
MEMORANDUM OF AGREEMENT FOR STRATEGIC COOPERATION

BETWEEN BSC-CNS AND IGE-CNRS

Date: May 2017

1. Introduction

This is a Memorandum of Agreement for Cooperation between Barcelona Supercomputing Center - Centro Nacional de Supercomputación (Hereinafter referred to as "BSC-CNS") and Centre National de la Recherche Scientifique, 3 rue Michel-Ange 75016 Paris, acting on behalf of "Institut des Géosciences de l'Environnement" (IGE-UMR5001) (Hereinafter referred to as IGE- CNRS).

Objectives

The overall objective of this Memorandum is to define a preliminary framework under which IGE-CNRS and BSC-CNS propose to work on certain collaboration activities. More specifically, there are number of general objectives indicated below:

- The parties will increase collaboration in several ways. One of the possible methods is to facilitate the temporary exchange of researchers. In particular, the parties intend to share scientific experience, information and expertise related with climate prediction and analysis.
- The parties will promote competence development in each country, for example by organizing joint workshops, presentations and lectures.
- The parties will look for joint projects in areas of common interest.
- The intention is for IGE-CNRS and BSC-CNS to work in this collaborative effort for an initial period of one year, subject to be renewed for another year, (1+1 years) upon mutual consent of the parties. The scope of the intended projects may change to reflect future goals and strategies of the parties.

It is also important to ensure that the specific collaboration activities and projects are beneficial and of interest to both IGE-CNRS and BSC-CNS. To accomplish this, the parties intend to define a Collaboration Management model with an organizational structure and set of processes to facilitate the decision making process and govern the collaboration activities over the term of the proposed collaboration. These processes may include regularly scheduled executive and technical meetings to review the status and progress of this agreement.

2. Joint Responsibilities

Under the proposed relationship, the parties jointly intend to:

- participate actively in the collaboration according to the collaboration management model;
- establish the policies and procedures for the management of the collaboration;
- if needed, include additional scientific or industrial collaborators, such as customers of each center

3. Intellectual Property

The parties recognise that the parties' intellectual property rights in all intellectual property, including but not limited to copyright, trade secret, inventions, ideas, concepts, techniques, know how, industrial rights and patents ("IP"), will be defined case-by-case in written agreements.

The parties agree on the principle of co-ownership of joint results.

The intellectual property rights related to the Results made jointly by researchers of both Parties shall be owned jointly by the Parties with the extent of the ownership to be determined through consultation between the Parties, taking into consideration the contributions made by each Party.

Each party shall continue to own its results and know-how that existed prior to the date this Agreement shall enter into force. This Agreement shall not entail any transfer of title.

4. Proposed Collaboration Management Model

This collaboration is intended to be managed through the following organisational structure.

Collaboration Team: comprising a IGE-CNRS collaboration manager (Antoine Rabatel) and a BSC-CNS collaboration manager (Virginie Guemas) and additional persons working in joint activities between IGE-CNRS and BSC-CNS. This team would oversee the execution of projects and research activity.

BSC-CNS authorizes research staff to make mobility stays and work in collaboration with other institutions for periods of up to 1 year and for this reason authorizes Dr. Martin Ménégos to work in collaboration with the IGE- CNRS and to carry out stays of work in this institution as a initial long-term visitor.

Dr. Martin Ménégos is a post-doc researcher at the Barcelona Super Computing Center (BSC, Barcelona, Spain), where he investigates the climate variability in the Earth Department supervised by Prof. F. Doblas-Reyes, within the climate prediction team leaded by Dr Virginie Guemas. This document is a base for an agreement between the BSC and the Institute of Geosciences and Environment (IGE- CNRS, Grenoble, France) to welcome Martin Ménégos as a long-term visitor at the IGE-CNRS, working under a

BSC-CNS contract, from July 2017 and for a period of one year. The Annex I includes a description of the research activities of Martin Ménégos, the second one is a research plan that he will follow under this agreement.

5. General terms

Confidentiality

The results or the software acquired within the framework of this agreement and all information exchanged may be used by the partners only for their scientific needs. No disclosure or transfer to any third party, in whole or in part, shall be effectuated without the prior consent of the other party. This non-disclosure obligation shall remain effective during the term of the Agreement and for 5 (five) years subsequent to its termination.

For the avoidance of doubt, this shall be not apply to the Affiliate of a Party. Affiliates of a Party are:

1. any legal entity directly or indirectly Controlling, Controlled by, or under common Control with that Party, for so long as such Control lasts; and
2. any other legal entity that is listed in Annex 1 to this MEMORANDUM OF AGREEMENT as being an Affiliate of that Party, where such legal entity is:
 - (i) one in which that Party (or a legal entity qualifying as an Affiliate of that Party under (a) above) has a 50% equity share or is the single largest equity shareholder; or
 - (ii) under common Control with that Party, or a legal entity qualifying as an Affiliate of a Party under (a) above through government.

