



# SPECS

Seasonal-to-decadal climate Prediction for the  
improvement of European Climate Services

## SPECS experiments and access

Seasonal forecasting,  
data access,  
bias correction  
and downscaling workshop

Santander – 10/09/2014    Pierre-Antoine Bretonnière  
IC3, Barcelona, Spain



## I SPECS experiments

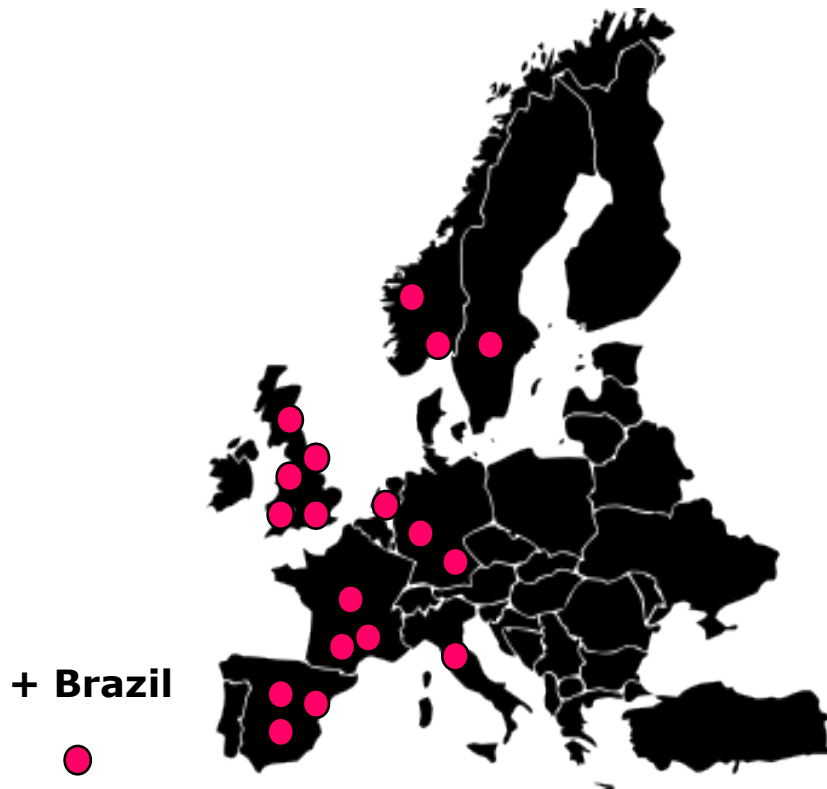
- SPECS general presentation (aim, partners)
- Conventions (format and variables)
- Ongoing experiments (who, what, when, status)

## II Sharing the experiments: BADC global repository

- BADC and repository general presentation
- Access: "command line mode" and ESGF data portal
- Current status: available experiments and models
- Schedule for data availability

# SPECS motivation

Seasonal-to-decadal climate Prediction for the improvement of European Climate Services



What: to produce quasi-operational and actionable local climate information

Why: need information with improved forecast quality, a focus on extreme climate events and enhanced communication and services for RCOFs, NHMSs and a wide range of public and private stakeholders

How: with a new generation of reliable European climate forecast systems, including initialised ESMs, efficient regionalisation tools and combination methods, and an enhanced dissemination and communication protocol

Where: over land, focus on Europe, Africa, South America

When: seasonal-to-decadal time scales over the longest possible observational period

20 partners, coordination IC3

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# SPECS objective

SPECS will deliver a *new generation of European climate forecast systems*, including initialised Earth System Models (ESMs) and *efficient regionalisation tools* to produce quasi-operational and *actionable local climate information over land at seasonal-to-decadal time scales* with improved forecast quality and a *focus on extreme climate events*, and provide an enhanced communication protocol and services to *satisfy the climate information needs* of a wide range of public and private stakeholders.

