(s) | Lead Beneficiary | Due Date, Month | Means of Verification   |
|----|--|-------------------------|------------------|-----------------|---|
| 1  | Consortium agreement signed  | 7                       | UG               | 4               | Signed document   |
| 2  | ESRs and PM recruited  | 7                       | UG               | 7               | Contracts signed  |
| 3  | Career development plan written  | 8                       | UD               | 11              | CDP checked by PM and TM  |
| 4  | Indicators co-designed/meteorological & climatic phenomena co-identified | 1                       | CNRS             | 9               | Developed at co-design workshop and report written.   |
| 5  | First training school held   | 8                       | CNRS             | 10              | Students have successfully participated in hands-on training (certificate)                                  |
| 6  | Mid-Term PhD review passed   | 8                       | UD               | 25              | ESRs have presented written scientific document (e.g. paper draft, technical report) at supervisory meeting |
| 7  | Agricultural simulations conducted                                       | 2                       | UPM              | 32              | Simulations evaluated   |
| 8  | RCM sensitivity simulations conducted                                    | 3                       | UCPH             | 30              | Simulations evaluated   |
| 9  | New bias correction methods developed                                    | 4                       | CSIC             | 36              | Methods evaluated on test data  |
| 10 | Dissemination training school prepared                                   | 1                       | CNRS             | 38              | Venue, speakers and schedule set  |

Table 3.1 d Individual Research Projects

| Fellow<br><i>ESR1</i>   | Host institution<br><i>UPM</i>  | PhD enrolment<br><i>Y</i> | Start date<br><i>Month 6</i> | Duration<br><i>36 months</i> | <i>D2.1 D2.2 D2.3 D2.4 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
|---|---------------------------------|---------------------------|------------------------------|------------------------------|---|
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Impacts of model errors and bias correction on agricultural modelling (WP2/contrib to 1,3,4,5)</b>   |                                 |                           |                              |                              |   |
| <b>Objectives:</b> Providing a solution for impact and adaptation assessment in rainfed cropping systems. This can be achieved by 1) identifying one or several efficient bias correction methods for climate inputs to be used when modelling rainfed cropping systems; 2) identifying limits of the bias correction in this context; and 3) linking biases in dynamical processes/variability to bias in rainfed agriculture. Contribute to the distillation of climate information.  |                                 |                           |                              |                              |   |
| <b>Expected Results:</b> Guidelines and criteria on how to select the best bias correction method to use when modelling rainfed cropping systems. Quantification of the improvement of agricultural simulations from bias correction and potential of limits for such an improvement. Between 2 to 4 scientific papers showing these results by study cases and extracting general conclusions are envisaged.   |                                 |                           |                              |                              |   |
| <b>Planned secondments:</b> UPA (J. Alejandro, month 11, 2 weeks): preparing farmer involvement for citizen science; CCAFS (D. Solomon, month 14, 1 month): assessing regional characteristics, priorities and data; UCPH (J. Christensen, month 19-20, 2 months): linking agricultural model biases with climate model biases; JRC (A. Dosio, month 27-28, 2 months); IsardSAT, L. Romero (month 35-36, 2 months): apply bias correction to outputs from GLORIUS project. <b>NB:</b> these secondments are crucial and well integrated in the PhD. Although the number might seem high, we are convinced they are feasible (in particular given that 2 are in Spain, one short, and the secondment to Copenhagen is close to the location of the communication workshop in Lund).  |                                 |                           |                              |                              |   |
| <b>Enrolment in Doctoral degree:</b> Technical Univ. of Madrid. Supervisor: M. Ruiz Ramos; co-superv.: N. de Noblet (CNRS), J.H. Christensen (UCPH)   |                                 |                           |                              |                              |   |
| Fellow<br><i>ESR2</i>   | Host institution<br><i>CNRS</i> | PhD enrolment<br><i>Y</i> | Start date<br><i>Month 6</i> | Duration<br><i>36 months</i> | <i>D2.1 D2.2 D2.3 D2.4 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Impacts of model errors and bias correction on eco-climatic indicators (WP2/contrib to 1,3,4,5)</b>  |                                 |                           |                              |                              |   |
| <b>Objectives:</b> (1) make operational the calculation of eco-climatic indicators for all regions and crops that are of importance for our stakeholders involved. This will allow rapid calculation of impacts, resulting from various scenarios. Those indicators are useful for stakeholders as they give access to changes in sowing and harvest dates, and to all meteorological stress that crops will face during their growing season. They do not directly inform on changes in yields, but rather on all climatically-relevant risks to anticipate adaptation. (2) assessment of the robustness of our outputs, through a better understanding of the chain of errors from the upstream error in climate scenario to the downstream error in the climatic impacts on crop functioning. (3) Contribute to the distillation of climate information. |                                 |                           |                              |                              |   |
| <b>Expected Results:</b> (1) operational tool to calculate eco-climatic indicators in all our chosen regions and crops. A technical guide will be set-up to help use the 'model' and to allow an increase in the number of crops / regions studied; (2) understanding of which variables are the most important to correct for this specific tool, and a measure of the risks of wrong interpretation of climatic impacts, leading to irrelevant adaptation measures. (3) Set of robust risk / opportunities for the range of crops and regions chosen, for the following decades as well as for the end of the century. (4) Development of 'dialog-methodology' to make our results immediately useful to stakeholders, as well as to embark them from the start of our work (2-3 scientific papers).  |                                 |                           |                              |                              |   |
| <b>Planned secondments:</b> UPM (M. Ruiz Ramos, month 15-16, 2 months): to align collaboration, explore initial comparison of approaches; BSC (F. Doblas-Reyes, month 20-21, 2 months): linking agricultural model biases with climate model biases; FAO (M. Fujisawa, month 27-28, 2 months): exploring the use of eco-climatic indicators for FAO applications (jointly with ESR7); HORTA (P. Meriggi, month 35-36, 2 months): assessing impacts of climate change over relevant regions.   |                                 |                           |                              |                              |   |
| <b>Enrolment in Doctoral degree:</b> Univ. Paris Saclay, Supervisor: N. de Noblet; co-superv.: M. Ruiz Ramos (UPM), H. Kanamaru (FAO)   |                                 |                           |                              |                              |   |

|   |  |                                  |                                     |                                     |  |
|---|--|----------------------------------|-------------------------------------|-------------------------------------|--|
| <b>Fellow</b><br><i>ESR3</i>  | <b>Host institution</b><br><b>BSC</b>  | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 7</b> | <b>Duration</b><br><b>36 months</b> | <i>D3.1 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Process-based analysis of the systematic errors in global climate predictions and projections (WP3/contrib to 1,2,4,5)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> Characterise the systematic errors in climate predictions & projections, and analyse them from a process-based perspective to inform bias-correction methods. Contribute to development of process-based evaluation diagnostics & distillation of climate information.   |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> 1) An analysis of the systematic errors in both climate predictions and projections, focusing on their commonalities over the agricultural areas selected. 2) An estimate of the processes responsible for the main systematic errors, with a special focus on the errors in the most relevant teleconnections (ENSO, AMO). 3) An approach to inform bias correction processes and users about the relevance of the main global-model systematic errors to limit the reliability of the climate information required by agricultural applications (2-3 scientific papers).   |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> UPM (M. Ruiz Ramos, month 13, 1 month): identify the most relevant meteorological variables for agricultural modelling, UCT (B. Hewitson, month 22-23, 2 months): to engage in the climate distillation process and discuss the usefulness of systematic error information (jointly with ESR12); JRC (A. Toreti, month 27-28, 2 months): linking climate model biases with agricultural model biases on seasonal to decadal time scales; CCAFS (D. Solomon, month 35-36, 2 months): assessing consequences of ENSO teleconnection biases on climate impact assessments for NA (jointly with ESR 9).   |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. Polit cnica de Catalu a (UPC), Supervisor: F.J. Doblas-Reyes, co-superv.: J.H. Christensen (UCPH), M. Ruiz Ramos (UPM)   |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR4</i>  | <b>Host institution</b><br><b>UR</b>   | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 7</b> | <b>Duration</b><br><b>36 months</b> | <i>D3.2 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Constructing plausible storylines of large-scale climate change (WP3/contrib to 1,2,4,5)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> Understand the range of plausible future climates in the Mediterranean and northern Africa for a given level of global-mean warming. Use CMIP climate model output to construct storylines of change in climate impacts relevant for agriculture (especially water availability). Assess plausibility of these storylines in terms of their drivers and potential dependence on model bias. Use results from high-resolution models, or observed relationships, to consider possible 'out-of-sample' storylines. Develop storylines of observed changes (e.g. role of internal variability) that are consistent with the future storylines. Contribute to the development of process-based evaluation diagnostics and the distillation of climate information. |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> Plausible, physically-coherent storylines of large-scale aspects of climate change over the target regions, designed to probe agricultural vulnerabilities, and expressed in terms of different global warming levels. Identification of model simulations reflecting these storylines, which could be used for downscaling (2-3 scientific papers).   |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> UCT (B. Hewitson, month 20-21, 2 months): climate narratives; LU (E. Boyd, month 32-33, 2 months): framing of uncertainties; ACMAD (B. Lamptey, month 38, 1 month): user translation.   |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. of Reading, Supervisor: T.G Shepherd, co-superv.: S. Woolnough (UR), W. Parker (UD)  |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR5</i>  | <b>Host institution</b><br><b>UCPH</b> | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <i>D3.3 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Understanding regional soil moisture - temperature feedbacks (WP3/contrib to 1,2,4,5)</b>  |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> To test the sensitivity of modeled current temperature climate and climate change to specific descriptions of soil moisture. - Investigate effects of related model shortcomings on model realism and climate change signal and the consequent calculated impacts. To investigate relationships between the soil schemes of regional climate models and simulated climate trajectories. Contribute to the development of process-based evaluation diagnostics and the distillation of climate information.   |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> Documentation of the effects of certain climate model limitations on calculated effects of climate change. Possibly, a determination of minimal requirements of climate model elements for sufficiently realistic agricultural simulations (2-3 scientific papers).  |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> UG (D. Maraun, month 20-21, 2 months): design of RCM sensitivity simulations; TCDF (H. Loukos, month 28-29, 2 months): processing and analysing CORDEX simulations for MED; WB (A. Bucher, months 35-36, 2 months): distilling information from CORDEX data for Climate Knowledge Portal (joint with ESR6).   |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> U. of Copenhagen, Supervisor: J.H. Christensen, co-superv.: O.B. Christensen (DMI), A. Bucher (WB). ESR5 will have desks at UCPH and DMI (10 minutes by bike).   |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR6</i>  | <b>Host institution</b><br><b>UG</b>   | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <i>D3.4 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</i> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Understanding regional soil moisture - precipitation feedbacks and convection (WP3/contrib to 1,2,4,5)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> (1) to understand regional soil-moisture - precipitation feedbacks and their impact on convection, (2) assess how these are represented in a hierarchy of climate models (GCMs, CORDEX RCMs), and how value is added (also for the representation of changes) by convection permitting simulations (based on simulations for individual events), (3) contribute to the development of process-based evaluation diagnostics and the distillation of climate information.  |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> Improved understanding of the representation of soil-moisture precipitation feedbacks and convection and their response to climate change in semi-arid climates, in a hierarchy of climate models (2-3 scientific papers).   |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> UR (S. Woolnough, month 15, 1 month): large- and mesoscale drivers of convection over NA; ACMAD (B. Lamptey, month 18, 1 months): selection of case study events, discussion of regional characteristics; UPM (M. Ruiz Ramos, months 29-30, 2 months): influence of soil-moisture dynamics representation in climate models on agricultural simulations; WB (A. Bucher, months 35-36, 2 months): distilling information from CORDEX data for Climate Knowledge Portal (joint with ESR5).  |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. of Graz, Supervisor: D. Maraun, co-superv.: S. Woolnough (UR), A. Bucher (WB)  |  |                                  |                                     |                                     |  |

|   |  |                                  |                                     |                                     |  |
|---|--|----------------------------------|-------------------------------------|-------------------------------------|--|
| <b>Fellow</b><br><i>ESR7</i>  | <b>Host institution</b><br><b>CSIC</b> | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <b>D4.1 D4.2 D4.3 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</b> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Process-based correctability of time-scale dependent biases (WP4/contrib to 1,2,3,5)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> (1) To develop process-informed bias correction methods using processes well represented by GCMs and to assess their added value over existing bias correction methods focusing on temporal aspects, including inter-annual variability and trends. (2) To assess the seamless applicability of these methods across temporal scales (climate predictions and projections) and whether the evaluation results from climate prediction (e.g., reliability) could be informative for climate projections. (3) To contribute to the development of process-based evaluation diagnostics and the distillation of climate information.  |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> Assess the effects and added value of process-informed bias correction in temporal aspects of key variables, with special focus on those aspects and processes relevant in agriculture. Development of new process-conditioned bias correction methods and their coding in R (2-3 scientific papers).  |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> <b>BSC</b> (F. Doblas-Reyes, month 14-15, 2 months): systematic model errors in climate prediction and projections; <b>FAO</b> (M. Fujisawa, months 27-28, 2 months): influence of model biases on eco-climatic indicators (jointly with ESR2); <b>HORTA</b> (P. Meriggi, month 29, 1 months, back-to-back with FAO secondment): assessing decadal (-30y) climatic changes in MED; <b>TCDF</b> (H. Loukos, month 38, 1 month): application of new BC methods for MED.   |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. of Cantabria. Supervisor: J.M. Gutiérrez, co-superv.: F. Doblas-Reyes (BSC), M. Vrac (CNRS)  |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR8</i>  | <b>Host institution</b><br><b>CNRS</b> | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <b>D4.1 D4.2 D4.3 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</b> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Process-based correctability of spatial-temporal biases (WP4/contrib to 1,2,3,5)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> (1) To develop a flexible a spatial and temporal (multivariate) bias correction methodology enabling to include physically-driven information. (2) To assess this approach by exploring different configurations and assumptions: e.g., quality of the GCM to correct, preservation or not of some GCM properties (inter-site and/or inter-variable and/or temporal). This assessment will be performed not only from the climate point of view but also from the perspective of the impacts on the agriculture simulations and indicators. (3) To contribute to the development of process-based evaluation diagnostics and the distillation of climate information               |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> Better understanding of correctability of multivariate, spatial temporal biases. Multivariate bias correction method(s) and the associated R code(s); Guidelines for use both in climate and agricultural impacts studies (2-3 scientific papers).   |  |                                  |                                     |                                     |  |
| <b>Planned secondments:</b> <b>UG</b> (D. Maraun, 2 months, month 20-21): assess limitations of spatial-temporal bias correction; <b>JRC</b> (A. Toreti, months 32-33, 2 months): development/application of new bias correction method for MED; <b>TCDF</b> (H. Loukos, 38 month, 1 month): application of new BC methods for MED; <b>CSIC</b> (J. Gutierrez, month 39, 1 month): develop R software package (jointly with ESR9).  |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. Paris-Saclay, supervisor: M. Vrac, co-superv.: H. Loukos (TCDF) , A. Toreti (JRC)  |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR9</i>  | <b>Host institution</b><br><b>UG</b>   | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <b>D4.1 D4.2 D4.3 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</b> |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Precipitation biases: process-based correctability and model selection (WP4/contrib to 1,2,3,5)</b>  |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> (1) Identify relationships between local precipitation and large & meso-scale processes, attribute climate model biases in local precipitation to biases in these processes, and understand the influence of biases in these processes on the climate change signal of precipitation. (2) Understand the statistical correctability of local biases in presence of large & meso-scale biases. (3) Develop a process-based stochastic bias correction & downscaling approach to improve the representation of convective precipitation under climate change. (4) contribute to the development of process-based evaluation diagnostics and the distillation of climate information. |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> (1) a better understanding of the controls of local-scale precipitation variability, their response to climate change, and their representation in climate models. (2) a better understanding of the causes of precipitation biases and their correctability. (3) a stochastic model to stochastically downscale and bias correct climate model output to local, spatially coherent precipitation fields. (4) A set of process diagnostics to evaluate the representation of convective precipitation in climate models (2-3 scientific papers).   |  |                                  |                                     |                                     |  |
| <b>Planned secondment:</b> <b>UR</b> (T. Shepherd, month 17-18, 2 months): influence of circulation errors on bias correction over NA; <b>CNRS</b> (N. de Noblet/M. Vrac, month 29, 1 month): influence of model errors on agricultural modelling; <b>CCAFS</b> (D. Solomon, month 35-36, 2 months): distilling climate change information for NA (jointly with ESR3); <b>CSIC</b> (J. Gutierrez, month 39, 1 month): develop R software package (jointly with ESR8).   |  |                                  |                                     |                                     |  |
| <b>Enrolment in Doctoral degree:</b> Univ. of Graz. Supervisor: D. Maraun; co-superv.: B. Hewitson (UCT), D. Solomon (CCAFS)  |  |                                  |                                     |                                     |  |
| <b>Fellow</b><br><i>ESR10</i>   | <b>Host institution</b><br><b>UD</b>   | <b>PhD enrolment</b><br><b>Y</b> | <b>Start date</b><br><b>Month 6</b> | <b>Duration</b><br><b>36 months</b> | <b>D5.2 D6.1 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</b>      |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Concepts and Practices for Responsible Provision of Climate Information (WP5,6,1/contrib to 2,3,4)</b>   |  |                                  |                                     |                                     |  |
| <b>Objectives:</b> To articulate an account of responsible provision of climate information, attending to both epistemic and ethical responsibilities and their interactions; to consider how responsible provision is related to the prominent notions of 'credible' and 'defensible' information; to analyze how scientific uncertainties create challenges for enacting these responsibilities; to clarify the ways in which user value systems can legitimately shape methodological choices in the development of climate information products. Contribute to the distillation of climate information.   |  |                                  |                                     |                                     |  |
| <b>Expected Results:</b> A better understanding of responsible provision of climate information; guidelines for responsible provision of climate information, which in turn can aid practitioners.  |  |                                  |                                     |                                     |  |
| <b>Planned secondment(s):</b> <b>UR</b> (T. Shepherd, month 22, 1 month): climate science and modelling; <b>UG</b> (D. Maraun, months 27-28, 2 months): role of deep uncertainties for climate information provision (jointly with ESR11); <b>CCAFS</b> (D. Solomon, month 38, 1 month): responsible climate information provision for NA.  |  |                                  |                                     |                                     |  |