Any exchange of information between any Member of BSC-CNS, or BSC-CNS, and IGE-CNRS, or any of the employees or researchers who are entitled to visit, shall be treated as confidential information and proprietary to the institution who has provided it. Confidential information does not include any information that is generally known within the industry, becomes common knowledge within the industry, is already in the possession of the recipient, or is disclosed pursuant to law. Each of the parties agree to be bound by the practices and procedures of the other party while on the premises of that party, or cause its Members and representatives to be so bound, to the extent that the practice or procedure does not conflict with any provision of this Memorandum.

Term and Termination

The initial period of this Memorandum is July, 1st 2017 – June, 30th 2018. At the end of this period this Memorandum could be prolonged by way of a written rider. This Memorandum can be terminated at any time by IGE-CNRS or BSC-CNS in a three-month period after the termination notice.

Nonexclusive Relationship

This Memorandum outlines a non-exclusive scientific relationship between BSC-CNS and IGE-CNRS. Nothing contained in this Memorandum shall be deemed to be a restriction of any type on either party's ability to freely compete or to enter into "partnering" relationships with other entities. In any event each party is free to pursue a similar business relationship with others at any time. The exchange of know-how and exchange of software may be restricted due to legal restrictions or other agreements with third parties.

Publications

Potential publications arising from the collaboration will acknowledge the contribution from both parties and be sent to the other party for comment and respective agreement, during the term of this agreement and for the six months following its expiry. Receipt will be acknowledged.

Any of those contributors may object within 30 days of the notification to the envisaged activity if it considers that its legitimate interests in relation to its Foreground, Sideground, Background or Confidential Information, could suffer disproportionately great harm. In such cases, the opposing Party (ies) and the publishing Party shall use all reasonable endeavours to overcome such barrier to publication as quickly as possible. The publishing Party shall postpone the publication of such material until such barrier has been overcome. However, the maximum time of postponement shall be three (3) months from the date of the objection unless (exceptionally) the Parties involved agree to extend the postponement. If there is still no agreement between the Parties at the end of these three (3) months and the Parties involved have not agreed to extend the postponement, each Party may act as it sees fit, taking responsibility for its own actions.

Funding

Each partner will bear its own costs within the scope of this contract unless otherwise mutually agreed. Parties may also apply joint projects to European Commission and international research programs. The parties will endeavour to raise funds for the exchange of researchers and common

projects within national or international research programs. The travel and accommodation costs of Dr. Martin Ménégos to attend any project activities shall be funded by his employer.

Exchange of personnel

- As one mode of collaboration, BSC-CNS and IGE-CNRS agree to promote exchange of personnel for a determined period. The personnel to be exchanged within the framework of the agreement will stay attached to its original employer. This exchange depends on the funding and the availability of suitable persons. The time of the exchange can vary from a few days visits to several months.
- The hosting party shall arrange for appropriate working conditions.

During his stay at IGE, Dr. Martin Ménégos will be considered as a member of the staff of the laboratory and will receive all necessary support including an office, administrative and computing support.

Dr. Martin Ménégos shall be under the obligation to abide by the CNRS and laboratory organizational rules and internal regulations. Health and safety obligations such as additional training and qualification shall be under the responsibility of CNRS.

During his stay at IGE, Dr. Martin Ménégos remains employed and remunerated by BSC-CNS. BSC-CNS provides the CNRS with proper documentation proving that Dr. Martin Ménégos is insured under a social security scheme covering sickness, maternity, pension, accidents at work and occupational disease in compliance with French, European and international applicable laws.

- Each of IGE-CNRS and the respective Members of BSC-CNS participating in activities supported by a hosting party will take all commercially reasonable efforts to cause any representatives, employees or researchers of IGE-CNRS or such Member to comply with all Spanish and French laws, rules and internal regulations appropriate to the jurisdiction of the hosting party. Each of participants in the collaboration and the respective Members of BSC-CNS will ensure that all representatives, employees or researchers of IGE-CNRS or a Member will have appropriate visas, permits, medical and personal insurance coverage while on site at the premises of the other party.

