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EXCELENCIA SEVERO OCHOA

Climate services for the Mediterranean food security

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19/10/2018

11 Congreso Internacional AEC

11 Congreso Internacional AEC El clima: aire, agua, tierra y fuego
Cartagena 17-19 octubre 2018

Climate services for olive oil, wine and pasta

MED-GOLD

VISCA
VINEYARDS INTEGRATED SMART CLIMATE APPLICATION

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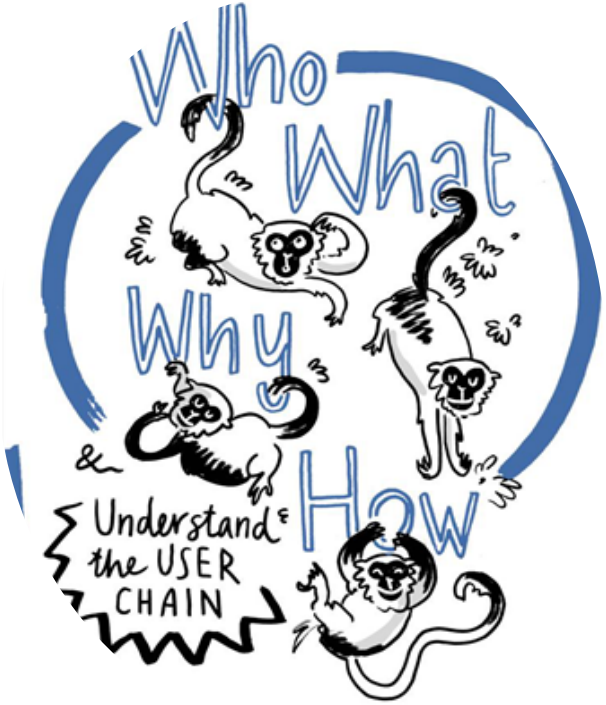
Co-development of the climate service



Involvement of users as project partners

- They should represent the sectorial expertise.
- Their feedback will contribute to the co-development of the service.

User engagement in early stages of the service is crucial…

- To understand the user chain
- To understand the sectorial needs
- To co-develop the service

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CODORNÍU

SOGRAPE VINHOS

SYMINGTON Family Estates

Mastroberardino 1878

Interaction with users

How do we interact with users?

Scoping workshops

Interviews

Focus groups

Participatory approaches with sectorial experts and/or farmers.

Not always easy

- Lack of overview of climate info available
- All decision are important

- Limited trust in climate information
- Lack of a common terminology

User interaction output (e.g. wine sector)

Weather forecast	Climate predictions			Climate projections
	Sub-seasonal	Seasonal	Decadal	
1-15 days	10-60 days	1-15 months	5-10 years	20-100 years

Siting, choice of scion variety and rootstock.