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|--|--------------------------------|---------------------------|------------------------------|------------------------------|---|
| <b>Enrolment in Doctoral degree:</b> Univ. of Durham. Supervisor: W.Parker; co-superv.: D. Maraun (UG), T. Shepherd (UR)   |                                |                           |                              |                              |   |
| <b>Fellow</b><br><i>ESR11</i>  | <b>Host institution</b><br>UCT | <b>PhD enrolment</b><br>Y | <b>Start date</b><br>Month 6 | <b>Duration</b><br>36 months | <b>D5.1 D6.3 (D1.1 D1.7 D1.8 D1.10 D5.3 D8.1 D8.2)</b>      |
| <b>Project Title and Work Package(s) to which it is related:</b><br><b>Distillation, Communication and Perception of Information and Uncertainty (WP5,6,1/contrib to 2,3,4)</b>  |                                |                           |                              |                              |   |
| <b>Objectives:</b> Understand how knowledge and information regarding climate change at the regional level is and could optimally be integrated into the user context, in particular with respect to how uncertainty is aggregated, communicated and ultimately understood and perceived and negotiated by 'users' and 'influencers' at the decision scale. Contribute to the distillation of climate information.   |                                |                           |                              |                              |   |
| <b>Expected Results:</b> Guidelines for integration and distillation of climate change knowledge and information. Understanding of how information is understood and perceived by users. Methodologies to communicate information to be perceived as relevant, and of engagement (e.g., stories) to link modelers and users.   |                                |                           |                              |                              |   |
| <b>Planned secondment(s):</b> UD (W. Parker, month 18, 1 month): values and user perception; UG (D. Maraun, months 27-28, 2 months): aggregation/communication of uncertainties (jointly with ESR11); WB (A. Bucher, months 32-33, 2 months): develop means for user uptake of information (jointly with ESR12); CNRS (N. de Noblet, month 34, 1 month): distillation of climate change impacts on crops.  |                                |                           |                              |                              |   |
| <b>Enrolment in Doctoral degree:</b> Univ. of Cape Town. Supervisor: B. Hewitson, co-superv.: E. Boyd (LU), D. Maraun (UG)   |                                |                           |                              |                              |   |
| <b>Fellow</b><br><i>ESR12</i>  | <b>Host institution</b><br>LU  | <b>PhD enrolment</b><br>Y | <b>Start date</b><br>Month 6 | <b>Duration</b><br>36 months | <b>D6.1 D6.2 (D1.1 D1.7 D1.8 D1.10 D5.1 D5.3 D8.1 D8.2)</b> |
| <b>Project Title and Work Package(s) to which it is related:</b> Critical advancement of the role of relational and cultural aspects in communicating climate science (WP6,1,5/contrib to 2,3,4)   |                                |                           |                              |                              |   |
| <b>Objectives:</b> To understand how relational and cultural dimensions can be used to unpack and advance the ways in which modelers and users interact, based on case study examples from DECIFER collaborations. Contribute to the distillation of climate information.  |                                |                           |                              |                              |   |
| <b>Expected Results:</b> 4 publications including a literature review on the role of relations and intersectionality in science – policy sustainability knowledge and climate communication. 1 theoretical paper on how relational dimensions of culture of science – policy is structured and what intersectionality means within these relational dimensions. Methodological paper on ways to engage with breaking down traditional differences between modellers and users and how climate science is communicated, and through which methodologies of engagement. 2 empirical papers testing the theoretical and methodological entry points culminating in 1 synthesis paper. |                                |                           |                              |                              |   |
| <b>Planned secondment(s):</b> UG (D. Maraun, month 16, 1 month): understanding barriers between climate modelling communities and users; UCT (B. Hewitson, month 22-23, 2 months): narratives for climate information communication (jointly with ESR3); WB (A. Bucher, months 32-33, 2 months): develop means for user uptake of information (jointly with ESR11).  |                                |                           |                              |                              |   |
| <b>Enrolment in Doctoral degree:</b> Lund Univ.. Supervisor: E. Boyd, co-superv.: B. Hewitson (UCT), S. Galmarini (JRC). NB: ESR12 will be enrolled in a 4-year programme. Additional funding will be provided by LUCSUS.  |                                |                           |                              |                              |   |

### 3.2 Appropriateness of the management structures and procedures

#### 3.2.1 Network organisation and management structure

All beneficiaries have extensive expertise in coordinating research projects, many have coordinated major international consortia and initiatives (e.g., IPCC, WCRP, CORDEX-ESD, EU-FP6/7/H2020 projects). The chair (D. Maraun) has successfully chaired the EU COST Action VALUE and several other international projects. Based on this experience, we have designed a management structure following **three principles**:

- a slim and efficient structure allowing for fast decisions;
- a transparent structure that democratically supervises the decision process;
- a fair structure that appreciates the interests of all participants and has mechanisms implemented to avoid or deal with scientific misconduct and harassment.

The aim is to guarantee an inspiring and trustful working environment. As a result, DECIFER will have three permanent bodies, event-specific task forces, and a limited number of managers and officers.

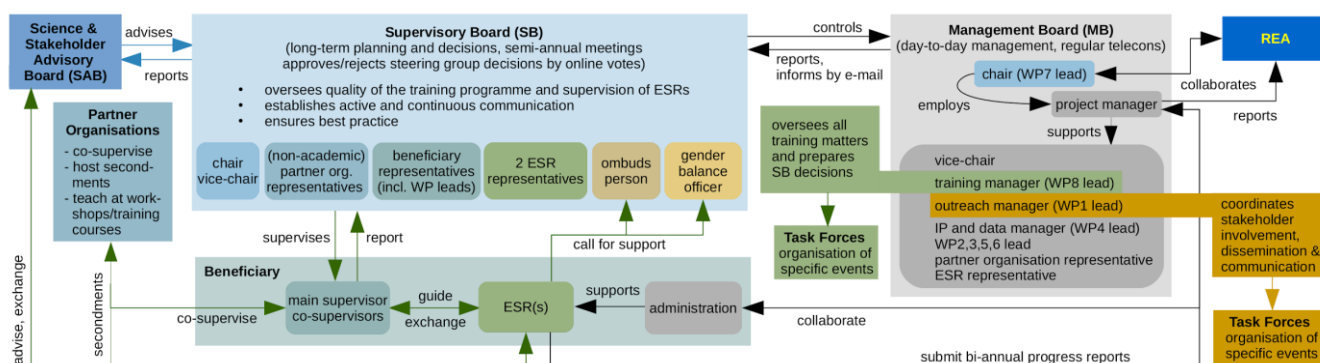


Fig. 3: Management structure of DECIFER.



**Supervisory Board (SB):** the SB is responsible for the long-term planning of the action. It will oversee the quality of the programme and research, in particular the supervision of the individual ESRs, and establish an active and continuous communication. It will ensure a balanced training programme, the exchange of best practice, and the involvement of the non-academic sector. Consensus is sought. In cases where consensus is not possible, decisions will be made by a simple majority.

The SB will meet once a year. Additionally, decisions may be drawn as e-votes via the project internet platform (with a two weeks notice, no vote counts as positive vote). The SB appoints and controls the management board (MB) of the Action (see below). All major MB decisions have to be approved or rejected by the SB.

The SB will be **chaired by the coordinator** (D. Maraun, see below) and a **vice-chair** (T. Shepherd). Every beneficiary and partner will send a representative (including the training and outreach managers and the WP leaders), the ESRs will send two representatives (1 male, 1 female). Additionally, the ombudsperson and gender balance officer will be members of the SB (see below). Within the SB and Management board (see below), the training manager (TM) will oversee the overall training.

**Management Board (MB):** the MB manages the action on a day-by-day basis. It convenes during all network-wide meetings, and additionally via teleconferences when matters arise. The MB is **chaired by the coordinator** to ensure a smooth progress of the Action. The coordinator employs a project manager (see below) to support the work of the MB. Additionally, five managers will serve on the board: the vice-chair, the IPR and data manager, the training manager (TM), the outreach manager (OM), a partner representative and an ESR representative. For details on the individual managers see below. All MB decisions (simple majority, may also be drawn by e-vote as in the SB) have to be approved by the SB.

**Science and Stakeholder Advisory Board (SAB):** the SAB is an **independent** body appointed to critically advise the Action. The members are (letters of support, Section 7): **Antje Weisheimer** (ECMWF/Oxford Univ., Climate Science), **Alex Ruane** (NASA, AgMIP initiative, Agricultural Science), **Joseph Darron** (UK MetOffice, Climate Services for Africa). The SAB will have joint meetings with the SB (in person or virtual) once a year to advise on co-design, review the progress of the Action and to give recommendations for future planning.

The **coordinator (WP7 lead, D. Maraun)** coordinates and is responsible for the whole action. He chairs the SB and MB meetings, oversees whether the overall training and research runs smoothly and according to schedule, and whether the overall budget is managed properly. He is the responsible contact with the EU H2020 officer in Brussels. The **vice-chair (Ted Shepherd)** has a trustful relationship with the coordinator and will discuss all relevant issues with him. He will stand in when the chair is not available.

The chair employs a **Project Manager (PM)** at UG (50-75% postdoc position, funded by overhead contributions of all beneficiaries). The PM will carry out all day-to-day tasks of the action such as: keeping deadlines in mind, preparing meetings, writing minutes, serving as contact point for the administration of all beneficiaries, contacting the REA on day-to-day issues, preparing reports for the EU, supporting all MB managers, and reviewing the supervisory meeting reports of the ESRs for the TC. The PM will have a background in one of the relevant disciplines at the PhD level, but will have opted for a career in research management.

The **Training Manager (TM, WP8 lead, W. Parker)** is responsible for all training activities. She will ensure that the supervision of all ESRs is running smoothly and that the training meets the requirements expressed by the ESRs and the project. She will coordinate all training-related issues relevant for the whole network (appointing task forces for training events, discussing adjustments of the training programme, giving feedback to the supervisory teams, calling the ombudsperson or gender balance officer, etc.). The TM will also contact the PhD schools at the beneficiaries in case of issues with accrediting network-wide training courses.

The **Outreach Manager (OM, WP1 lead, Nathalie de Noblet)** is responsible for the interaction with partners, external stakeholders, and the general public. She will coordinate the dissemination and communication activities of the action and will appoint **task forces** to organise specific events.

The **IPR and data manager (IM, WP4 lead, J. Gutierrez)** is responsible for all intellectual property rights related issues and coordinates the publication of DECIFER data.

The **Ombudsperson (OP, F. Doblas-Reyes)** is responsible to ensure that DECIFER follows the European Code of Conduct for Research Integrity. The OP may be called by any Action participant in case of any type of scientific misconduct (also authorship, plagiarism, and misuse of seniority by a supervisor). If desired by the complainant, the OP may arrange a meeting of the involved parties. The complainant may also call the gender balance officer for a joint meeting. All issues will be treated confidentially by all involved parties. If a conflict cannot be resolved, however, the OP may - if desired by the complainant, bring the case forward to the supervisory board. If local OPs are in charge, the DECIFER OP will collaborate to ensure that local procedures are respected.

The **Gender Balance Officer (GBO, M. Ruiz Ramos)** is responsible for all issues relating to gender, equal opportunities and harassment. The GBO may be called by any Action participant (male/female) in any gender-

related case. Procedures as for the OP. The GBO has the mandate to oversee and to initiate actions to ensure gender balance. The GBO will attend a training course on her duties in the beginning of the project.

### 3.2.2 Financial management

UG has considerable expertise in managing big national (graduate schools, collaborative research centers) and international (EU FP6/7/H2020) research projects. UG has a research management and service unit with more than 20 staff members to support researchers and project coordinators in administrative, legal, financial and controlling matters. Moreover, the Wegener Center (the coordinator's institute) has, in addition to its regular administrative staff, a project manager dedicating 16 h per week to the coordinators research group. The chair and PM will closely collaborate with this support staff to ensure a smooth and professional management of the Action.

Financial management will be overseen by the coordinator. Day-to-day management, the prompt transfer of payments to participants and preparation of financial statements will be coordinated by the PM with support from the above-mentioned support staff. Up to 50% of the management overhead of all beneficiaries will be transferred to the coordinator to ensure a professional action management, in particular to employ the PM. Reimbursement of all partner organisations will be handled centrally by UG to ensure smooth reimbursement procedures.

### 3.2.3 Recruitment strategy

All beneficiaries have endorsed the European Charter for Researchers and Code of Conduct for their Recruitment and will follow its principles in the recruitment process. The recruitment process will commence immediately after a positive evaluation. Advertisements are expected to be published after one month, application deadline will be after 2½ months. The selection process is expected to be finished after 4 months. The start of the individual ESR projects is envisaged for month 7, but the project duration of 48 months gives some flexibility.

**Advertisement and Recruitment:** all positions (including the PM) will be advertised jointly via EURAXESS, discipline specific mailing lists (e.g., CLIMLIST, Metjobs, AgMIP, DSSAT, philos-I, climate-I, list of relevant master courses around Europe), via the individual participants networks and other relevant networks (e.g., START, ACPC, Climate Research for Development in Africa). We will not advertise in scientific journals as these channels are not yet relevant at such an early career stage. The actual advertisement will give a transparent and clear description of the positions (via links to downloadable pdf-documents) including the knowledge and competencies required and the working conditions at the corresponding beneficiary. The descriptions will not be too specialised so as not to discourage in particular female applicants. The advertisement will include a general description of DECIFER, the involved partners and the training programme. Equal opportunities will be highlighted. In particular it will be emphasised that measures will be taken to reconcile family and work.

The actual recruitment will be local. Each applicant should submit their application to one specific beneficiary only, clearly indicating the position applied for, but may give alternative positions as second choice. A beneficiary may then during the selection process transfer the application if the applicant gives their consent. This mechanism will in particular be used to transfer strong female candidates (in case they are not ranked first) to improve the overall gender balance.

**Selection:** the selection will be conducted by a selection committee, chaired by the main supervisor and additionally comprising the (interdisciplinary) co-supervisors and the local GBO. Additionally, (non-academic) partners hosting the ESR and a female representative (from the beneficiary or a partner) may join the selection committee. This composition ensures a competent but diverse, interdisciplinary and intersectoral expertise. Initially, applications will be screened using eligibility criteria based on Marie Curie rules for nationality, mobility and research experience. Candidates will be shortlisted based on the required knowledge and skills, the overall CV, and the results section of their MSc thesis. Interviews (in person, if desired by the candidate also via skype) will be conducted in a fair and constructive way, with the intention to engage the candidate in a scientific discussion about their previous work and potential work in DECIFER. The aim of this discussion will be to assess the candidate's intellectual capacity, enthusiasm and potential.

### 3.2.4 Progress monitoring and evaluation of individual projects

All beneficiaries have an outstanding international reputation and are experienced in running big projects and supervising ESRs. To ensure smooth progress, we will implement the following monitoring mechanisms.

**At the beneficiary level:** the main supervisors are responsible for the training and research progress of each ESR. Regular meetings discussing the research will ensure a good guidance of the ESR and awareness of the supervisor about the progress. The 6-monthly supervisory meetings guarantee a regular monitoring with external co-supervision. The structure of these meetings will be well defined: specific mid-term goals will be defined and revisited, the CDP will be revisited, training gaps will be identified and measures to fill these gaps will be decided. The project tasks, milestones and deliverables will be checked and serve as targets for mid-term planning.

**At the network level:** the chair is responsible for the overall research and training progress, the monitoring is supported by the PM. The TM is responsible specifically for the training progress, the WP leaders for the research at WP level, the OM for all dissemination and communication issues. All ESRs will present their research at the regular webinar and once per year at the network meetings. Additionally, the PM will review the 6-monthly written ESR-reports of the supervisory meetings (max. 3 pages) and highlight potential delays and issues to the TM. The TM will review all critical issues. If necessary, she may get in touch with the ESRs and their supervisors, or bring the case forward to the full SB. In case of poor ESR performance, the supervisory team as a whole may confidentially contact the TM. The WP leaders will monitor tasks, milestones and deliverables and report to the SB and MB in case of delays. The chair, with input from the WP leaders and SB members and the support of the AM, will prepare an annual report to be submitted to the SAB. In a dedicated progress session at a network meeting, the SAB members will give detailed feedback on the progress and suggest adjustments and improvements. Also the (non-academic) partners will give feedback at these meetings.

**Progress Indicators:** progress will be measured based on the: (i) achievement of milestones and publications of deliverables; (ii) number and in particular quality of ESR publications and presentations at conferences and workshops; (iii) growing independence and maturity of the ESRs during the action; (iv) usefulness of the secondments for both parties; (v) uptake of the results by non-academic partners and other stakeholders.

### 3.2.5 Risk management at consortium level

A Consortium Agreement will be finalised and signed before the signature of the grant agreement with the EC following funding of DECIFER. Issues that will be specified in the Consortium Agreement will include (but not be limited to) (i) handling of confidential information, (ii) procedures and remedies for dealing with defaulting partners, (iii) usage rights for IP generated in DECIFER by partners who withdraw from the project before its completion, (iv) settlement of disputes that cannot be resolved by the SB, (v) duties of the SB and the SAB, (vi) role of the project coordinator and supervisors including a draft supervisory agreement, (vii) schedule for report and meetings, (viii) IP protection and licensing and (ix) financial management of the EU contribution. If disputes cannot be resolved by the procedures laid out above (with the involvement of the OP, GBO, TC and SB), the chair will consult with legal experts at UG and potentially the EC. A list of potential risks is given in Table 3.2a.