6. Project Collaboration

Research activities description

Martin Ménégos is currently conducting researches on the climate variability at the Earth Sciences Department of the BSC-CNS, by leading a research line devoted to stratosphere-troposphere coupling

processes. He got a PhD in 2009 after 3 years at CNRM-GAME (Météo-France, Toulouse, France), using and developing atmospheric models to study atmosphere-aerosol interactions. Then, he has been associate researcher with three CNRS institutes (LSCE, LMD, IGE) to set up global and regional climate models that he used to investigate the climate variability in cold regions, and in particular the cryosphere sensitivity to particle pollution and climate change. At BSC-CNS, he is currently involved in the development of EC-Earth, a European climate model in which he is implementing new aerosol parameterisations. He uses this model to produce quasi-operational climate forecasts at seasonal-to-decadal timescales and also to investigate the possibility to predict the climate response to volcanic eruptions. He organizes his researches through collaborations with several European research centers, based on European and national projects, including one Spanish MINECO project that he is coordinating (VOLCADEC, 168Keuros, 2016-2018), and one European project (APPLICATE, H2020 call, 2016-2020). He disseminated his research at the international level through publications (17 articles in peer-review journals and communications, and 36 oral presentations or posters given during international events).

Research plan

Under this agreement, Martin Ménégóz will organize his work through three main axes:

(1) He will pursue his involvement in the VOLCADEC and APPLICATE projects, opening and reinforcing his collaborations with French colleagues. Didier Swingedouw and Christophe Cassou, two CNRS French researchers are already involved in VOLCADEC, as experts in climate decadal variability. Within the APPLICATE project recently started, Martin Ménégóz investigates the linkages between the climate change in the Arctic region and the climate variability at mid-latitudes. At IGE-CNRS, he will benefit from the experiences of Gerhard Krinner, Olga Zolina, Martin Wegmann and Vincent Favier, experts in the snow and sea-ice albedo feedbacks and also working on cyclone activity and moisture transport in Polar Regions. In 2016, Martin Ménégóz co-supervised the Master thesis of Maria Santolaria at BSC-CNS to investigate the predictability of the atmosphere related to snow cover and sea ice variability. Maria Santolaria is currently a PhD student at IGE-CNRS under the supervision of Martin Wegmann and Olga Zolina. She is preparing a publication in collaboration with Martin Ménégóz and Javier Garcia-Serrano (BSC-CNS). Martin Ménégóz will benefit from the involvement of the IGE-CNRS researchers in European and national projects, and in particular in LS3MIP, a sub-project of CMIP6 in which Gerhard Krinner is particularly active.

(2) He will pursue its activities related to the common tasks of the Climate Prediction team, and in particular the development of the EC-Earth European model (<http://www.ec-earth.org/>) and of the

common tools developed at BSC-CNS to evaluate forecast systems (<https://cran.r-project.org/web/packages/s2dverification/index.html>).

(3) The presence of Martin Ménéguez at the IGE-CNRS aims at opening new collaborations between the IGE-CNRS and the BSC-CNS in terms of climate modelling, climate variability at seasonal to decadal timescales, and regional impacts of climate variability, in particular of mountainous and snow-covered areas, regions of specific interest at the IGE-CNRS, where various researches are conducted on the evolution of the cryosphere and the hydrosphere. Following these research lines, Martin Ménéguez will pursue his involvement in the writing of proposals to be submitted to Spanish, French and European calls.

Conferences, Workshops and Training

Whereby either party can attend conferences workshops and training sessions posted by the other party; where each party shall provide to the other information relating to relevant conferences, workshops and training in HPC of which such party becomes aware; and the parties may work together to host conferences, workshops and training for such HPC purposes.

Academic collaboration

As great scientific platforms, BSC-CNS and IGE-CNRS can enhance scientific collaboration between French and Spanish scientists. Success stories will be published on the on-going research collaboration and both institutions could establish specific agreements to support scientist-training activities.

7. Language

This MEMORANDUM OF AGREEMENT is drawn up in English, which language shall govern all documents, notices, meetings and processes relative thereto.

8. Applicable law

This MEMORANDUM OF AGREEMENT and all clauses affecting the rights and obligations between the Parties shall be construed in accordance with and governed by the laws of the country of the defendant Party.

9. Settlement of disputes

All disputes arising out of or in connection with this MEMORANDUM OF AGREEMENT, which cannot be solved amicably, shall be finally settled by the competent court of law.

10. Signatures

This Memorandum represents the intention of both IGE-CNRS and BSC-CNS to collaborate in a number of fields specified in this document. This Memorandum cannot be modified except by a comprehensive writing signed by an authorised representative of each party that specifically amends this Memorandum.

The parties have executed this Memorandum, signed in two copies with equal effect upon the signature of each other, to express their intention to be bound by the terms and conditions hereof.

By: Mateo Valero Cortes, BSC-CNS Director

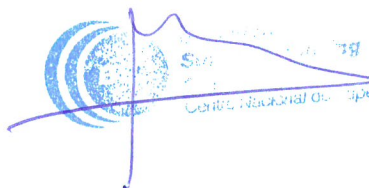
By: Jérôme PARET, Délégué régional

Date: 11/07/2017

BSC-CNS

Date: 28/06/2017

IGE-CNRS


Centro Nacional de Supercomputación

Le Délégué régional

Jérôme PARET