Assessment of water needs

Grow cycle management

Pathogen pressure, abiotic stresses

Crop forcing

Productivity, quality

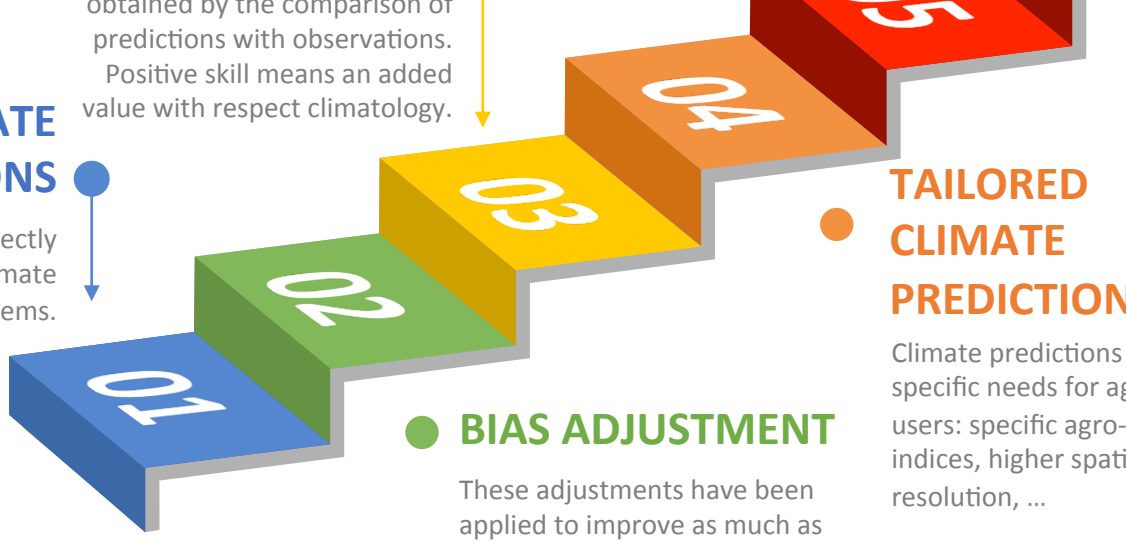
Wine style

Harvest date and duration

Time

Adapted from: Antonio Graça, SOGRAPE VINHOS SA, 2014

From climate data to climate services



RAW CLIMATE PREDICTIONS

Predictions obtained directly from different climate prediction systems.

FORECAST QUALITY ASSESSMENT

Several skill scores have been obtained by the comparison of predictions with observations. Positive skill means an added value with respect climatology.

CLIMATE SERVICE PRODUCT

The final products from the service provide useful information for specific needs.

BIAS ADJUSTMENT

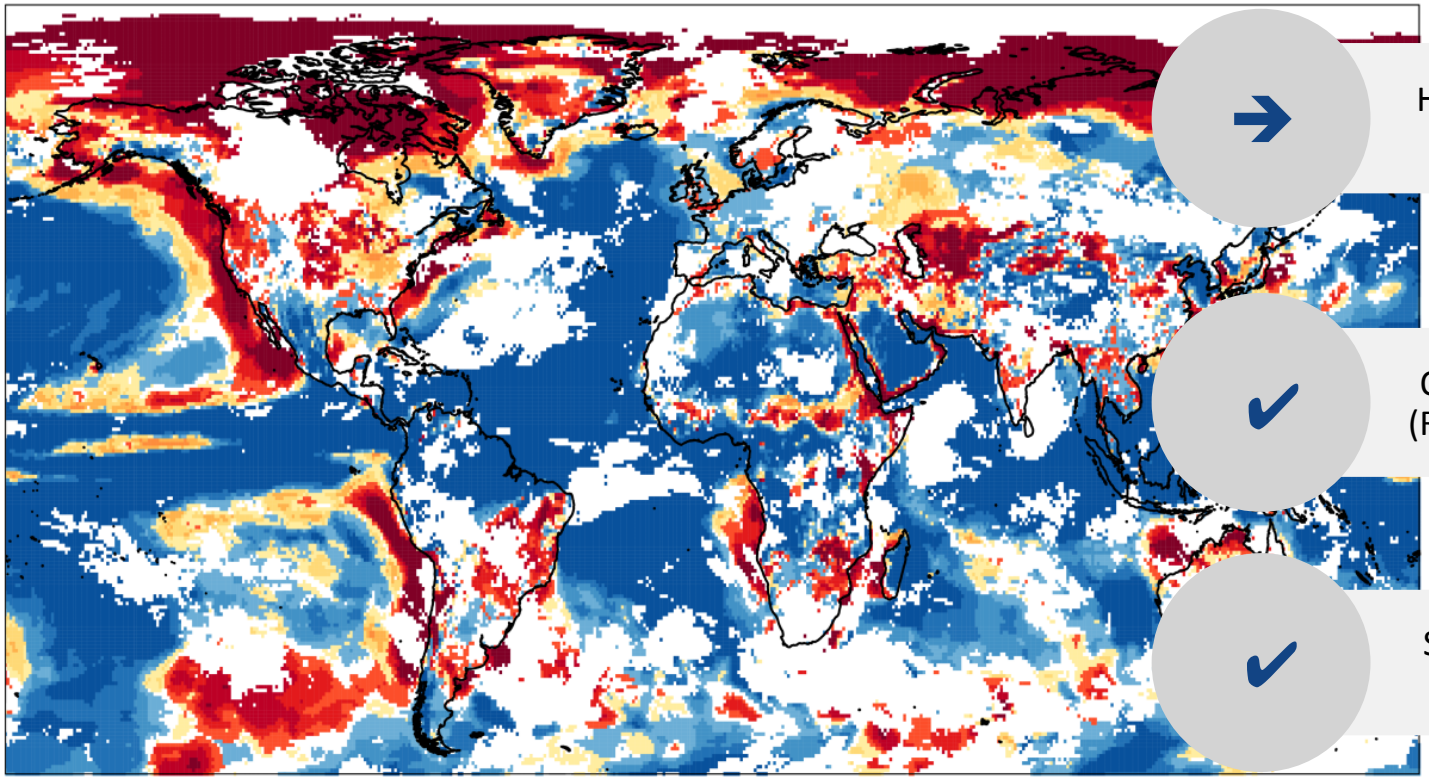
These adjustments have been applied to improve as much as possible reliability of the climate predictions.