**Table 3.2a Implementation Risks**

| Risk No. | Description of Risk   | WP No. | Proposed mitigation measures   |
|----------|---|--------|--|
| R1       | Delay in recruitment  | WP7    | Early and broad advertisement of positions, and synchronised recruitment (Section 3.2) to avoid this risk. Potentially readvertise individual positions and delay start of related ESR projects. SB to adjust timeline and tasks accordingly.  |
| R2       | WP leader/manager not sufficiently committed.                         | All    | Feedback discussion with Chair, Vice-Chair, and, if desired, OP. <i>Ultima ratio</i> : SB to elect new WP leader/manager.  |
| R3       | Supervisor leaves project/is unavailable                              | All    | Inform REA. If possible replace by qualified substitute from home institution, otherwise by remote supervision from another beneficiary (note that the partner organisations offered more co-supervision than currently required in the project)..   |
| R4       | Partner leaves project/is unavailable                                 | All    | Inform REA. SB to decide about re-allocation of tasks and secondments to other partners or substitute partner (to be detailed in Consortium Agreement)   |
| R5       | Poor performance of individual ESR                                    | All    | Intensive interaction between ESR, supervisors, TM, and coordinator to set appropriate actions (personal support, adjustment of tasks, setting new timelines and deadlines). Adaptation of CDP if required. <i>Ultima ratio</i> : replacement of ESR by better qualified/motivated candidate.  |
| R6       | Poor supervision; tension between ESR/supervisor                      | All    | Intensive interaction between ESR, supervisor, OB & TM to solve problems. Adaptation of CDP if required. <i>Ultima ratio</i> : replacement of supervisor (as in R2).   |
| R7       | Unresolved conflict in network  | All    | To be solved by the strategies on consortium level outlined above in 3.2. If mediation by OP fails, REA will be informed and external help will be sought.   |
| R8       | Political instability in African target country                       | All    | Switching activities to alternative target country in the region, in close consultations with the partner organisations active in the region.  |
| R9       | Brexit resulting in UK not eligible for H2020 funding anymore         | All    | HM Treasury has guaranteed payment of H2020 funds should the UK not be eligible for H2020 funding. Should this commitment be withdrawn, we will consult immediately with REA and re-allocate tasks and budgets to other beneficiaries. The UK supervisors may still act as external co-supervisors. Details will be given in the Consortium Agreement. |
| R10      | Agricultural calibration data not available/too poor for region/crop. | All    | Choose different region or crop, in close consultations with the partner organisations active in the region.   |
| R11      | Delay with milestones/deliverables                                    | All    | Overseen by PM. MB to propose appropriate actions to SB (repetition of individual studies, adjustment of timeline, reformulation or re-allocation of tasks). Inform REA.   |

### 3.2.6 Intellectual Property Rights (IPR)

Fair principles of intellectual property (IP) and joint ownership of collaborative work will be recognised by supervisors and ESRs in line with the Consortium Agreement and Code of Conduct for Researchers. All participants will sign a Consortium Agreement before the signature of the EU grant agreement following DECIFER funding. The Consortium Agreement will regulate, inter alia, publication, confidentiality and ownership of IP rights. IP will lie with the inventors, not the consortium, and institutions will make mutually acceptable agreements to protect the rights of parties. Each ESR will enjoy royalty-free access to the knowledge required for their activities and negotiation on IP rights will not affect training. If companies wish to use IP generated by academic participants there will be a formal, agreed contract between each party.

### 3.2.7 Gender Aspects

All beneficiaries are dedicated and have formalised equal opportunities policies. A GBO will oversee all gender aspects in the action and has the mandate to initiate actions to ensure gender balance.

**Recruitment:** we aim for 30-50% female ESRs. To encourage women to apply, the descriptions in the job-posts will not be too specialised as to discourage in particular female applicants; it will be emphasised that career breaks of women and men before and during the PhD (e.g., parental leave) are seen as positive, and that measures will be taken to reconcile family and work. Selection committees will have at least two female participants. The acting Action GBO will have to approve the overall selection to ensure gender balance. She may ask to reconsider the selection in case of a strong gender imbalance at the action level. In this case, the whole supervisory board will be called in to reconsider the applications of strong female candidates.

**During the project phase:** 36% of the main supervisors and 50% of the WP leaders are female. We will aim for 50% female SB members, but at least 30%. All major female scientists will all act as role models. In particular we will organise a “women in science workshop” to raise awareness of gender issues (also for male ESRs), provide further role models, and to share experiences, identify problems and discuss solutions, and to enable networking. We will support in particular female ESRs by offering - if required - child care at all network-wide events (the availability for child care will be a criterion for selecting event locations), helping with finding kindergartens locally, and planning meetings such that they are easily attended by mothers. Male ESRs are encouraged to contribute to family work and child care (e.g., parental leave). Home office and flexible work hours will be offered to balance family and work.

### 3.2.8 Data management plan

Given the relevance of our work for society, we pursue an open access and open data policy.

**Open Access:** all resulting peer-reviewed scientific publications will be published in open-access journals, or pdf-versions of accepted manuscripts will be uploaded in open access repositories. A repository number for each publication will be provided in the action reports, links will be given from the DECIFER webpage. All guidelines, reports and outreach documents will be published with open access on the DECIFER webpage.

**Open Data:** our IP and data manager will be responsible for all data issues. All relevant data generated by DECIFER beneficiaries and ESRs will be shared publicly. This concerns mainly bias-corrected climate model and yield projections. We will follow standard CORDEX format requirements for the climate model data and provide them via the open access Earth System Grid Federation servers ([esgf.llnl.gov](http://esgf.llnl.gov)) and the Open Data Journal for Agricultural Research. Relevant data will also be published via the World Bank Climate Change Knowledge Portal ([www.worldbank.org/climateportal](http://www.worldbank.org/climateportal)), which itself follows an open data policy.

Additionally, we will cooperate with the **COPERNICUS Climate Data Store** (CDS, to be opened in 2018). This portal will provide a wide range of standard climate model data, including those we will use as a basis for our research (CMIP, CORDEX). The CDS will allow for online post-processing of this data via scripts, providing some approved best practice example scripts. We will provide our post-processing scripts (e.g., evaluation, bias correction, analysis) and apply for them being published as best practice examples.

## 3.3 *Appropriateness of the infrastructure of the participating organisations*

All hosts have excellent physical infrastructure and state-of-the-art equipment, with details of the research and training facilities and roles/profiles of partners described in Section 5. All ESR will have a desk located not far from the main supervisor. To provide a stimulating academic environment and regular exchange with other ESRs, we deliberately chose only academic beneficiaries who regularly supervise PhD students. The administrations of all beneficiaries are experienced in managing research projects, in particular also of EU-funded projects. All beneficiaries have institutions (or closely collaborate with Universities) that regularly offer training courses



including training in transferable skills. Internet-streaming facilities for webinars are available for DECIFER at all beneficiaries.

The partner organisations regularly host secondments, in particular the DMI, FAO, JRC, WB. In case of the TCDF, secondments will be virtual, as applied in previous projects: the ESR will stay at the home institution and will collaborate closely on a day-by-day basis with TCDF over the time of the secondment (via skype and online exchange of data). This type of secondment will provide insight into modern remote work processes.

### **3.4 Competences, experience and complementarity of the participating organisations and their commitment to the programme**

#### **3.4.1 Consortium composition and exploitation of participating organisations' complementarities**

All beneficiaries are leading experts in their respective fields with an outstanding track record, some with a world-class reputation. They are experienced in managing big consortia as coordinators or WPs within consortia. All beneficiaries have substantial supervisory experience as laid out in Section 1.2 and Section 5. The partner organisations are mostly leading international organisations or private companies with close and long-standing connections to the academic sector. They are crucial for the real world impact of DECIFER and major dissemination bodies.

The **beneficiaries represent a wide range of disciplines**, ranging from climate dynamics to climate modelling, statistics, agricultural modelling, philosophy and social sciences. As detailed in Table 3.1d, every ESR project will be supervised by a **main-supervisor from the relevant discipline** (as defined by the research objectives and WP tasks). **Inter-disciplinary co-supervision** additionally brings in new ideas and perspectives and facilitates the exploration of innovative research avenues.

The **partner organisations are crucial for DECIFER having a real-world impact**. They comprise European research institutions (DMI, JRC) providing climate services, a small private climate service enterprise (TCDF), international organisations working in the field of climate services and food security and coordinating projects in the target regions (WB, FAO), platforms to coordinate and facilitate user-driven climate research in Africa (ACMAD, CCAFS) and private companies working in the agricultural sector of the target regions (HORTA, IsardSAT). The partners will provide invaluable work experience for the ESRs, and moreover make direct use of the DECIFER results and disseminate them to a wider stakeholder community. Overall the consortium provides a stimulating research environment to produce world-class research and international impact.

#### **3.4.2 Commitment of beneficiaries and partner organisations to the programme**

All **beneficiaries** are committed to the training in DECIFER, and to making DECIFER play a crucial role in developing approaches for climate information distillation, establishing a sustained interdisciplinary research and user community, and advancing our understanding of climate change impacts on agriculture in MED and NA. Sub-groups of all beneficiaries have collaborated earlier: in EU FP7/H2020 and other projects, in the EU COST Action VALUE, in IPCC and WCRP activities, and in the new network Badjam (Bias adjustment for agricultural modelling) initiative. DECIFER will make these networks grow together into a new research community. Each individual will take over specific responsibilities as detailed in Sections 1, 2 and 3, and will be committed to the required research, training and outreach tasks. For details see Table 1.2b (organisation of training events), Section 3.1 (contribution to work packages and tasks, responsibility for deliverables and milestones, supervision and hosting of secondments), Section 3.2.1 (responsibility for management and training tasks) and Section 5 (description of participating organisations). In particular the interests of the beneficiaries go well beyond their discipline as demonstrated by the offer to host various interdisciplinary secondments.

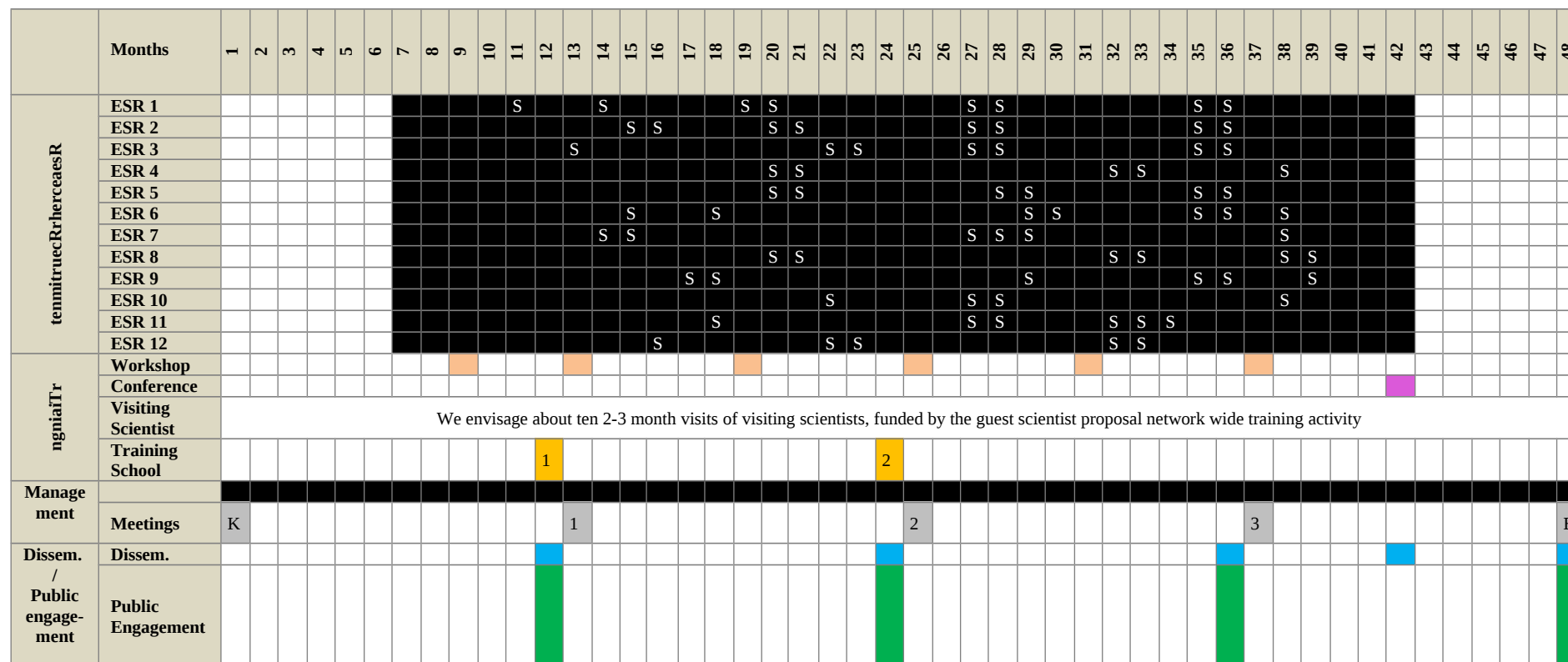
**Partner organisations:** The role of partner organisations and their active contribution to the research and training activities are clearly defined in the letters of commitment (Section 7), and in the respective proposal sections: Section 1.2 for the training programme; the ESR descriptions in Table 3.1d for the secondments. Each partner will send a representative to the SB. The facilities of each partner are detailed in Section 5. In some cases, the partner organisations offered co-supervision, but have no defined supervisory role in the proposal. These partner organisations could take over co-supervision in case another partner should be unavailable.



## DOCUMENT 2 (no overall page limit applied)

### 4. Gantt Chart

Reflecting ESR recruitments, secondments, training events, management and dissemination / public engagement activities



S = Secondment<sup>1</sup>

K = Kick-off meeting

<sup>1</sup> **30% secondment rule:** Under ETN, each recruited researcher can be seconded to other beneficiaries and /or to partner organisations for a duration of up to 30% of his/her recruitment period (this limitation does not apply to EID and EJD, insofar as time spent at other participating organisations occurs in line with the proposal).

## 5. Participating Organisations

For beneficiaries:

| Beneficiary Legal Name: University of Graz                        |   |
|---|---|
| <b>General Description</b>  | The University of Graz is the second biggest and second oldest University in Austria, founded in 1585. The Wegener Center for Climate and Global Change is an interdisciplinary research institute at the University. Founded in 2007, its 6 professors and approx. 60 staff members are organised in four research groups joining expertise in atmospheric remote sensing, atmospheric dynamics and chemistry, regional climate modelling, and the economics of climate change and global transformation. The Wegener Center is a core institute in “Climate Change and Sustainable Transformation”, one of two recently established research focus areas of the University. It brings together researchers from physical climate science, chemistry, evolutionary biology, geography, social sciences and philosophy.   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Prof. Douglas Maraun (20% ft)</b> is head of the regional climate modelling and analysis research group. He has a background in climate science with a focus on regional climate change and statistical modelling (extreme events, statistical downscaling, bias correction). He has chaired the EU COST Action VALUE on evaluating downscaling and bias correction approaches. He is the coordinator of DECIFER and WP7 leader. He will be main supervisor of ESR6 and ESR9, and co-supervisor of ESR10 and ESR11.<br><b>Dr. Heimo Truhetz (5% ft)</b> is a regional climate modeller with particular expertise in convection permitting simulations. He will support ESR6 at UG in all climate modelling specific issues.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | The Wegener Center has access to high performance computing facilities at the University of Graz and at the Vienna Scientific Cluster. The Wegener Center is a member of the Climate Change Centre Austria, which has professional data storage facilities.   |
| <b>Status of Research Premises</b>                                | The Wegener Center is located in walking distance of the main University campus, in a building rented by the University. Desks in a shared PhD office will be offered to the ESRs in the Wegener Center building.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | <b>Maraun</b> has chaired the EU COST Action VALUE (2012-2015). At Kiel University he has been associated with the PhD school ISOS (Integrated School of Ocean Sciences, ca. 150 PhD students). He has been, among others, PI of: PLEIADES (Projections and predictions of local precipitation intensities. Advanced downscaling using extreme value statistics; two postdocs, 2012-2015, Volkswagen Foundation), EUREX (European and Russian Extreme Events; two PhD students, 2012-2015, Helmholtz Russia Joint Research Group).<br><b>Truhetz</b> has been involved in numerous research projects on regional climate change projections and impacts. In particular he was PI of the HighEndExtremes and NHCM2 projects about convection permitting simulations. Truhetz has been co-supervising several postdocs, PhD and MSc students.   |
| <b>Current Involvement in Research and Training Programmes</b>    | In January 2017, <b>Maraun</b> joined the Graduate School “Climate Change and Transformation”, which has recently been extended for four years (12 new PhD students, Austrian Science Fund, starting summer 2018). He is, in addition to being co-PI in two projects, currently PI of the following projects: EASICLIM (Eastern Alpine Slope Instabilities under Climate Change; 1 postdoc at UG, 2017-2019; Austrian Climate Research Programme); STARC-Impact (Supporting the Austrian Research Community in using recent Climate Change Projections for Climate Impact Studies, 1 postdoc at UG, 2016-2018; Austrian Climate Research Programme); CE:LLO (Compound Events: multi-variate statistical modelling; 1 PhD student at UG, 2014-2018, Volkswagen Foundation).<br><b>Truhetz</b> currently participates in two research projects and co-supervises one PhD student and one MSc student.   |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <b>D. Maraun</b> , T.G. Shepherd, M. Widmann, G. Zappa, D. Walton, J.M. Gutierrez, S. Hagemann, I. Richter, P.M.M. Soares, A. Hall and L.O. Mearns: Perspective: Towards process informed bias correction of climate change simulations. <i>Nature Climate Change</i> 7, 764-773, 2017.<br>E.P. Meredith, V.A. Semenov, <b>D. Maraun</b> , W. Park and A.V. Chernokulsky: Crucial role of Black Sea warming in amplifying the 2012 Krysk precipitation extreme. <i>Nature Geoscience</i> 8: 615-619, 2015<br><b>D. Maraun</b> , M. Widmann, J.M. Gutierrez, S. Kotlarski, R.E. Chandler, E. Hertig, J. Wibig, R. Huth and R. Wilcke, VALUE - A framework to validate downscaling approaches for climate change studies. <i>Earth's Future</i> 3(1): 1-14, 2015.<br><b>D. Maraun</b> , F. Wetterhall, A.M. Ireson, R.E. Chandler, E.J. Kendon, M. Widmann, S. Brienens, H.W. Rust, T. Sauter, M. Themessl, V.K.C. Venema, K.P. Chun, C.M. Goodess, R.G. Jones, C. Onof, M. Vrac and I. Thiele-Eich: Precipitation Downscaling under climate change. Recent developments to bridge the gap between dynamical models and the end user. <i>Rev. Geophys.</i> 48, RG3003, 2010<br>A.F. Prein, A. Gobiet, M. Suklitsch, <b>H. Truhetz</b> , N. K. Awan, K. Keuler, and G. Georgievski. Added value of convection permitting seasonal simulations. <i>Climate Dynamics</i> , 41, 2655–2677, 2013 |