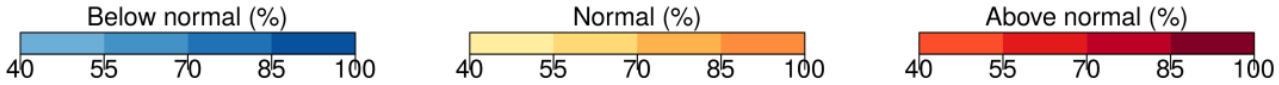
TAILORED CLIMATE PREDICTIONS

Climate predictions tailored to specific needs for agricultural users: specific agro-climatic indices, higher spatial resolution, …

Climate service product: most likely category map

Seasonal prediction of most probable category of temperature for May 2016 with ECMWF S4





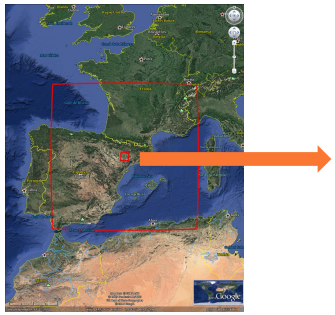
How will be the next month/ season temperature?

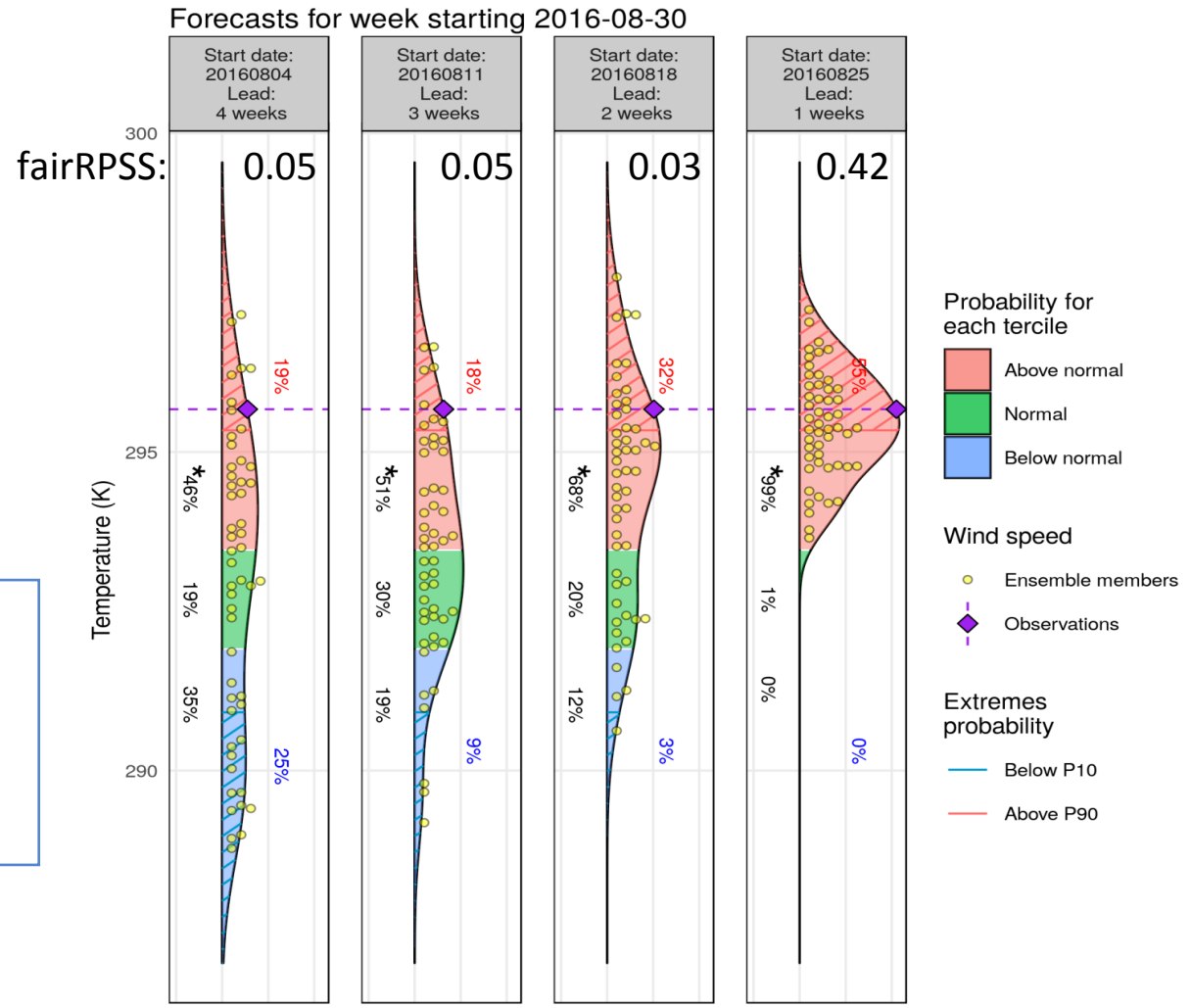
Only areas with positive skill (RPSS) are shown to the users