| <b>Beneficiary Legal Name: Barcelona Supercomputing Center</b>    |   |
|---|---|
| <b>General Description</b>  | <p>The Barcelona Supercomputing Center – Centro Nacional de Supercomputación (BSC) combines unique high performance computing facilities and in-house research departments on Computer, Life, and Earth Sciences, and Computational Applications, counting more than 400 researchers and students from more than 40 different countries.</p> <p>The mission of the Earth Sciences department (BSC-ES) is to develop and implement global and regional models and data solutions for air quality and climate forecasting and their applications.. The department is structured around four groups, with more than 70 employees, including technical and support staff. Over the years, the department has been active in numerous European Projects including, in FP7 (7 projects) and H2020 (21 projects) not only as partner but also as coordinator. It is also currently involved in at least five COPERNICUS contracts coordinating one of the actions.</p>   |
| <b>Role and Commitment of key persons (including supervisors)</b> | ICREA Research Professor <b>Francisco J. Doblas-Reyes (10% ft)</b> is the director of the BSC-ES. He is an expert in the development of seasonal-to-decadal climate prediction systems and has more than 20 years of experience in weather and climate modelling, climate prediction, as well as the development of climate services. He will be main supervisor of ESR3, co-supervisor of ESR7 and ombudsperson of DECIFER.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | BSC-CNS hosts a range of high-performance computing (HPC) systems, including MareNostrum IV, one of the most powerful supercomputers in Europe with a peak performance of 13.7 Petaflops. Additionally, BSC manages Minotauro, a Sandy Bridge's cluster with NVIDIA GPUs, providing more than 100 TFlops.   |
| <b>Status of Research Premises</b>                                | All BSC's departments maintain independent research premises.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | <p>BSC has hosted around 44 national and European fellowships among early-stage and senior postdoctoral fellowships which include Marie Curie ITN projects (e.g. SCALUS, FP7-PEOPLE-ITN-2008-238808; NEMOH, FP7-PEOPLE-2011-ITN-289976, COPA-GT) and several Marie Curie IEF (e.g. EEPPIBM, FP7-PEOPLE-2012-IEF-327899; MDRAF, FP7-PEOPLE-2013-IEF-622662).</p> <p><b>Doblas-Reyes</b> has supervised over 37 European and national projects as well as international contracts on climate dynamics/prediction. He received the 2006 Norbert Gerbier-MUMM International Award of the World Meteorological Organization.</p>   |
| <b>Current Involvement in Research and Training Programmes</b>    | <p><b>Collaboration with universities:</b> within BSC, there is a large record of collaboration with Universidad Politècnica de Catalunya (UPC) and Universidad de Barcelona (UB), including the Master degree in Environmental Engineering (UPC), associated with BSC-ES.</p> <p><b>Excellence programmes and networks:</b> A number of training activities are organized under the framework of: Severo Ochoa Excellence Programme (Research seminars series); RES (RES training sessions); NVIDIA CUDA/GPU excellence center (PUMPS summer school); PRACE (PRACE Advanced Training Center); HiPEAC (ACACES summer school, Computing system weeks and HiPEAC conferences).</p> <p><b>Research fellowships:</b> BSC is currently awarded with 24 postdocs, and is supporting 3 ITN 2 MSC RISE and 4 Marie-Curie Individual Fellowships. Noteworthy, three of these Marie-Curie actions are currently developed in BSC-ES, which will host the present ITN proposal. BSC has recently been awarded with 2 ERCs, one of them is hosted by the BSC-ES.</p> <p><b>On-going projects (examples):</b> PRocess-based climate sIMulation: AdVances in high resolution modelling and European climate Risk Assessment (H2020, PRIMAVERA-641727); European Climate Prediction system (H2020, EUCP-776613); IMproving PRedictions and management of hydrological Extremes (H2020, IMPREX- 641811); Climate monitoring and seasonal forecast for global crop production (H2020 MSCA, CLIM4CROP- 740073).</p> <p><b>Doblas-Reyes</b> serves on scientific panels of the World Climate Research Programme (WCRP) and the World Weather Research Programme (WWRP). He is a member of the European Network for Earth System modelling HPC Task Force and is also involved in Horizon 2020 Collaborative projects as a Principal Investigator (PRIMAVERA, ERA4CS, ClimatEurope, SPECS) and is supervising one of the Marie Skłodowska-Curie Individual Fellowship awarded at BSC.</p> |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <p>Lienert, F. and <b>F.J. Doblas-Reyes</b> (2017). Prediction of interannual North Atlantic sea surface temperature and its remote influence over land. <i>Climate Dynamics</i>, 48, 3099-3114, doi: 10.1007/s00382-016-3254-9.</p> <p>Ceglar, A., M. Turco, A. Toreti and <b>F.J. Doblas-Reyes</b> (2017). Linking crop yield anomalies to large-scale atmospheric circulation in Europe. <i>Agricultural and Forest Meteorology</i>, 240-241, 35-45, doi:10.1016/j.agrformet.2017.03.019.</p> <p>Bellprat, O. and <b>F.J. Doblas-Reyes</b> (2016). Attribution of extreme weather and climate events overestimated by unreliable climate simulations. <i>Geophysical Research Letters</i>, 43, 2158-2164, doi:10.1002/2015GL067189.</p> <p>Massonnet, F., O. Bellprat, V. Guemas and <b>F. J. Doblas-Reyes</b> (2016). Using climate models to estimate the quality of global observational data sets. <i>Science</i>, 6311, 452-455, doi:10.1126/science.aaf6369.</p>   |

| Beneficiary Legal Name: CNRS                                      |  |
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| <b>General Description</b>  | The "Centre National de la Recherche Scientifique" (CNRS) is the French largest public research organization. As one of the largest fundamental research organization in Europe, CNRS contributes to the production and diffusion of knowledge in all scientific fields. With more than 1,200 laboratories, mostly in partnership with universities, other research organizations or industry, the CNRS considers interdisciplinary programs and actions as a gateway into new domains of scientific investigation. It employs 32,000 permanent employees (researchers, engineers, and administrative staff) and 6,000 temporary workers. CNRS has a long experience in management and coordination of European projects. The present project will get the support from the Délégation Régionale Ile de-France Sud (Gif-sur-Yvette). The research work will be carried out at "Laboratoire des Sciences du Climat et de l'Environnement" (LSCE).   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Dr. Mathieu VRAC (10% ft)</b> is CNRS senior scientist at LSCE, and head of the "Extremes – Statistics – Impacts – Regionalization" (ESTIMR) group at LSCE. He has a background on statistical modelling of climate variables (downscaling, bias correction, extremes) and analysis of climate model simulations. He will be the main supervisor of ESR8 and co-supervisor of ESR7.<br><b>Dr. Nathalie de Noblet (10% ft)</b> is CEA senior scientist at LSCE. She's co-coordinating a laboratory of excellency (BASC - Biodiversity, Agrosystems, Society and Climate) of more than 300 scientists and is a member of the french academy of agriculture. Her background is on land-atmosphere interactions and modelling of the land surface in climate models. She has been involved in impacts of climate change on crops over the past 5 years. She will be the main supervisor of ESR2, co-supervisor of ESR1 and WP1 leader.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | The LSCE/CNRS is a member of the "Institut Pierre Simon Laplace" (IPSL) and has therefore access to high performance computing facilities and professional data storage at IPSL.   |
| <b>Status of Research Premises</b>                                | The LSCE/CNRS is located on the "plateau de Saclay" (an geographical area gathering "grandes écoles", research centers, private companies, and University Pars-Saclay) in a building rented by the CNRS to CEA, and where CNRS, CEA and University researchers are gathered). Desks in a shared PhD office will be offered to the ESRs in LSCE/CNRS building.  |
| <b>Previous Involvement in Research and Training Programmes</b>   | <b>M. Vrac</b> was PI of one French project (StaRMIP: Statistical Regionalization Models Intercomparison Project), WP leader of three French projects (GIS "REGYNA", ANR "McSIM", GICC "REMEDHE"), Co-PI of the VW "PLEIADES" and "CE:LLO" projects, among others.<br><b>N. de Noblet</b> has coordinated, among others, the nationally-funded project ORACLE (Opportunities and Risks for Agrosystems in response to climate change and socio-economic scenarios for 5 years, and led a work package of the LUC4C European Project (Land-use change: assessing the net climate forcing, and options for climate change mitigation and adaptation). She has coordinated the LUCID international intercomparison project on the impact of land-use on climate (endorsed by WCRP/GEWEX and IGBP/iLEAPS). She was part of CMIPs Land Use Model Intercomparison Project (LUMIP) scientific committee.  |
| <b>Current Involvement in Research and Training Programmes</b>    | <b>M. Vrac</b> is currently member of two ERA4CS projects: CoCliServ and EUPHEME. He is also member of the IPSL "Climate Services" group and board member of the IPSL "Regional Climate and Environment" group.<br><b>N. de Noblet</b> is coordinating research in the laboratory of excellency BASC and supervising a master 2 module on land/atmosphere interactions and impacts of climate change on land. She's lead author in the special IPCC report on 'climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems' that will come out in October 2019.   |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <b>Vrac, M.</b> , Noël, T., Vautard, R. (2016) Bias correction of precipitation through Singularity Stochastic Removal: Because Occurrences matter. JGR-Atmosphere, 121 (10), 5237–5258, DOI: 10.1002/2015JD024511<br><b>Vrac, M.</b> and Friederichs, P. (2015) Multivariate – intervariable, spatial, and temporal – bias correction. Journal of Climate, 28 (1), 218–237, doi: 10.1175/JCLI-D-14-00059.1<br>Caubel, J., Cortázar-atauri, G. De, Launay, M., <b>de Noblet-ducoudré, N.</b> , Huard, F., Bertuzzi, P., & Graux, A. (2015). Agricultural and Forest Meteorology Broadening the scope for ecoclimatic indicators to assess crop climate suitability according to ecophysiological , technical and quality criteria, 207, 94–106. doi:10.1016/j.agrformet.2015.02.005<br>Berg, A., Sultan, B., & <b>de Noblet-Ducoudré, N.</b> (2010). What are the dominant features of rainfall leading to realistic large-scale crop yield simulations in West Africa? Geophysical Research Letters, 37(5).<br>Smith, P. C., <b>de Noblet-Ducoudré, N.</b> , Ciais, P., Peylin, P., Viovy, N., Meurdesoif, Y., & Bondeau, a. (2010). European-wide simulations of croplands using an improved terrestrial biosphere model: Phenology and productivity. Journal of Geophysical Research, 115, 1–14. doi:10.1029/2008JG000800 |



| Beneficiary Legal Name: Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC) |  |
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| <b>General Description</b>   | CISC is the largest public multidisciplinary research organisation in Spain with over 3500 permanent researchers distributed in 135 institutes or centres in Spain. It has considerable experience in both participating and managing RTD projects and training of research personnel. Under the 7th Framework Programme CSIC participated in more than 440 projects (including 42 coordinated by CSIC as well as 22 ERC). The research group in Meteorology and Data Mining ( <a href="http://www.meteo.unican.es">http://www.meteo.unican.es</a> ) is part of the Instituto de Física de Cantabria (IFCA), a mixed research institute of CSIC and University of Cantabria and conducts research on different topics related to local and regional climate variability and climate services..   |
| <b>Role and Commitment of key persons (including supervisors)</b>                              | <b>Prof. José Manuel Gutiérrez (10% ft)</b> is CSIC research professor at IFCA (a mixed research institute of CSIC and University of Cantabria, UC). He is head of the Meteorology and Data Mining group ( <a href="http://www.meteo.unican.es">http://www.meteo.unican.es</a> ) and co-director of the “data science” Master Program UC-UIMP. He has a background in applied statistics and machine learning with a focus on regional climate variability and statistical downscaling. He is WP4 leader, responsible of the programming workshop, and the main supervisor of ESR7.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                                   | IFCA hosts one of the nodes of the Spanish Supercomputing infrastructure (the Altamira node), which is maintained by an IT and support service. All IFCA member have access to this facility, which includes both computing and storage resources.   |
| <b>Status of Research Premises</b>   | IFCA has its own building in the campus of the University of Cantabria, the Juan Jordá building, with four floors and more than 3000 square meters, including offices, research labs and a data centre in the basement (which is part of the Spanish Supercomputing infrastructure). IFCA has its own management office, lab and IT services and also dedicated electrical and network connections.  |
| <b>Previous Involvement in Research and Training Programmes</b>                                | IFCA/Meteo has participated in over ten EU-funded projects dealing with regional climate information and impact studies in different sectors, including agriculture (e.g. FP6: ENSEMBLES, , EELA2; FP7: FUME, QWECI, SPECS, EUPORIAS, METAFOR, INTACT). IFCA had also an active role in the VALUE COST action, the largest to data intercomparison of bias correction and statistical downscaling methods. J.M. Gutiérrez was coordinator of one of the Spanish strategic actions in the National Adaptation Plan (PNACC). He has participated as PI in ten EU projects dealing with climate prediction and projection (e.g. ENSEMBLES, SPECS) and impact studies (e.g. FUME, QWECI, INTACT). J.M. Gutiérrez was the coordinator of the Mathematics and Computer Science UC PhD Program until 1998.  |
| <b>Current Involvement in Research and Training Programmes</b>                                 | IFCA/Meteo currently participates in several international activities related to climate services: An ERA4CS project (INDECIS: Integrated approach for the development across Europe of user oriented climate indicators for GFCS high-priority sectors), a H2020 project (AFRICULTURES: Enhancing Food Security in AFRICan AgriCULTUral Systems with the Support of REMote Sensing) and the QA4Seas COPERNICUS tender dealing with the quality and evaluation of seasonal multimodel forecast systems. IFCA also collaborates with FAO in the development of MOSAICC (Modelling System for Agricultural Impacts of Climate Change) and is an active member of the EURO-CORDEX and CORDEX-ESD initiatives.<br>J.M. Gutiérrez is the co-director of the “data science” Official Master Program UC - UIMP and part of the UC PhD Program in Science and Technology.  |
| <b>Relevant Publications and/or Research / Innovation Product</b>                              | R Manzananas, A Lucero, A Weisheimer, <b>JM Gutiérrez</b> (2017). Can bias correction and statistical downscaling methods improve the skill of seasonal precipitation forecasts?. Climate Dynamics. <a href="https://doi.org/10.1007/s00382-017-3668-z">https://doi.org/10.1007/s00382-017-3668-z</a><br>D San-Martín, R Manzananas, S Brands, S Herrera, <b>JM Gutiérrez</b> (2017) Reassessing Model Uncertainty for Regional Projections of Precipitation with an Ensemble of Statistical Downscaling Methods. Journal of Climate 30, 203-223<br>A Casanueva, S Kotlarski, S Herrera, J Fernández, <b>JM Gutiérrez</b> , et. al. (2016) Daily precipitation statistics in a EURO-CORDEX RCM ensemble: Added value of raw and bias-corrected high-resolution simulations. Climate Dynamics 47, 719-737.<br>R Manzananas, S Brands, D San-Martín, A Lucero, C Limbo, <b>JM Gutiérrez</b> (2015) Statistical Downscaling in the Tropics Can Be Sensitive to Reanalysis Choice: A Case Study for Precipitation in the Philippines. Journal of Climate 28, 4171-4184<br><b>JM Gutiérrez</b> , D San-Martín, S Brands, R Manzananas, S Herrera (2013) Reassessing statistical downscaling techniques for their robust application under climate change conditions. Journal of Climate 26 (1), 171-188 |