Summarising information in one map only

Climate service product: temperature predictions for an specific point

Sub-seasonal predictions of temperature for 1st week of September 2016 with different lead times based on ECMWF monthly prediction system





System: ECMWF monthly prediction system
Reanalysis: ERA-Interim
Bias adjusted –calibrated
Hindcast: 1996-2015
Lat= 40.5 N/Lon = 358.5 E

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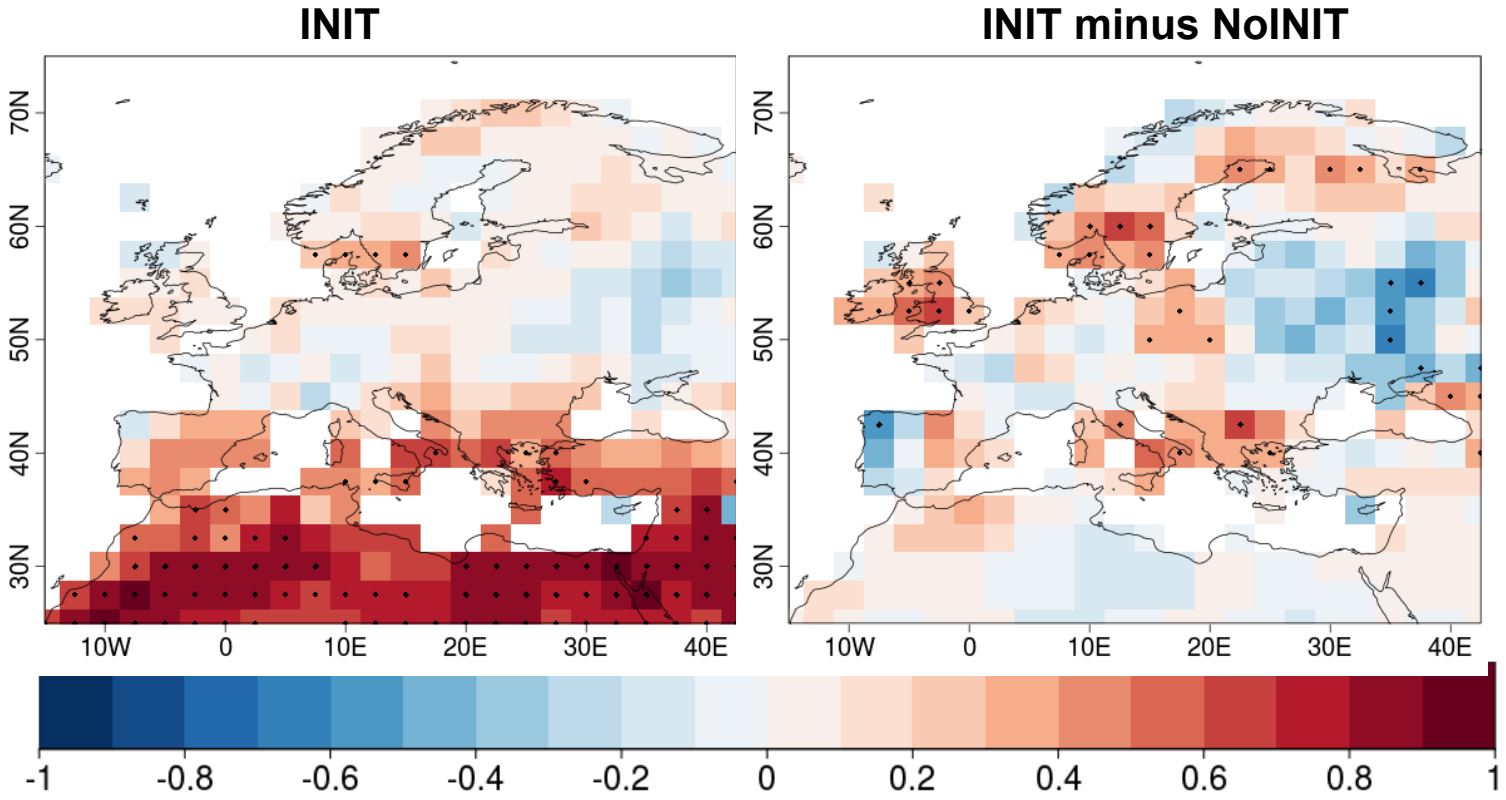
Example of climate service product: drought index (SPEI6)

Correlation between predicted and observed SPEI6 index averaged over 2 to 5 years for the month of August with EC-EARTH decadal predictions



INIT: Initialised decadal predictions
NoINIT: Non-initialised climate simulations

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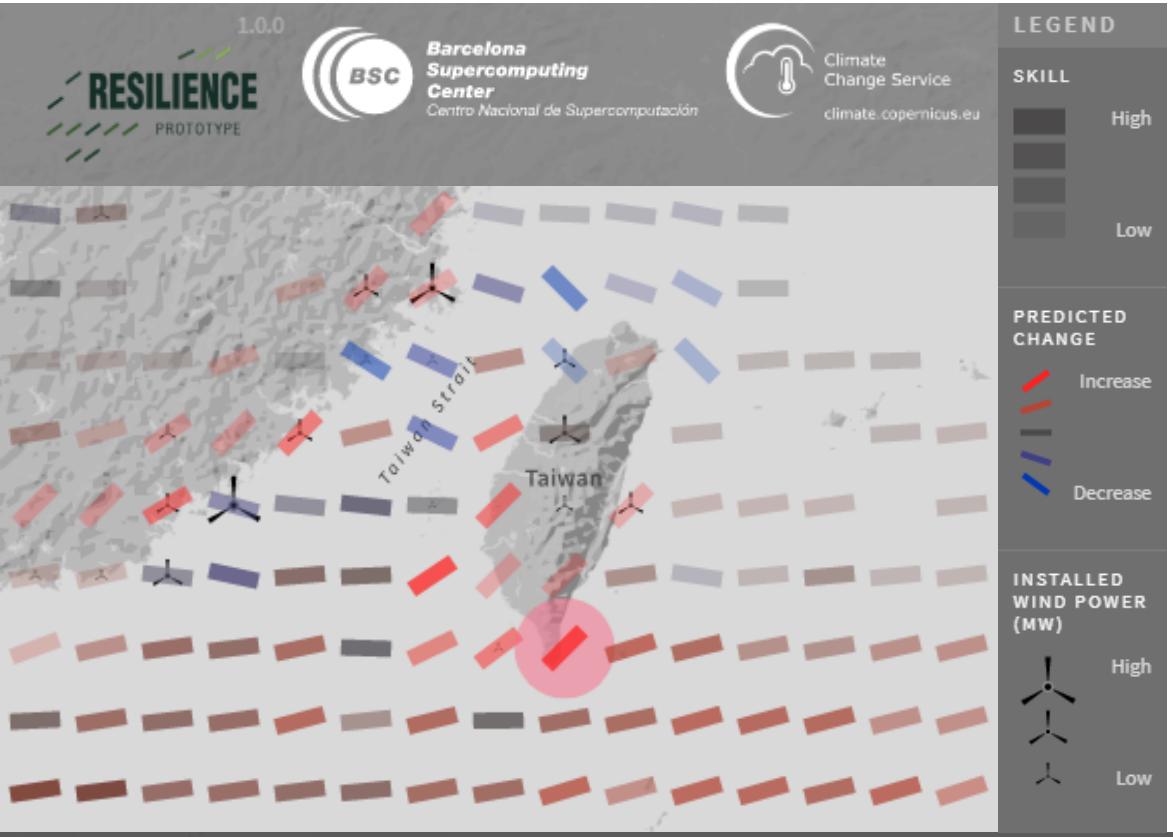
RESILIENCE tool: operational predictions