| Beneficiary Legal Name: Lunds Universitet                         |   |
|---|---|
| <b>General Description</b>  | Lunds Universitet is one of Europe's oldest, largest and most prestigious universities, consistently ranking among the world's top 100 universities founded in 1666. It has 42000 students. LUCSUS is an interdisciplinary research Centre at LU. Founded ten years ago, its 4 professors and approx. 40 staff members are organised in four research groups (climate change, society & resilience, land use governance and development, water governance and management, and urban governance and transformation).   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Prof. Emily Boyd (10% ft)</b> is the director of LUCSUS. She has a background in international development with a focus on climate change adaptation, politics and science-policy. She has lead a number of research consortia, receiving numerous successful grants and publishing widely. She will be main supervisor of ESR12, co-supervisor of ESR11 and lead WP6.<br><b>Dr. Henrik Thoren (5% ft)</b> is a philosopher with particular expertise in uncertainty and epistemology of sustainability science. He will support ESR12 at LU in all ethical and philosophical dimensions.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | LUCSUS has access to highly engaging research environment and well-established PhD group with networks across the Faculty of Social Science and Faculty of Natural Sciences. LUCSUS is a well-known transdisciplinary research Centre equipped with the necessary knowledge, expertise and space to conduct a PhD and access to the graduate school and other networks.   |
| <b>Status of Research Premises</b>                                | LUCSUS is located in walking distance of the main University campus, in two buildings rented by the LUCSUS. PhD offices include individual desk space, along with plenty of common space and resources for early career researchers.  |
| <b>Previous Involvement in Research and Training Programmes</b>   | <b>Boyd</b> ran the Resilience Lab at Reading University 2011-2016 and successfully saw through a large number of PhD students to completion in geography and environmental sciences. At LUCSUS she has been associated with the LUCID PhD research school - a ten-year funded research programme at LU lead by LUCSUS. She has been involved with numerous interdisciplinary and large-scale research projects as lead social scientist e.g. What are the ecosystem limits for poverty alleviation and have these limits been exceeded? Ecosystem Services and Poverty Alleviation Programme NERC, ESRC and DFID 1 postdoc), Attributing the impacts of external climate drivers on extreme weather in Africa (ACE). NERC, 1 PhD student), Training for participatory adaptation planning in informal settlements, ESRC IAA, and Climate effects on biodiversity, ecosystem services and their governance (EkoKilm) Stockholm University, MISTRA.<br><b>Thoren</b> has been involved a recent research project on the role of the IPCC focusing on the ethical and value aspects of uncertainty. Thoren has been co-supervising several PhD and MSc students.  |
| <b>Current Involvement in Research and Training Programmes</b>    | In 2016, <b>Boyd</b> took up directorship at LUCSUS. She is currently lead social scientist on Forecasts for Anticipatory HUMANitarian action (FATHUM) NERC/DFID, 1 postdoc) and a co-produced research roadmap for scaling-up preparedness using Big Data: a case study of forecast-based action pilot studies. She leads a Centre of 40 staff overseeing the research and educational activities of the Centre. <b>Thoren</b> currently participates in co-supervising a PhD student on culture and epistemologies of ecosystem services as well as MSc students.   |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <b>Boyd, E.</b> , (2017) Climate adaptation: Holistic thinking beyond technology. Nature Climate Change 7, 97–98 doi:10.1038/nclimate3211<br><b>Boyd, E.</b> , James, R.A., Jones, R.G, Young, H.R, Otto, F.E L. A typology of loss and damage perspectives. Nature Climate Change, Vol. 7, No. 10, 29.09.2017, p. 723-729<br>Parker, H. R. , Cornforth, R. J., Suarez, P., Allen, M. R., <b>Boyd, E.</b> , James, R., Jones, R. G., Otto, F. E. L. and Walton, P. (2016) Using a game to engage stakeholders in extreme event attribution science. Int. J. Disaster Risk Sci., 7, 353–365. doi: 10.1007/s13753-016-0105-6.<br>V Castán Broto, D.A Macucule, <b>E Boyd</b> , J Ensor (2015) ‘Collaborative partnerships for climate change action in Maputo, Mozambique’ Environment and Planning A, 7. pp. 571-587. ISSN 0308-518X.<br>Jones, L. and <b>Boyd, E.</b> (2011) Exploring social barriers to adaptation: insights from Western Nepal. Global Environmental Change, 21 (4). pp. 1262-1274. ISSN 0959-3780 doi: 10.1016/j.gloenvcha.2011.06.002<br><b>Boyd, E.</b> and Folke, C. (eds) (2012) Adapting Institutions: Governance, Complexity and Social Ecological Resilience. Cambridge: Cambridge University Press. |



| Beneficiary Legal Name: University of Cape Town                   |   |
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| <b>General Description</b>  | The University of Cape Town is the leading research university in Africa, ranked in the top 200 of universities in the world, and with strong track record of serving the knowledge need of Africa. The Climate System Analysis Group (CSAG - <a href="http://www.csag.uct.ac.za">http://www.csag.uct.ac.za</a> ) is a leading research centre at the university with ~40 research staff and MSc/PhD students. CSAG is focused at its core on the physical climate system with an emphasis on climate change and variability, and strong working groups on climate services, stakeholder engagement and training, capacity development in Africa, and tailoring of climate information for decision makers.   |
| <b>Role and Commitment of key persons (including supervisors)</b> | Bruce Hewitson is a full professor in atmospheric science, director of CSAG, and holds the South African National Research Chair in Climate Change ( <b>10% ft</b> ). He has extensive experience in downscaling, developing regional climate information, and engagement with stakeholders. He will be main supervisor of ESR11, co-supervisor of ESR9 and WP5 leader.   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | CSAG has full facilities for visiting researchers, hosts its own High Performance Computing facility with extensive data archives for Africa climate, as well as archives of key global mode climate projection data, and runs global and regional climate models for targeted research. CSAG also has structured supervision for interns and training, including running short course capacity development. The multi-disciplinary expertise of the research staff (including social sciences) and international collaboration partnerships is available to enhance the ESR experiences.   |
| <b>Status of Research Premises</b>                                | CSAG has its own dedicated premises as a research centre of the university.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | CSAG has received funding EU FP7 (as consortium partner), and directly received extensive contract funds from research and national development agencies in the UK, Sweden, Norway, Germany, Denmark, USA, and Canada, World Bank, and more. Hewitson established CSAG in 1992, and has been singularly instrumental in attracting the research and from national and international sources to grow the centre to its current status. He was PI and proposer on many of the projects. He was CLA for WG1 on its contribution to the IPCC TAR, AR4, and for WG2 in AR5. He co-chaired the WCRP working group on Regional Climate, and the IPCC TGICA committee. Additionally, he established the internationally funded pan-Africa CORDEX training programme, the second phase of which is still led by CSAG.  |
| <b>Current Involvement in Research and Training Programmes</b>    | CSAG currently receives funding from a broad range of international sources, including USAID, CDKN, UK-DFID, and more. Currently CSAG has ~20 funded contracts. The single leading example of these is the UK-funded FRACTAL research and capacity development project ( <a href="http://www.fractal.org.za">www.fractal.org.za</a> ), one of four consortia funded projects under the UK FCFA programme, and the only one led from Africa (~£4 million). Hewitson is the PI of FRACTAL, and PI or co-PI on the majority of the remaining current projects. He is currently supervising 4 PhD students on projects covering both the physical and social sciences.  |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <b>Hewitson, B.</b> , et al., 2017: Climate Information Websites: an evolving landscape, WIREs Clim Change 2017, e470. doi: 10.1002/wcc.470<br>Steynor, A., Padgham, J., Jack, C., <b>Hewitson, B.</b> et al., C. 2016. Co-exploratory climate risk workshops: Experiences from urban Africa. Climate Risk Management. Vol 13, 95–102, doi: 10.1016/j.crm.2016.03.001<br>Endris, H., Lennard, C., <b>Hewitson, B.</b> et al., 2015. Teleconnection responses in multi-GCM driven CORDEX RCMs over Eastern Africa, Climate Dynamics, 46: 2821. doi:10.1007/s00382-015-2734-7<br><b>Hewitson, B.</b> , A.C. Janetos, T.R. Carter, F. Giorgi, R.G. Jones, W.-T. Kwon, L.O. Mearns, E.L.F. Schipper, and M. van Aalst, 2014: Regional context. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1133-1197.<br><b>Hewitson, B.C.</b> , Daron, J., Crane, R.G. et al., 2014: Interrogating empirical-statistical downscaling. , Clim. Change (2014) 122: 539. doi:10.1007/s10584-013-1021-z |

| <b>Beneficiary Legal Name: Københavns Universitet (UCPH)</b>      |  |
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| <b>General Description</b>  | <p>With more than 40.000 students (including 4.000 international students) enrolled, just over 2.500 PhD students and an additional 9.000 employees (both research and administrative) the University of Copenhagen is the largest research and education institution in Denmark. Internationally, the University is highly competitive and is ranked as one of the leading universities globally with the most recent ARWU (Shanghai) rankings placed the University as No. 30 worldwide and No. 6 in Europe.</p> <p>The Niels Bohr Institute (NBI (<a href="http://www.nbi.ku.dk">www.nbi.ku.dk</a>)) at University of Copenhagen (UCPH) consists of 10 research groups and 12 science centers and has approximately 140 full-time and project-based academic staff, 90 technical staff and currently about 130 PhD-students, as well as approximately 100 foreign researchers. The Climate and Computational Geophysics Group (CCGG) and the Ice and Climate Group (CIC) at NBI represents the main educational organisation for meteorology, atmospheric dynamics, physical oceanography and glaciology – together representing the climate system - in Denmark. A long tradition exists for collaboration with the Danish Meteorological Institute (DMI) both on education at all academic levels, and on research.</p>   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Jens Hesselbjerg Christensen (10%ft)</b> is a full professor in Climate Physics and has a long experience in climate modelling and the use of models in projecting future climate change. He will be main supervisor of ESR5, co-supervisor of ESR1 and ESR3, and leader of WP3.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | A considerable part of the work will be carried out in collaboration with DMI, and it is also planned to set up a special project at ECMWF for DECIFER calculations, and/or to use the DMI HPC computing facility installed in Iceland. The ESRs will have access to knowledge and experience on climate modelling and their analyses from activities both in the CCGG and CIC as well as from the tight collaboration existing between NBI and DMI.   |
| <b>Status of Research Premises</b>                                | The department owns its own premises.  |
| <b>Previous Involvement in Research and Training Programmes</b>   | <p>The Faculty of Science itself gained 19 ITN grants in FP7 of which 8 as coordinator and the rest as partner. The Faculty's level of experience with the Marie Curie programme is furthermore demonstrated by the fact it obtained over 80 Individual Fellowships in FP7.</p> <p>Christensen came to UCPH from DMI in 2017. At DMI he was leading Climate Research for a decade. He has been a CLA or LA for WG1 on its contribution to the IPCC TAR, AR4 and AR5. At DMI he was PI on numerous EU-Projects including PRUDENCE where he was coordinator. Furthermore, he has been involved in Nordic and national projects, including Centre for Regional Change in the Earth System (CRES) funded by the Danish Strategic Research Council for which he was director. He has successfully co-supervised 7 PhD students while he was at DMI.</p>   |
| <b>Current Involvement in Research and Training Programmes</b>    | <p>Beyond the ITN projects in FP7 mentioned above, the Faculty of Science received 28 ITN grants in the first round of applications in H2020 – seven as coordinator and 21 as a beneficiary. In addition, it has obtained 68 MSCA IFs so far in H2020.</p> <p>Currently Christensen is one of four PIs, together holding an ERC Synergy grant (ice2ice) focusing on the role of sea ice in controlling rapid climate change in past and future climates. He is supervising 3 PhD students.</p>   |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <p>Madsen, M.S., Langen, P.L., Boberg, F., and <b>Christensen, J.H.</b> 2017: Inflated uncertainty in multi-model based regional climate projections, Geophys. Res. Lett. 44, <a href="https://doi.org/10.1002/2017GL075627">https://doi.org/10.1002/2017GL075627</a></p> <p>Larsen, M.A.D., <b>Christensen, J.H.</b>, Drews, M., Butts, M.B., and Refsgaard, J.C. 2016: Local control on precipitation in a fully coupled climate-hydrology model. Sci. Rep., 6, 22927; doi: 10.1038/srep22927</p> <p><b>Christensen, J.H.</b>, Krishna Kumar, K. et al., 2013: Climate Phenomena and their Relevance for Future Regional Climate Change. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T. F. et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1217–1308, doi: 10.1017/CBO9781107415324.028</p> <p>Refsgaard, J.C., Arnbjerg-Nielsen, K., Drews, M., Halsnæs, K., Jeppesen, E., Madsen, H., Markandya, A., Olesen, J.E., Porter, J.R., and <b>Christensen, J.H.</b> 2013: The role of uncertainty in climate change adaptation strategies - A Danish water management example, Mitigation and Adaptation Strategies for Global Change, 18, 337-359, doi: 10.1007/s11027-012-9366-6</p> <p>Boberg, F. and <b>J.H. Christensen</b>, 2012: Overestimation of Mediterranean Summer Temperature Projections due to Model Deficiencies, Nature Climate Change, 2, 433-436, doi: 10.1038/NCLIMATE1454</p> |

| Beneficiary Legal Name: University of Durham                      |  |
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| <b>General Description</b>  | Durham University, founded in 1832, has an excellent worldwide reputation in all areas of arts, humanities, natural and social sciences (ranked 78th in the QS World University Rankings 2018). The University has ~17,500 students (of whom 3,500 are postgraduate and 3,000 international students from over 120 countries). Its academic teaching and research programmes are delivered through 25 academic departments contained within three faculties: Arts and Humanities, Science, and Social Sciences and Health. The University also has 16 Colleges - Durham's distinctive residential and educational communities. The University is engaged in a full range of higher educational activities, including high-quality teaching and learning at undergraduate and postgraduate levels, advanced research and scholarship, partnerships with businesses and other private and public sector bodies, and partnerships and initiatives with community and voluntary sector organisations. It provides a stimulating environment to nourish and support the needs of a world-class academic community. The research will be carried out within the Philosophy Department and the Centre for Humanities Engaging Science and Society (CHESS) |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Wendy Parker (10%ft)</b> is Associate Professor of Philosophy and Associate Director of the Centre for Humanities Engaging Science and Society (CHESS) at Durham University. She will be main supervisor for ESR11 and co-supervisor for ESR4, as well as leader of WP8 (training).   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | Durham has excellent library facilities. The Department of Philosophy has a large and thriving postgraduate community and provides professional development seminars for its postgraduate students as well as a postgraduate lounge with computing facilities.   |
| <b>Status of Research Premises</b>                                | Durham University owns the research premises involved in the project, wholly independent from other beneficiaries and partner organisations.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | Durham University has extensive experience in coordination and managing FP7 ITNs, including CosmoComp, FLUOR21, FUNMOLS, HiggsTools, MICSED, MOLESCO, NanoEmbrace and NOTEDEV. Furthermore, the University has hosted/currently hosts over 20 FP7 Marie Curie fellowships and 6 IRSES projects (5 coordinated by UDUR) and hosted the first ever UK Researcher's Night in 2009.  |
| <b>Current Involvement in Research and Training Programmes</b>    | The university currently coordinates an 8 million Euro COFUND-ed programme "DIFeREns2" which extends the programme built on Durham's coordination of the previous COFUNDED programme "DIFeREns" for a further 4 years, increasing the scale to 21 Junior Research Fellowships and 30 Senior Fellowships per year. Success in Horizon 2020 includes but is not limited to 13 Horizon 2020 MSCA fellowships, 12 Horizon 2020 ITNs, one of which Durham coordinates, and 4 Horizon 2020 RISE projects, 2 of which Durham coordinates. This demonstrates not only vast experience of successfully running research and training programmes but also outstanding collaboration and outreach.  |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <b>Parker, W.S.</b> and E. Winsberg (in press) Values and Evidence: How Models Make a Difference. <i>European Journal for Philosophy of Science</i> .<br><b>Parker, W.S.</b> and J.S. Risbey 2015. False precision, surprise and improved uncertainty assessment. <i>Philosophical Transactions of the Royal Society A</i> 373(2055): 20140453.<br>Katzav, J. and W.S. <b>Parker</b> 2015. The future of climate modeling. <i>Climatic Change</i> 132(4): 475-487.<br><b>Parker, W.S.</b> 2014. Values and uncertainties in climate prediction, revisited. <i>Studies in History and Philosophy of Science</i> 46: 24-30.<br><b>Parker, W.S.</b> 2009. II – Confirmation and adequacy-for-purpose in climate modeling. <i>Aristotelian Society Supplementary Volume</i> 83: 233-249.   |

| Beneficiary Legal Name: Universidad Politécnica de Madrid         |   |
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| <b>General Description</b>  | <p>Universidad Politécnica de Madrid (UPM) is the largest Spanish technological university. With two recognitions as Campus of International Excellence, more than 2,400 researchers work at the UPM, grouped in 200 Research Groups, 22 Research Centers or Institutes and 55 Laboratories. UPM has endorsed the “European Charter for Researchers” and “The Code of Conduct for the Recruitment of Researchers”. UPM graduates around 5.000 students every year, of which 20% have participated in international mobility programs and have been trained in companies. There are more than 2.000 students enrolled in doctoral programs, and each year 200 of them attain their Ph.D degree.</p> <p>CEIGRAM within the School of Agricultural Engineering has over 10 years of experience in coping with agricultural and environmental risks, with especial emphasis on weather and climate related hazards. Current investigations are concerned, among others, with the development of strategies to manage drought and other extremes, and support agricultural insurance companies, public administration and farmers in relation to climate variability and change.</p>   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <p><b>Dr. Margarita Ruiz-Ramos (10% FT)</b>, Researcher and Associated Professor. Interests in modelling adaptation to climate variability and change. She be main supervisor of ESR1, co-supervisor of ESR2 and ESR3, lead WP2, and be gender balance officer of DECIFER.</p> <p><b>Dr. Jon Lizaso (5% FT)</b>, Researcher and Associated Professor. Lecturer in training on crop modelling. Interests in developing and applying crop models. Will support the supervision of ESR1.</p>   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | The expertise of the group of CEIGRAM (UPM) relevant to the current project is in modelling and field experiments to support modelling. The group has access to experimental fields and to UPM-own computing facilities with several servers and massive storage capacity. CEIGRAM hosts numerous PhD and postdoc students that promote training courses and seminars that are organized with external experts to meet this demand, ensuring a suitable environment for training and transfer of knowledge.   |
| <b>Status of Research Premises</b>                                | Research premises are independent from other beneficiaries and/or partners in the consortium.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | UPM heads the Spanish Universities’ participation with 290 projects in the 7th European Framework Program. Under FP7, UPM has obtained 62 Marie Curie projects and has employed 66 fellow researchers. UPM signs annually around 600 contracts with private businesses, due to its traditional and close relationship with the industrial and business sector. In the past 10 years, CEIGRAM has been involved in 217 research projects, of which 51 are international, 42 national competitive and 124 are funded by private sector.   |
| <b>Current Involvement in Research and Training Programmes</b>    | <p><u>Research projects and networks:</u> Heads the Spanish Universities’ participation with more than 209 projects in H2020. Specific projects from CEIGRAM:</p> <ol style="list-style-type: none"> <li>1- “Assessing options for the SUSTainable intensification of Agriculture for integrated production of food and non-food products at different scales”, SUSTAg, 2016-2019, EC-FACCEJPI program, SURPLUS call) –INIA. IP: M. Ruiz Ramos</li> <li>2- “Modelling European Agriculture with Climate Change for Food Security (MACSUR1 and 2).”- Coordinator of Partner 24. , 2012-2015, 2015-2017 (Still running in Spain). EC-FACCEJPI program . IP: M. Ruiz Ramos</li> <li>3- The Agricultural Model Intercomparison and Improvement Project (AgMIP)- International network. IP: Jon Lizaso</li> <li>4- Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use — SolACE. EC-H2020. 2017-2022. IP :M. Quemada. Researcher: M Ruiz-Ramos</li> <li>5- Towards SUSTainable and RESilient EU FARMing systems (SURE-Farm) EC-H2020. 2017-2021. IP: A. Garrido</li> </ol> <p><u>Training:</u> UPM leads 2 Erasmus Mundus master networks and participates in 5 more. The researchers on this proposal are actively involved in the Master and Doctorate Programme on Agro environmental Technology for a Sustainable Agriculture from the UPM.</p> |
| <b>Relevant Publications and/or Research / Innovation Product</b> | <p>Trnka M., Rötter R.P., <b>Ruiz-Ramos M.</b>, Kersebaum K. C, Olesen J.E., Zalud Z. and Semenov M., 2014. Adverse weather conditions for European wheat production will become more frequent with climate change. Nature Clim Change 4, 637–643</p> <p><b>Ruiz-Ramos M.</b>, Rodríguez A., Dosio A., Goodess C. M., Harpham C., Mínguez M.I., Sánchez E, 2016. Crop impact projections in Iberian Peninsula for mid and end of C21 improved by bias correction of RCM outputs. Clim Change, 134:283-297.</p> <p><b>Ruiz-Ramos M.</b> , Ferrise R, Rodríguez A, et al., 2017. Adaptation response surfaces for managing wheat under perturbed climate and CO2 in a Mediterranean environment. Agric Systems, in press.</p> <p><b>Lizaso J.I., Ruiz-Ramos M.</b>, et al., 2017. Modeling the response of maize phenology, kernel set, and yield components to heat stress and heat shock with CSM-IXIM. Field Crops Res 214, 239-252,</p> <p><b>Lizaso J.I., Ruiz-Ramos M.</b>, et al., 2017. Impact of high temperatures in maize: Phenology and yield components, Field Crops Res, 216, 2018, 129-140</p>   |

| Beneficiary Legal Name: University of Reading (UR)                |  |
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| <b>General Description</b>  | UR is a research intensive university with 17,000 students and 3,000 staff from over 150 countries. The most recent results of the UK-wide Research Excellence Framework exercise (REF), conducted in 2014 to assess research quality, revealed that 98% of University of Reading research is internationally recognised, 78% is classed as internationally excellent and 27% is world leading. Our weighted score placed us third in the UK in the Earth Systems and Environmental Science category. We were rated particularly strongly on the new 'Impact' metric, and on 'Research Environment'.   |
| <b>Role and Commitment of key persons (including supervisors)</b> | <b>Professor T.G. Shepherd (10% ft)</b> is Grantham Professor of Climate Science and Research Division Leader for Climate, and a specialist in large-scale circulation. He is vice-Chair of DECIFER and will be the main supervisor of ESR4, a co-supervisor of ESR10, and host a secondment of ESR9.<br><b>Professor S.J. Woolnough (5% ft)</b> is Professor of Climate Science and leads the NCAS Tropical Research Group, and is a specialist in tropical convection and circulation. He will co-supervise ESR4 and ESR5, and host a secondment of ESR6.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>      | The Department of Meteorology is a world-leading centre for research and training in weather and climate, and the largest such department in Europe. It comprises approximately 45 permanent academic staff, a similar number of senior research staff, 25 embedded researchers from the Met Office, 80 post-doctoral fellows, and 80 PhD students. The Department hosts NERC-funded national capability research units in Climate, Modelling & Computing, and Earth Observations, and has extensive research links with the Met Office in Exeter and the European Centre for Medium-range Weather Forecasts in Reading.   |
| <b>Status of Research Premises</b>                                | The Department of Meteorology occupies several buildings in close proximity on the University of Reading's Whiteknights campus, which are owned by the University and are wholly independent from other beneficiaries and partner organizations.   |
| <b>Previous Involvement in Research and Training Programmes</b>   | The University of Reading has a strong track record of working in European projects and received awards for >150 EU projects across FP7 and H2020 resulting in over €65M EU Contribution. It is home to excellence and frontier research, having received 5 ERC Starting/Consolidator grant awards and 7 ERC Advanced grant awards. Nearly 40 of the EU projects are H2020 MSCA or FP7 Marie Curie People projects (over €10M EU Contribution), which include 14 Initial/Innovative Training Networks (ITN) with 2 as Coordinator (EU FP7 LegumePlus and H2020 MultiMind). 7 of these ITNs were in the Environment Theme and 2 were in the Food Theme.   |
| <b>Current Involvement in Research and Training Programmes</b>    | NERC SCENARIO Doctoral Training Programme in Science of the Environment (UK); EPSRC Centre for Doctoral Training in Mathematics of Planet Earth (UK). UREAD is currently also involved in 7 active ITNs (e.g MedPlant (Phylogenetic exploration of medicinal plant diversity), PRIDE (Drivers of Pontocaspian biodiversity RIsE and DEmise). There are several ERC Advanced Grants: ACRCC (Understanding the atmospheric circulation response to climate change); Global Change 2.0: Unlocking the past for a clearer future (GC2.0); Causality Relations Using Nonlinear Data Assimilation (CUNDA). The annual research income of the Department of Meteorology is roughly £16M.  |
| <b>Relevant Publications and/or Research / Innovation Product</b> | Johnson, S. J., Turner, A., <b>Woolnough, S.</b> , Martin, G. and MacLachlan, C., 2017. An assessment of Indian monsoon seasonal forecasts and mechanisms underlying monsoon interannual variability in the Met Office GloSea5-GC2 system. <i>Climate Dynamics</i> , <b>48</b> , 1447-1465.<br><b>Shepherd, T.G.</b> , 2014. Atmospheric circulation as a source of uncertainty in climate change projections. <i>Nature Geosci.</i> , <b>7</b> , 703–708.<br>Stein, T. H. M., Parker, D. J., Hogan, R. J., Birch, C., Holloway, C. E., Lister, G., Marsham, J. H. and <b>Woolnough, S. J.</b> , 2015. The representation of the West-African Monsoon vertical cloud structure in the Met Office Unified Model: an evaluation with CloudSat. <i>Quarterly Journal of the Royal Meteorological Society</i> . doi: <a href="https://doi.org/10.1002/qj.2614">https://doi.org/10.1002/qj.2614</a><br>Zappa, G., Hoskins, B.J. and <b>Shepherd, T.G.</b> , 2015. The dependence of wintertime Mediterranean precipitation on the atmospheric circulation response to climate change. <i>Env. Res. Lett.</i> , <b>10</b> , 104012, doi: 10.1088/1748-9326/10/10/104012.<br>Zappa, G. and <b>Shepherd, T.G.</b> , 2017. Storylines of atmospheric circulation change for European regional climate impact assessment. <i>J. Clim.</i> , <b>30</b> , 6561–6577. |



**For partner organisations:**

| <b>Partner Organisation Legal Name: African Center of Meteorological Application for Development</b> |  |
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| <b>General description</b>   | <p>ACMAD is the Weather and Climate Centre with African continental competence. It was created in 1987 by the Conference of Ministers of the United Nations Economic Commission for Africa (UNECA) and the World Meteorological Organisation (WMO). ACMAD has been operational in Niamey since 1992. ACMAD is composed of 53 Member States, the 53 countries of "Africa" continent.</p> <p>ACMAD's mission is the provision of weather and climate information and for the promotion of sustainable development of Africa (notably within the context of national strategies for poverty eradication), in the fields of agriculture, water resources, health, public safety and renewable energy. To ensure its mission, ACMAD functions primarily with meteorologists detached by its Members States.</p> <p>ACMAD hosts the African Regional Climate Centre (ACMAD/RCC).</p> |
| <b>Key Persons and Expertise</b>   | Dr. Benjamin Lamptey is Acting Director General of ACMAD. He is an expert in regional climate modelling and agroclimatology, with a focus on West African climate change.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>   | Computers, meeting and networking facilities, climate data server (in collaboration with Columbia University, NY, USA). In the execution of its action programmes, ACMAD operates in synergy and in a network with its focal points, the National Meteorological Services of 53 African states and various partners amongst whom are: France, United States, United Kingdom, Spain, Germany, Canada, China, Australia.   |
| <b>Previous and Current Involvement in Research and Training Programmes</b>                          | ACMAD is involved in capacity building through training-activities of junior staff in National Meteorological Services (NMHSs) in Africa. ACMAD/RCC organises training on data services, climate monitoring, long range, and climate projections.  |
| <b>Relevant Publications and/or Research / Innovation Product</b>                                    | <p>The State of Climate Information Services for Agriculture and Food Security in West African Countries. CCAFS Working Paper No. 4. Copenhagen, Denmark, 2015.</p> <p>Gbobaniyi, E., Sarr, A., Sylla, M. B., Diallo, I., Lennard, C., Dosio, A., Dhiédiou, A., Kamga, A., Klutse, N. A. B., Hewitson, B., Nikulin, G. and Lamptey, B.: Climatology, annual cycle and interannual variability of precipitation and temperature in CORDEX simulations over West Africa. Int. J. Climatol., 34: 2241–2257, 2013.</p> <p>Climate Information applications for sustainable development in Africa. L. N. Njau, M. Kadi, M. C. Dufresne, J. Perrin, A. Patt and A. Kamga.: World for Life, World Meteorological Organization, pp 163-165, 2007</p>   |

| <b>Partner Organisation Legal Name: The Climate Data Factory</b>            |   |
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| <b>General description</b>  | The climate data factory (TCDF) is a climate service provider of post-processed climate change model data to the climate change adaptation practitioner community. The climate change model data that is distributed is the result of a post-processing of climate change projections to make them directly usable by its clients. This positioning makes TCDF a data provider for adaptation needs for multiple sectoral applications.   |
| <b>Key Persons and Expertise</b>  | <p>Dr. Harilaos Loukos is a weather/climate entrepreneur with international expertise in the field of weather, climate and adaptation commercial services, climate change innovation. He was involved in several FP7 projects and he is contributing to EIT Climate-KIC's activities related to climate services. During the past 15 years HL was involved in developing business opportunities in the field of weather, climate and adaptation commercial services. He was also co-Chair of the Adaptation Services Platform of the EIT Climate-KIC (<a href="http://www.climate-kic.org">www.climate-kic.org</a>) from 2012 to 2015.</p> <p>Dr. Thomas Noel holds a PhD in Earth Sciences and Atmosphere. Over the past five years, TN served as research engineer in several IPSL laboratories (LMD and LSCE) and specialized in bias correction and post-processing of climate model databases.</p> |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | TCDF uses the Amazon Web Services for storage and computing. TCDF is part of the AWS Activate program, a technical support programme for handpicked technological start-ups.  |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | <p>H2020 Climate Services Market Research project - MArket Research for a Climate services Observatory (MARCO) - 2017/2018.</p> <p>H2020 Climate forecast enabled knowledge services (CLARA) - 2017/2020</p> <p>H2020 Sub-seasonal to Seasonal climate forecasting for Energy (S2S4) -2018/2020</p>   |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | <p><b>Publications:</b></p> <p>Michelangeli, P. A., Vrac, M., &amp; Loukos, H. (2009). Probabilistic downscaling approaches: Application to wind cumulative distribution functions. Geophysical Research Letters, 36(11).</p> <p>Vrac, M., Noël, T., &amp; Vautard, R. (2016). Bias correction of precipitation through Singularity Stochastic Removal: Because occurrences matter. J. Geophys. Res.</p> <p><b>Innovation Product:</b> A data set of remapped and bias corrected climate model data distributed on-line to adaptation practitioners and impact researchers. The data set is based on 6 daily surface variables from the CMIP5 and Euro CORDEX experiments, including all available models and two emissions scenarios (Reference Concentration Pathways) published on the Earth System Grid Federation (ESGF) portal.</p>   |

| <b>Partner Organisation Legal Name: Danmarks Meteorologiske Institut</b>    |  |
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| <b>General description</b>  | The Danish Meteorological Institute (DMI, <a href="http://www.dmi.dk">www.dmi.dk</a> ) is an institution under the Danish Ministry of Energy, Utilities and Climate and has an annual turnover of about 40 M€. DMI provides meteorological services in the Commonwealth of the Realm of Denmark, the Faroe Islands, Greenland, and surrounding waters and airspace. Founded in 1872, DMI has collected and processed meteorological, climatological and oceanographic measurements/observations, and measures, collects and compiles related geophysical parameters throughout the Realm. Through scientific research and development, DMI secures the optimum accomplishment of its tasks and serves the community with up-to-date information on weather and climate and other geophysical issues. The Department of Research and Development (R&D) at DMI has extensive experience in climate research, including development of state-of-the-art global and regional climate models (e.g., EC-Earth, HIRHAM) and studies of climate processes. DMI's R&D provides in-depth information and advice on climate and climate change to governmental institutions and the general public. |
| <b>Key Persons and Expertise</b>  | Senior Scientist Dr Ole Bøssing Christensen has been employed at the DMI since 1993, working with regional climate models and data archiving and analysis; he has also worked with provision of climate model output to end users and impact modellers. . He has participated in several EU-funded projects as primary DMI representative, in several cases as WP leader. He has co-supervised several Master's students and two PhD students, and he teaches regularly at the University of Copenhagen.   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | CRAY XC supercomputer, which serves for the daily operational numerical weather prediction, R&D model experiments, as well as long-term regional and global climate prediction and projection experiments. ESGF datanode, hosting CORDEX data for several institutions. ESR5 will have a permanent desk at DMI.  |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | EC-funded projects for three decades. Among these: FP4 PRUDENCE (coordinator), FP5 ENSEMBLES, H2020 IMPRESSIONS, COPERNICUS PRINCIPLES and DECM.   |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | Christensen, O. B., S. Yang, F. Boberg, C. F. Maule, P. Thejll, M. Olesen, M. Drews, H. J. D. Sørup, J. H. Christensen 2015: Scalability of regional climate change in Europe for high-end scenarios. <i>Climate Research</i> 64 (1), 25-38<br>Knist, S., K. Goergen, E. Buonomo, O.B. Christensen, et al. (2017), Land-atmosphere coupling in EURO-CORDEX evaluation experiments, <i>J. Geophys. Res. Atmos.</i> , 122, 79–103, doi:10.1002/2016JD025476<br>Jacob, D., J. Petersen, B. Eggert, A. Alias, O. B. Christensen, et al., 2013: EURO-CORDEX: new high-resolution climate change projections for European impact research. <i>Reg. Env. Change</i> . doi: 10.1007/s10113-013-0499-2  |

| <b>Partner Organisation Legal Name: United Nations Food and Agriculture Organisation</b> |   |
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| <b>General description</b>   | The Food and Agriculture Organization of the United Nations (FAO), headquartered in Italy, is an intergovernmental organization with 194 member nations with a mandate to achieve food security for all so that people have regular access to enough high-quality food to lead active, healthy lives.   |
| <b>Key Persons and Expertise</b>   | Dr. Hideki Kanamaru, Natural Resources Officer (Climate Change), is based in the Regional FAO office in Bangkok. Expertise: climate downscaling, climate change impact and vulnerability assessments, adaptation, disaster risk management. Of particular relevance to the current proposal, he works on making use of regional climate information for assessing impacts of climate change on agriculture, water resources, and food security to provide evidence-base for adaptation.<br>Dr. Mariko Fujisawa, Climate Change Officer, works in the department of Climate, Biodiversity, Land and Water Department (CB) in the FAO headquarters in Rome. Expert in impact assessment of climate change on agriculture, adaptation and vulnerability assessment. She works on crop models in the impact assessment tool and agrometeorology related projects. |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                             | Computers and servers, meeting and networking facilities  |
| <b>Previous and Current Involvement in Research and Training Programmes</b>              | CLIMAFRICA, COST Action VALUE, ENSEMBLES, GFCS, CLIMAGRImed, MODEXTREME, A number of training programmes on climate change impact assessments and climate change adaptation in FAO projects, Regional climate model training workshops.   |
| <b>Relevant Publications and/or Research / Innovation Product</b>                        | MOSAICC – Modelling System for Agricultural Impacts of Climate Change<br><a href="http://www.fao.org/climatechange/mosaic/">http://www.fao.org/climatechange/mosaic/</a><br>AMICAF – Analysis and Mapping of Impacts Under Climate Change for Adaptation and Food Security <a href="http://www.fao.org/climatechange/amicaf/">http://www.fao.org/climatechange/amicaf/</a><br>Gommes, R., El Hairech, T., Rosillon, D., Balaghi, R., and Kanamaru, H., 2009: Impact of Climate Change on the Agricultural Sector - impact on crop yields, FAO, Government of Morocco, World Bank.   |

| Partner Organisation Legal Name: HORTA S.R.I                                |  |
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| <b>General description</b>  | HORTA is a spin-off of the University Cattolica del Sacro Cuore, founded in 2008. It offers high-level services for food production, food quality, sustainability and food safety. The mission of HORTA is to provide highly qualified services, both nationally and internationally, in the field of plant production in order to increase the competitiveness of agricultural and agri-food companies. HORTA is a permanent platform for the exploitation of results from research in the agri-food sector through (1) the development of decision support systems for the sustainable management of crops, (2) the transfer of technological innovation to production companies nationally and internationally, with particular reference to productivity, environmental sustainability and food safety; (3) the design, development and implementation of new production routes and new products and technologies; (4) advice to the agri-food industries. Customers of HORTA include, among many others, Barilla (food producer) and Limagrain (seed producer). |
| <b>Key Persons and Expertise</b>  | Dr. Pierluigi Meriggi: president and founding member. Responsible for the Ravenna headquarters, responsible for the large crops sector.<br>Dr. Valentina Manstretta. Responsible for research and innovation; Dr. Sara Legler. Responsible for the European projects and for the research and innovation on vine.<br>Prof. Vittorio Rossi: founding member. Full Professor of Plant Pathology at the University Cattolica del Sacro Cuore.   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | DSS (Web platform), Experimental fields, meteorological station network, agronomic field data  |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | EU H2020 Project MedGOLD, IWPRAISE, SOIL4WINE, PATHOGEN, INNOWINE, MODEM, WATER4CROP   |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | <b>Granoduro.net:</b> a decision support system to increase the quality of soft and hard wheat using a single web platform<br><b>Pomodoro.net:</b> support to optimize tomato production by industry through the management of phytosanitary treatments, irrigation and fertilization<br><b>Vite.net:</b> designed to help vineyard managers draw more targeted and therefore more correct decisions for high-quality viticulture  |