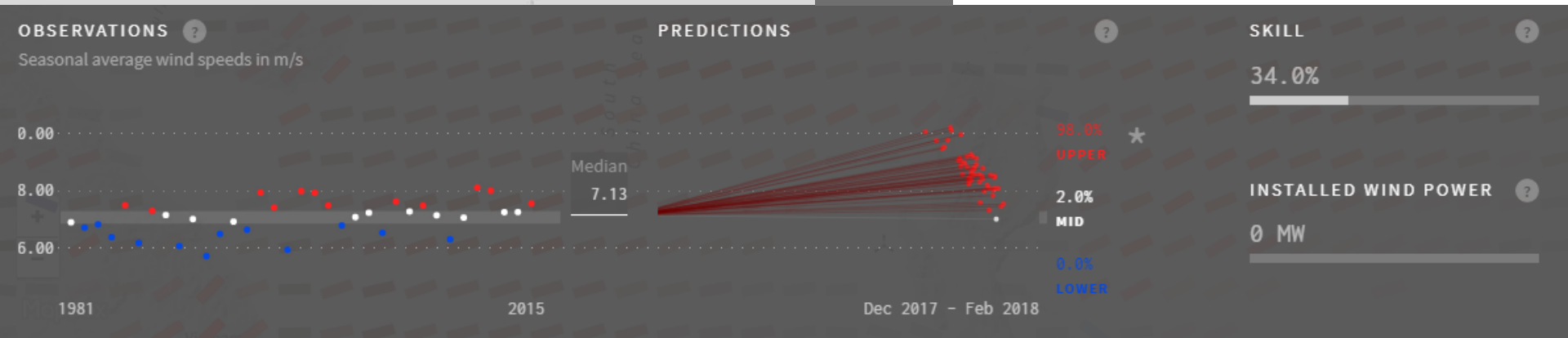
www.bsc.es/ess/resilience

EDF EnBW edp renewables

RED ELÉCTRICA DE ESPAÑA IBERDROLA

AWS Truepower Nnergix Energy Forecasting Services innogy

and more…



Climate Services developed by ESS

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Agriculture

Few businesses are as dependent on the weather as farming. Variables such as temperature, precipitation or wind speed are key for agricultural production, affecting every aspect in the management of agricultural operations. Applying High Performance Computing (HPC), the BSC produces climate information and services useful for the agricultural community. This information can be used to support your decision-making during the crop phenological cycle and to guarantee an optimal production in the face of current and future climate variability.

- Sub-seasonal to seasonal predictions
- Decadal predictions
- Climate projections

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Thank you!

Questions?

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