| Partner Organisation Legal Name: International Livestock Research Institute |   |
|---|---|
| <b>General description</b>  | The International Livestock Research Institute (ILRI) works to improve food security and reduce poverty in developing countries through research for better and more sustainable use of livestock. The ILRI Campus in Addis Ababa hosts the regional programme CCAFS (Climate Change, Agriculture and Food Security) East Africa. CCAFS is a CGIAR programme and brings together some of the world's best researchers in agricultural science, climate science, environmental and social sciences to identify and address the most important interactions, synergies and trade-offs between climate change and agriculture.   |
| <b>Key Persons and Expertise</b>  | Dawit Solomon, Ph.D, Regional Program Leader, CCAFS East Africa. Solomon is an expert in soil fertility, land degradation and sustainable agriculture with over 20 years of professional experience in capacity building, implementing sustainable agriculture, food security and climate-change adaptation.<br>Maren Radeny, Ph. D, Senior Science Officer; John Recha, Ph.D, Participatory Research Action Expert; Elizabeth Ngungu, Program Accountant   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | Climate Smart Villages<br>CGIARS Research Centers   |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | CCAFS is a research program. CCAFS defines and implements a uniquely innovative and transformative research program that addresses agriculture in the context of climate variability, climate change and uncertainty about future climate conditions. A key mission of ILRI is capacity building. This involves the development of attitudes, skills, institutional setups as well as knowledge in agricultural research and development. ILRI works with individuals, organizations and institutions engaged in research and development as well as those making agricultural investment decisions at all levels across the sector.  |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | Gbegbelegbe S, Serem J, Stirling C, Kyazze F, Radeny M, Misiko M, Tongruksawattana S, Nafula L, Gakii M, Sonder K. 2017. Smallholder farmers in eastern Africa and climate change: a review of risks and adaptation options with implications for future adaptation programmes. Climate and Development. <a href="https://dx.doi.org/10.1080/17565529.2017.1374236">https://dx.doi.org/10.1080/17565529.2017.1374236</a><br>Recha J, Kimeli P, Atakos V, Radeny M, Mungai C. 2017. Stories of Success: Climate-Smart Villages in East Africa. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <a href="http://hdl.handle.net/10568/81030">http://hdl.handle.net/10568/81030</a><br>Recha JW, Radeny M, Kinyangi J, Kimeli P. 2017. Uptake of Resilient Crop Interventions to Manage Risks Through Climate-Smart Villages Approach in Nyando, Western Kenya. In: Filho WL et al (eds.). 2017. Climate Change Adaptation in Africa: Fostering Resilience and Capacity to Adapt. Part II. Cham, Switzerland: Springer, pp 531-538. |



| Partner Organisation Legal Name: isardSAT                                   |   |
|---|---|
| <b>General description</b>  | isardSAT is a group of R&D SMEs providing, since 2006, engineering and scientific remote sensing solutions to our clients, based on our expertise in altimetry, passive microwave and SAR technologies. isardSAT Group is composed of isardSAT-Cat (Barcelona) and two fully owned subsidiaries: isardSAT-UK (Guildford) and isardSAT-PL(Gdynia). isardSAT conducts algorithm development, geophysical validation, product generation, service delivery and outreach activities. isardSAT is also involved in applications and service-based projects for the exploitation of Earth Observation data (droughts, floods, atmospheric pollution and climate change adaptation)  |
| <b>Key Persons and Expertise</b>  | <b>Laia Romero</b> (F) is responsible for Operations and Strategy at isardSAT, and has more than 10 years of experience in the design and operation of Earth Observation services. MSc in Research in Physical Oceanography. <b>Maria José Escorihuela</b> (F) is PhD in space and environmental science, specialized in hydrology. <b>Bernat Martinez</b> (M), is an experienced project manager and in the areas of hydrology, air quality and climate change.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | Access to ultra-wide Internet access, conference facilities, and meeting rooms, video conference rooms; multi-core Linux System Workstations for data processing  |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | isardSAT has a wide experience successfully managing complex technical projects lasting several years. In particular, the Global Users in the Copernicus Climate Change Service (GLORIUS, 2017-2019) is relevant for DECIFER. GLORIOUS brings together 15 organisations from 6 continents across the globe, including 4 National Climate/Meteorological/Hydrological Services, 5 national Universities or research institutes, 2 international research institutes, 2 SMEs and 2 Climate Adaptation Services. isardSAT acts as a Knowledge Purveyor working with global users PwC, Oxfam, and UN Habitat in the codesign of the Climate Adaptation Service. Downscaling and bias adjustment techniques using Earth Observation data are explored. |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | Gao Q, Zribi M, Escorihuela MJ and Baghdadi N. 2017. Synergetic Use of Sentinel-1 and Sentinel-2 Data for Soil Moisture Mapping at 100 m Resolution, Sensors 2017, 17, 1966; doi:10.3390/s17091966<br>Escorihuela MJ and Quintana-Seguí P. 2016. Comparison of remote sensing and simulated soil moisture datasets in Mediterranean landscapes, Remote Sensing of Environment 180, 99-114, doi.org/10.1016/j.rse.2016.02.046.<br>Merlin O, Escorihuela MJ, Aran-Mayoral M, Oagolle O, Al Bitar A. and Kerr Y. 2013. Self-calibrated evaporation-based disaggregation of SMOS soil moisture: an evaluation study at 3 km and 100 m resolution in Catalunya, Spain. Remote Sensing of Environment, 130, pp 25–38, doi:10.1016/j.rse.2012.11.008     |

| Partner Organisation Legal Name: European Commission Joint Research Center  |   |
|---|---|
| <b>General description</b>  | The Joint Research Centre (JRC) is the European Commission's science and knowledge service. It supports EU policies with independent scientific evidence throughout the whole policy cycle. JRC creates, manages and makes sense of knowledge and develops innovative tools and makes them available to policy makers. It anticipates emerging issues that need to be addressed at EU level and understands policy environments.  |
| <b>Key Persons and Expertise</b>  | Dr. Andrea Toreti is a senior scientist at JRC. His main research interests focus on: climate extremes and impacts on agriculture; climate variability, climate change and impacts on agriculture; extreme value theory; statistical climatology; change point detection and attribution; agro-meteorology.<br>Dr. Stefano Galmarini is a senior scientist at JRC since 2000. He has extensive competence in model evaluation and ensemble modelling. He has published 183 peer-reviewed publications and has participated in several international projects on the assessment of model performance and improvement of model results.<br>Dr. Alessandro Dosio is a senior scientific officer at the JRC. His expertise is primarily on: regional climate modelling; production, evaluation, and analysis of climate change projections at regional scale (Europe/Africa) and their linkage with impact models (floods, droughts, crop yield forecast, etc.), with focus being on downscaling and bias-correction. |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | HPC, servers  |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | Numerous EU projects (EU-FP6, FP7, H2020), e.g., IMPACT2C, ACQWA, MedGOLD, as well as international initiatives such as AgMIP, CORDEX, MedCLIVAR and MedECC.  |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | Zampieri M. et al. 2017. Wheat yield loss attributable to heat waves, drought and water excess at the global, national and subnational scales. Environmental Research Letters 12.<br>Ceglar et al. 2016. Impact of meteorological drivers on regional inter-annual crop yield variability in France. Agricultural and Forest Meteorology 216.<br>Dosio A. (2016): Projections of climate change indices of temperature and precipitation from an ensemble of bias-adjusted high-resolution EURO-CORDEX regional climate models, Journal of Geophysical Research D: Atmospheres, DOI: 10.1002/2015JD024411   |

| Partner Organisation Legal Name: Unión de Pequeños Agricultores y Ganaderos |  |
|---|--|
| <b>General description</b>  | Association representing most of the Spanish farmers (as small farmers are the majority in Spain). They have 80.000 affiliates and maintain dialogue with Spanish and European institutions. They belong to COPA.  |
| <b>Key Persons and Expertise</b>  | Javier Alejandro, farmer and staff at the Technical Department   |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | UPA has offices in Madrid, and also in Brussels for PAC updates.<br>UPA has an extensive network of farmer contacts.   |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | UPA funds the “Fundación de Estudios Rurales” - Foundation for rural studies to promote analysis and debate on aspects related to agricultural activity.<br>Currently UPA participates in the project ADAPAGRI on adaptation to climate change funded by Fundación Biodiversidad ( <a href="http://fundacion-biodiversidad.es/en">http://fundacion-biodiversidad.es/en</a> )   |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | -Bimonthly journal for farmers, in Spanish: “La Tierra”, last issue on current drought effects: Emergencia nacional. La Tierra del agricultor y ganadero, 265, nov-dic 2017.<br>-Series of yearly report on family agriculture, last issue: Agricultura Familiar en España, Anuario, 2017.<br>-Monographies: Mujeres rurales. Cuadernos de la Tierra, 10, 2017.<br>Publications can be downloaded at the website <a href="https://www.upa.es">https://www.upa.es</a> |

| Partner Organisation Legal Name: The World Bank Group                       |  |
|---|--|
| <b>General description</b>  | The World Bank Group is one of the world's largest sources of funding and knowledge for developing countries. Its five institutions share a commitment to reducing poverty, increasing shared prosperity, and promoting sustainable development. The World Bank Group is committed to working with countries to deliver climate-smart development in key sectors such as agriculture and food security   |
| <b>Key Persons and Expertise</b>  | Dr. Ana E Bucher, Senior Climate Change Specialist, Climate Change Group.  |
| <b>Key Research Facilities, Infrastructure and Equipment</b>                | Computers, databases, spatial analysis laboratories, meeting and networking facilities, climate data servers and Amazon cloud (AWS).   |
| <b>Previous and Current Involvement in Research and Training Programmes</b> | The WBG is involved in several research and training programs related to climate impacts, vulnerability and risks. The WBG engages closely with a large number of country Meteorological Services, Universities, private sector, and Research Centers focusing on Hydro Meteorological Research and Analysis. The WBG provides technical assistance to WMO Members to modernize their weather, climate and hydrological forecasting. Through training and knowledge sharing opportunities, the WBG facilitates the sharing of international best practice and supports national Met Services to develop their operational concepts.  |
| <b>Relevant Publications and/or Research / Innovation Product</b>           | <b>Climate Change Knowledge Portal</b> <a href="http://climateknowledgeportal.worldbank.org">http://climateknowledgeportal.worldbank.org</a> . The Climate Change Knowledge Portal (CCKP) is a central hub of information, data and reports about climate change around the world. The portal allows users to query, map, compare, chart and summarize key climate and climate-related information.<br><b>From Climate Science to Action:</b> Each part of the world faces specific vulnerabilities to climate change and has different opportunities to mitigate the effects and build resilience in the 21st century. Without climate action, decades of development progress are threatened, meaning that we are at a ‘make it or break it’ point in time. This course presents the most recent scientific evidence, explains the different regional impacts and divulge climate action strategies, and some opportunities for you to take action on climate change.<br><a href="https://olc.worldbank.org/content/climate-science-action">https://olc.worldbank.org/content/climate-science-action</a> .<br><b>Climate Smart Agriculture Profiles:</b> Mainstreaming climate smart agriculture (CSA) requires critical stocktaking of ongoing and promising practices for the future, and of institutional and financial enablers for CSA adoption. A series of country profile provides a snapshot of a developing baseline created to initiate discussion, both within countries and globally, about entry points for investing in CSA at scale. The profiles are effective tools for synthesizing complex information into focused outputs that compare in a visually-appealing way the ‘climate smartness’ of many country activities and their adoption potential.<br><a href="http://sdwebx.worldbank.org/climateportal/index.cfm?page=climate_agriculture_profiles">http://sdwebx.worldbank.org/climateportal/index.cfm?page=climate_agriculture_profiles</a> |

## **6. Ethics Issues**

No ethics issues as stated in part A.

## 7. Letters of Commitment

Please use this section to insert scanned copies of the required **letters of commitment from partner organisations**. These should be on headed paper and signed in order to demonstrate the credibility of the organisation's commitment to the ITN. There is no specific template for these letters.

N°105/ACMAD/DG/

Niamey, December 23, 2017

Prof. Dr. Douglas Marun  
Wegener Center for Climate and Global Change  
University of Graz  
Austria

**Subject: Letter of commitment**

Dear Dr. Maraun,

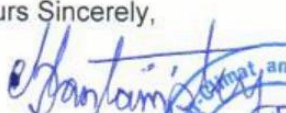
I am happy to inform you that ACMAD is committed to contribute as partner organization to the project DECIFER (Distilling Ensemble Climate Information for Food sEcuRity), submitted as proposal within the H2020 call MSCA-ITN-2018: Innovative Training Networks, should the proposal be funded.

ACMAD, with a continental mandate is involved in capacity building and provision of weather and climate information and services, geared towards development. Thus, the DECIFER project is very relevant to the operations of ACMAD.

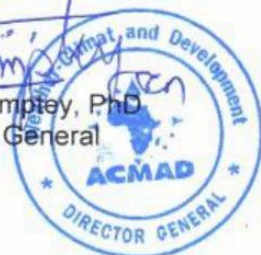
ACMAD's commitments to the project includes the following:

- Qualified ACMAD staff co-supervise a PhD student
- Host up to two secondments of students
- Contribute to the Co-Design workshop, the training schools, the grand challenges webinar and the international network conference
- Help with providing contacts with local stakeholders, e.g., for outreach activities

Yours Sincerely,



Benjamin L. Lamprey, PhD  
Acting Director General





the climate data factory  
12 rue de Belzunce,  
75010 Paris, France

Douglas Maraun  
Associate Professor  
Wegener Center for Climate and Global Change  
University of Graz  
Brandhofgasse 5  
8010 Graz, Austria

### Letter of endorsement

Dear Douglas,

I hereby express our support to *Distilling Ensemble Climate Information for Food Security* (DECIFER) project that is prepared by an international consortium led by the *Wegener Center for Climate and Global Change* (University of Graz) to be submitted as a *Marie Curie Innovative Training Network* proposal responding to the H2020 call *MSCA-ITN-2018: Innovative Training Networks*.

*the climate data factory* believes that the education activities under the DECIFER project are of great value and will benefit from a excellent level of higher education training and research development. As a climate service company we are both interested in exploiting research results as well as hiring a PhD graduate from the project.

In the light of the above, if the DECIFER project is selected for funding, *the climate data factory* is interested to collaborate with the partner institutions on the educational activities by:

- co supervising 1 or 2 PhD students,
- provide 2 to 4 secondments to PhD students,
- contribute to the webinars and workshops (particularly the career and climate information ones).

Yours faithfully

Harilaos Loukos  
CEO



5 January 2018



Associate Professor Douglas Maraun  
 Head of the Reloclim Research Group  
 Wegener Center for Climate and Global Change University of Graz  
 Brandhofgasse 5  
 8010 Graz  
 Austria

### Letter of support for DECIFER

Dear Douglas Maraun,

I am very pleased with this letter to support your initiative DECIFER (Distilling Ensemble Climate Information for Food sEcuRity) to form a Marie Skłodowska-Curie Innovative Training Network under the H2020 call MSCA-ITN-2018.

I am confident that with the envisaged focus of the network on the ability to model and interpret atmosphere land surface interactions in climate models, which should lead to advances in the understanding of drought and drought related impacts related to ongoing and projected future climate change in the Mediterranean region and beyond.

The scientific focus of DECIFER addresses many aspects of my own scientific expertise and is in the interest of the DMI. Therefore, I will be happy to act as a co-supervisor for any students of DECIFER who will need enrolment with a PhD programme in Copenhagen. This supervision work will be done in close collaboration with the University of Copenhagen, which will be the formal host institution and award the PhD grade. The DMI will contribute to DECIFER training activities, particularly regarding climate models, and offers to host two secondment activities for other students in collaboration with the University of Copenhagen.

Yours sincerely

  
 Ole B. Christensen  
 Senior Scientist

Danish  
 Meteorological  
 Institute

Lyngbyvej 100  
 DK-2100 Copenhagen Ø

T +45 3915 7500  
 F +45 3927 1080

[www.dmi.dk](http://www.dmi.dk)  
[epost@dm.dk](mailto:epost@dm.dk)

CVR 1815 9104  
 EAN 5798000893252



DANISH MINISTRY OF  
 CLIMATE, ENERGY AND BUILDING

منظمة  
الأغذية والزراعة  
للأمم المتحدة

联合国  
粮食及  
农业组织

Food and Agriculture  
Organization of the  
United Nations



Organisation des  
Nations Unies pour  
l'alimentation et  
l'agriculture

Продовольственная и  
сельскохозяйственная  
организация  
Объединенных Наций

Organización de las  
Naciones Unidas para la  
Agricultura y la  
Alimentación

Viale delle Terme di Caracalla, 00153 Rome, Italy

Fax: +39 0657053152

Tel: +39 0657051

www.fao.org

Our Ref.:

Your Ref.:

January 10, 2018

To whom it may concern:

We express our support to the project DECIFER (Distilling Ensemble Climate Information for Food Security), submitted as Marie Curie Innovative Training Network proposal within the H2020 call MSCA-ITN-2018: Innovative Training Networks.

The goal of Food and Agriculture Organization of the United Nations (FAO) is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. The proposed DECIFER project is very relevant to the mandate of FAO. Dr. Mariko Fujisawa, Climate Change Officer, and Dr. Hideki Kanamaru, Natural Resources Officer, will be involved in the project, should the project be funded.

Our commitment to the project includes the following:

- hosting up to two secondments of students
- contributing to webinars, the interdisciplinary training school, the career workshop, workshop on statistics, workshop on climate information, and co-design workshop
- co-supervision of two PhD students

Sincerely,

Hideki Kanamaru, PhD  
Natural Resources Officer  
FAO





Prof. Dr. Douglas Maraun  
University of Graz  
Wegener Center for  
Climate and Global Change  
Brandhofgasse 5  
8010 Graz

Piacenza, 03/01/2018

**Subject: Participation to the DECIFER proposal for the H2020-MSCA-ITN-2018**

We hereby express our support to the Marie Curie Innovative Training Network proposal 'Distilling Ensemble Climate Information for Food Security DECIFER' presented by the University of Graz in the H2020-MSCA-ITN-2018 call on Innovative Training Networks.

We express our commitment to participate as Partner Organisation and to host during the secondment period a maximum of 3 Ph.D. students involved in the program. We also express our interest in: co-supervising a maximum of 3 Ph.D. students; contributing to the career workshop, Co-Design workshop, the training schools, the grand challenges webinar and the international network conference.

President of Horta Srl

Pierluigi Meriggi  
  
HORTA S.R.L.  
SPIN OFF UNIV. CATTOLICA  
Via E. Gorra, 55  
29122 Piacenza  
C.F./P.I. 01529030338

HORTA S.r.l.

Sede Legale: Via Egidio Gorra 55, 29122 Piacenza

Sede Operativa: Via Sant'Alberto 327, 48123 Ravenna - c/o Az. Agricola Cà Bosco

P.I./C.F. 01529030338 - REA: PC-0170291 - Capitale Sociale €30.000,00 i.v.

[www.horta-srl.com](http://www.horta-srl.com) - [info@horta-srl.com](mailto:info@horta-srl.com)



Spin Off di

UNIVERSITÀ  
CATTOLICA  
del Sacro Cuore



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



4<sup>th</sup> January 2017

Douglas Maraun  
Wegener Center for Climate and Global Change  
University of Graz  
Brandhofgasse 5  
8010 Graz, Austria

Dear Dr. Maraun,

**RE: Letter of Commitment with Distilling Ensemble Climate Information for Food Security (DECIFER)**

Thank you for inviting the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), East Africa to join the DECIFER (Distilling Ensemble Climate Information for Food Security) proposal, submitted as Marie Curie Innovative Training Network within the H2020 call MSCA-ITN-2018: Innovative Training Networks. Should the proposal be funded, CCAFS East Africa would join the consortium as a partner organization and would participate as an ILRI hosted institution using ILRI's partner identification code of the EU.

CCAFS is a research programme of CGIAR. CCAFS in a collaboration with all 15 CGIAR research centers addresses the increasing challenge of global warming and declining food security on agricultural practices, policies and measures through a strategic collaboration between CGIAR and Future Earth. In participating in DECIFER, CCAFS will work hand in hand with you and your colleagues to support the consortium in East Africa where students and other researchers will be working to find solutions for climate, agriculture and food security related problems in the region. In particular, CCAFS will support DECIFER as follows:

1. CCAFS EA will provide co-supervision for up to three PhD students.
2. CCAFS will be hosting secondments of up to three PhD students. The students will work with CCAFS EA staff and learn CCAFS processes but also support CCAFS activities in the region in an integrated manner.
3. CCAFS will work with the consortium partners and students to contribute to the training: This could include facilitating and co-designing the career workshop, training schools, grand challenges webinars and the international network conference etc.
4. CCAFS will help with providing contacts with local stakeholders, e.g., for outreach activities by making available the vast CCAFS network in East Africa.

Yours sincerely,

Dawit Solomon, PhD  
Regional Programme Leader CCAFS East Africa

D.S.



Parc Tecnològic Barcelona Activa  
C/ Marie Curie, 8-14, A 213-219, 08042 Barcelona  
Tel. + 34 933 505 508 · Fax. + 34 932 917 815  
[www.isardSAT.cat](http://www.isardSAT.cat)

Barcelona, January 11<sup>th</sup>, 2018

**Object / Project reference:** H2020-ITN-2018

**Attention to:** Universidad Politécnica de Madrid (UPM)

Dear Margarita Ruiz Ramos,

isardSAT (<http://www.isardsat.cat/>) expresses its interest and confirms its commitment to participate in the proposal DECIFER (Distilling Ensemble Climate Information for Food sEcuRity), that you are going to apply for the call **"H2020 call MSCA-ITN-2018: Innovative Training Networks"**.

The commitment from isardSAT is to host during a period of 2 months a PhD student from DECIFER to applying bias correction techniques or other developments resulting from DECIFER to outputs of GLORIUS projects (in consultation with the output's user Oxfam if needed). This stay will take place in the isardSAT offices, located at Barcelona. Specific dates will be agreed between isardSAT, the PhD student and his/her thesis supervisors, probably during 2019, depending on the thesis development.

Kind regards,

  
Laia Romero

Operations and Strategy Director  
[Laia.Romero@isardSAT.cat](mailto:Laia.Romero@isardSAT.cat)

**isardSAT**  
Parc Tecnològic BCNord · c/ de Marie Curie, 8-14  
08042 BARCELONA · [www.isardSAT.cat](http://www.isardSAT.cat)  
CIF: B-64.290.828



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL  
JOINT RESEARCH CENTRE

Directorate D – Sustainable Resource

Ispra, 22 December 2017

### NOTE TO WHOM IT MAY CONCERN

**Subject: Participation to the DECIFER proposal for the H2020-MSCA-ITN-2018**

We hereby express our support to the Marie Curie Innovative Training Network proposal “*Distilling Ensemble Climate Information for Food Security-DECIFER*” presented by the University of Graz in the H2020-MSCA-ITN-2018 call on Innovative Training Networks.

We express the commitment to participate as Partner Organisation and to host during the secondment period a maximum of 6 Ph.D. students involved in the program on the following topics: impacts of model errors and bias correction on eco-climatic indicators; understanding regional soil moisture - temperature feedbacks; process-based analysis of the systematic errors in global climate predictions and projections. Ph.D. students can be hosted by the European Commission, Joint Research Centre (JRC) as unpaid visiting scientists, however the conditions given below must be fully met.

An agreement between the Directorates, the unpaid visiting scientist and the associated University will be a pre-requisite on the meeting of a number of formalities, and if all administrative procedures will finish successfully (i.e. if all requested documents will be provided, in case of non-EU nationals, security screening completed and derogation of Director General received). There will be no transfer of money between the Parties and all conditions of the visit will be defined in the visiting scientific agreement, which will need to be signed by the sending party, the unpaid visiting scientist and the JRC.

Furthermore, we express the interest in co-supervising 3 Ph.D. students. The co-supervision will be assigned to the following JRC scientists: Andrea Toreti, Stefano Galmarini and Alessandro Dosio.

Finally, we express the willingness to contribute to the activities foreseen in the proposal: interdisciplinary training school, career workshop, workshop on statistics and on climate information.

Giovanni DE SANTI

European Commission, Via Enrico Fermi 2749, I-21027 Ispra (Varese) - Italy. Telephone: (39)0332-78-9111.





### **Carta de compromiso**

Madrid, 8 de enero de 2018

La Unión de Pequeños Agricultores (UPA; <https://www.upa.es>) expresa su interés y confirma su compromiso para participar en la propuesta **DECIFER** (Distilling Ensemble Climate Information for Food sEcuRity) que se presenta a la convocatoria **H2020 call MSCA-ITN-2018: Innovative Training Networks**.

El compromiso que acepta UPA se refiere a acoger durante un periodo de **2 semanas** a determinar en el curso del proyecto (probablemente durante 2019), un doctorando perteneciente a DECIFER para co-diseñar algunos aspectos principales de una aplicación de soporte la toma de decisiones para agricultores, en versión para móvil.

Esta estancia breve se realizaría en las oficinas de la UPA en Calle Agustín de Betancourt nº 17, 3ª planta 28003 Madrid, pudiendo también aprovechar la red de oficinas que la UPA tiene a lo largo de la geografía española, en función del interés y momento concreto del desarrollo del proyecto. Las fechas precisas se acordarán entre la UPA, el doctorando y sus supervisores de tesis, en función del avance la tesis y de las campañas agrícolas.

Lo que firmo a los efectos oportunos:

Lorenzo Ramos Silva  
Secretario General

**Unión de Pequeños Agricultores y Ganaderos**  
Agustín de Betancourt, 17. 3º. 28003 Madrid. Tlf.: 91 554 18 70 | Fax: 91 554 26 21  
[upa@upa.es](mailto:upa@upa.es) | [www.upa.es](http://www.upa.es)

**English Translation:**

**Letter of commitment**

Madrid, January 8th 2018

The Unión de Pequeños Agricultores (UPA; <https://www.upa.es>, Association of Small Farmers) expresses its interest and confirms its commitment to participate in the proposal **DECIFER** (Distilling Ensemble Climate Information for Food sEcuRity) to be submitted to the **H2020 call MSCA-ITN-2018: Innovative Training Networks**.

The commitment accepted by UPA is hosting, during a period of **two weeks** to be determined in the course of the Project (likely during 2019), a PhD student belonging to DECIIFER for co-designing main aspects of an mobile app to support decision making for farmers.

This brief stay will take place in UPA's offices at Calle Agustín de Betancourt no 17, 3a planta 28003 Madrid, also taking advantage of the net of offices of UPA in Spain in the interest and development if the project requires so. Specific dates will be agreed by UPA, the PhD student and his/her thesis co-supervisors, depending on the thesis progress and the agricultural Season.

What I sign for the record,

Lorenzo Ramos Silva

General Secretary



January 8th, 2018

Douglas Maraun  
Associate Professor  
Head of the Reloclim Research Group  
Wegener Center for Climate and Global Change  
University of Graz, Austria

Dear Dr. Maraun,

I am happy to confirm that the World Bank is committed to support the proposal for the DECIFER (Distilling Ensemble Climate Information for Food Security) project, submitted as Marie Curie Innovative Training Network proposal within the H2020 call MSCA-ITN-2018: Innovative Training Networks, should the proposal be funded.

By 2050, the world will have to feed 9 billion people, extend housing and services to 2 billion new urban residents, and provide universal access to affordable energy, and do so while bringing down global greenhouse gas emissions to a level that make a sustainable future possible. At the same time, floods, droughts, sea-level rise, threats to water and food security and the frequency of natural disasters will intensify, threatening to push 100 million more people into poverty in the next 15 years alone. The World Bank is committed to support developing countries meet climate resilient and low carbon development targets specified in their National Development Contributions (NDCs). This entails support to enhance resilient development in several high-impact areas, including provision of climate services for key sectors such as climate-smart agriculture and social development, as well as in mobilizing the private sector to expand climate investments in developing countries.

DECIFER will provide the opportunity to translate and operationalize the use of latest climate data and information to be used in decision making regarding agriculture and food security. Outputs from DECIFER should help provide sector specific information for improved climate smart planning processes at different levels of details. In addition, DECIFER will provide an opportunity to support in-country capacity building related to the development of climate services for food security and improved understanding of climate impacts.

In particular, the World Bank staff working on climate and agriculture could contribute to the project by helping supervise work of PhD students focusing on WBG related work on the climate/development nexus and host up to 5 non-paid secondments of PhD students as interns, both at the Washington DC Headquarters and/or within country projects particularly in the African Region.



DECIFER

-2-

January 8, 2018

The secondments would contribute to the support and enhancements of analytical platforms, such as the Climate Change Knowledge Portal, conceptualization and development of climate services studies in the countries, and/or the implementation of investment projects based on climate model interpretations. The World Bank would also contribute to the design of the overall training programme, including training schools, the grand challenges webinar, and the career workshop.

I wish you the best success for the project and look forward to collaborating with you.

Yours sincerely,



Ana E. Bucher, Ph.D.  
Senior Climate Change Specialist  
Climate Change Group | Climate Analytics and Advisory Services  
T +1 202 458 5249  
E [abucher@worldbank.org](mailto:abucher@worldbank.org)  
W [www.climateknowledgeportal.worldbank.org](http://www.climateknowledgeportal.worldbank.org)  
W [www.worldbank.org](http://www.worldbank.org)



**WORLD BANK GROUP**  
Climate Change





EUROPEAN CENTRE FOR  
MEDIUM-RANGE WEATHER FORECASTS

Europäisches Zentrum für mittelfristige Wettervorhersage | Centre européen pour les prévisions météorologiques à moyen terme

+44 118 949 9374  
Antje.Weisheimer@ecmwf.int

Reading, 10<sup>th</sup> January 2018

Dear Dr. Maraun,

I am delighted to hear that the DECIFER project is coming together, to be submitted within the H2020 call MSCA-ITN-2018: innovative Training Networks.

The interdisciplinary collaboration of global and regional climate modellers, statisticians, agricultural modellers, social scientists and stakeholders is crucial to address projections uncertainties and the responsible provision of relevant climate information.

I would be very pleased to serve on your Advisory Board. I believe that I can bring useful expertise in climate model errors, climate dynamics and predictions, and uncertainties.

I wish you the best success for the project proposal.

Best regards,

A handwritten signature in black ink, appearing to read 'Antje Weisheimer', with a stylized flourish at the end.

Dr Antje Weisheimer

Senior Scientist  
Research Department  
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National Aeronautics and Space Administration  
**Goddard Institute for Space Studies**  
 New York, N.Y.

Douglas Maraun  
 Wegener Center for Climate and Global Change  
 University of Graz Brandhofgasse 5, 8010 Graz, Austria  
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January 10, 2018

Dear Douglas,

It is my pleasure to offer my commitment to serve as a member of the Science and Stakeholder Advisory Board for the DECIFER initiative ("Distilling Ensemble Climate Information for Food sEcuRity") proposed to the H2020 call MSCA-ITN-2018: Innovative Training Networks. The proposed work addresses the fundamental challenge of providing useful climate information as many vulnerable populations face a future where change is inevitable but uncertain. Challenges are particularly acute in the agricultural sector of the Mediterranean and Northern Africa, where agricultural markets and food security are susceptible to extreme events punctuating long term climate shifts and technological trends. Public, private, and non-governmental organization stakeholders are eager for accurate assessment of climate trends and evolving risk distributions with a lead time that provides a useful knowledge basis for investment and policy planning given the timelines needed to effect adaptation and transformational change. Your proposal provides the necessary concerted and coordinated effort that will identify actionable climate signals and their implications across interconnected local and regional agricultural areas, and then communicate these to stakeholders to inform science-based decision making.

I look forward to advising DECIFER drawing upon lessons gleaned from my experience founding and leading the Agricultural Model Intercomparison and Improvement Project (AgMIP). AgMIP is an international network of nearly 1000 climate, crop, livestock, economics, and food security experts working to systematically evaluate and apply integrated modeling frameworks to understand the impacts of climate variability and global changes on agricultural markets and food security. As AgMIP Science Coordinator and Climate Team leader since AgMIP's launch in 2010, I will share lessons from our experiences connecting across disciplines, scales, and models to produce useful climate and agricultural risk information that is transparent in its treatment of uncertainty and tailored to stakeholder needs. Connections and findings from previous AgMIP projects in several of your focus countries will also likely be helpful in orienting project activities. I also will provide perspective as the co-chair of the Vulnerability, Impacts, Adaptation, and Climate Services (VIACS) Advisory Board of the Coupled Model Intercomparison Project phase 6 (CMIP6), which has a mandate to improve communications between climate modeling groups and the many groups and stakeholders applying climate information.

Congratulations to you and your excellent team for proposing DECIFER. I look forward to working closely with this much-needed initiative in the years ahead!

Sincerely,

Alex C. Ruane  
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NASA Goddard Institute for Space Studies – 2880 Broadway, New York, NY, 10025 USA



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FitzRoy Road  
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**12 January 2018**

To whom it may concern,

I am writing to express my willingness to join an advisory board for the proposed DECIFER (Distilling Ensemble Climate Information for Food sEcuRity) project as part of the H2020 call on Innovative Training Networks, MSCA-ITN-2018.

The proposed project addresses critical issues in the use of downscaled climate information, advancing research methods to integrate climate information into decision-making and improve understanding of key climate change uncertainties relevant to the agriculture sector. The research outputs will provide benefits to the agricultural community in North Africa and the Mediterranean region, as well as support the international climate services community in demonstrating improved methods for distilling multiple sources of climate information.

The Met Office develops and provides tailored climate services for users across the world. Through joining the advisory board for this project, it provides an opportunity to provide expert guidance for the research, drawing on experiences from a range of relevant projects and utilising expertise in climate science, impacts and services. The Met Office stands to benefit from learning about the new research as well as being able to engage with a network of scientists and practitioners in the focal regions.

We look forward to the opportunity to support the proposed DECIFER project.

Yours faithfully,

A handwritten signature in black ink, appearing to read "J. Daron".

Dr Joseph Daron  
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International Climate Services  
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## END PAGE

MARIE Skłodowska-CURIE ACTIONS

**Innovative Training Networks (ITN)  
Call: H2020-MSCA-ITN-2018**

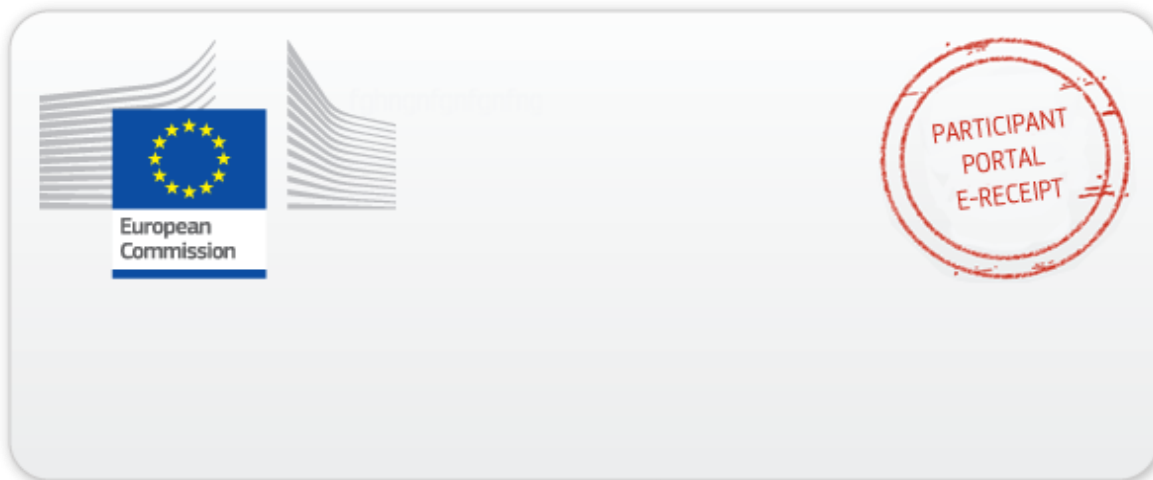
### PART B



**Distilling Ensemble Climate Information  
for Food sEcuRity**

**This proposal is to be evaluated as:**

**[ETN]**



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