# Conventions and format

- Difficulty of joining 2 communities: climate and weather and making them agree on a **common set of variables**, frequencies and **experiments** as well as on a common **data format**
- CMIP5 + CHFP + ENSEMBLES conventions => SPECS
- Netcdf4 + compression
- File name: sic\_Oimon\_EC-Earth2\_sealcelnit\_S19910501\_r1i1p1\_199501-199502.nc
- Introduction of **double time axis**
- New global attributes: physics\_description, initialization\_description, associated\_experiment
- <http://www.specs-fp7.eu/wiki/index.php/Data>, [http://www.specs-fp7.eu/wiki/images/1/1c/SPECS\\_standard\\_output.pdf](http://www.specs-fp7.eu/wiki/images/1/1c/SPECS_standard_output.pdf)

# List of required variables

	Monthly	Daily
Ocean 2D	t20d, <u>tos</u> , <u>msftmyza</u> , <u>msftmyzaba</u> , <u>msftmyz</u> , <u>msftmyzba</u> , <u>hfnorth</u> , <u>hfnorthba</u> , <u>hfnortha</u> , <u>hfnorthaba</u> , <u>slt</u> , <u>sltnorth</u> , <u>sltnortha</u>	t20d
Ocean 3D	Thetao, sos, uo, vo	
Atmosphere 2D	<u>Tas</u> , <u>tasmax</u> , <u>tasmin</u> , <u>uas</u> , <u>vas</u> , <u>psl</u> , <u>pr</u> , <u>clt</u> , <u>hfss</u> , <u>hfls</u> , <u>rls</u> , <u>rlds</u> , <u>rsut</u> , <u>snld</u>	<u>Tas</u> , <u>tasmax</u> , <u>tasmin</u> , <u>uas</u> , <u>vas</u> , <u>psl</u> , <u>pr</u> , <u>clt</u> , <u>rls</u> , <u>rlds</u> , <u>rsut</u> , <u>snld</u> , <u>rlut</u>
Atmosphere 3D (*)	<u>Ta</u> , <u>ua</u> , <u>va</u> , <u>hus</u> , <u>zg</u>	Ta850, zg500
Sea ice	<u>Sic</u> , <u>sit</u> , <u>usi</u> , <u>vsi</u> , <u>snld</u> , <u>tsice</u> , <u>hflsi</u> , <u>strairx</u> , <u>strairy</u>	Sic, snld, tsice

(\*)Vertical levels: 850, 500, 200 and 50hPa

Experiment family	Models	Institutes involved
improvedStratVertRes	HadGem3,CNRM-CM6,EC-EARTH3	MeteoF, IPSL
horizlResImpact	CNRMCM5,EC-EARTH2.3,ECHAM/MPIOM	MeteoF, SMHI,MPG, IPSL,CCCMa,IC3
seaIceInit	LIM2,LIM3,ECHAM6/MPIOM,GELATO6, HadCIce,	IC3,MeteoF, MetOffice,SMHI,URead
soilMoistureInit	HTESSSEL,EC-Eaerth2.3,Cycle40r1, HadGem3,CNRMCM5,ECHAM/MPIOM	IC3, ECMWF, MetOffice, MeteoF, MPG
decadal	Ec-earth2.3,MPI-ESM,IPSL-CM5A,Can-CM4	KNMI, MPG, SMHI, IPSL CCCMa
snowlInit	HTESSSEL,Cycle40r1,CNRM-CM5	IC3, ECMWF, MeteoF
phenology	EC-EARTH2.4,Cycle40r1	KNMI, ECMWF, ENEA
aerosols	HadGem3,EC-Earth2.3	ECMWF, MetOffice, IC3
solarIrradiance	HadGem3,Cycle40r	ECMWF, MetOffice



SPECS

# BADC common repository



- British Atmospheric Data Centre to host all the SPECS data
- Responsible of storing, maintaining the database and publishing it
- Total volume of 80TB



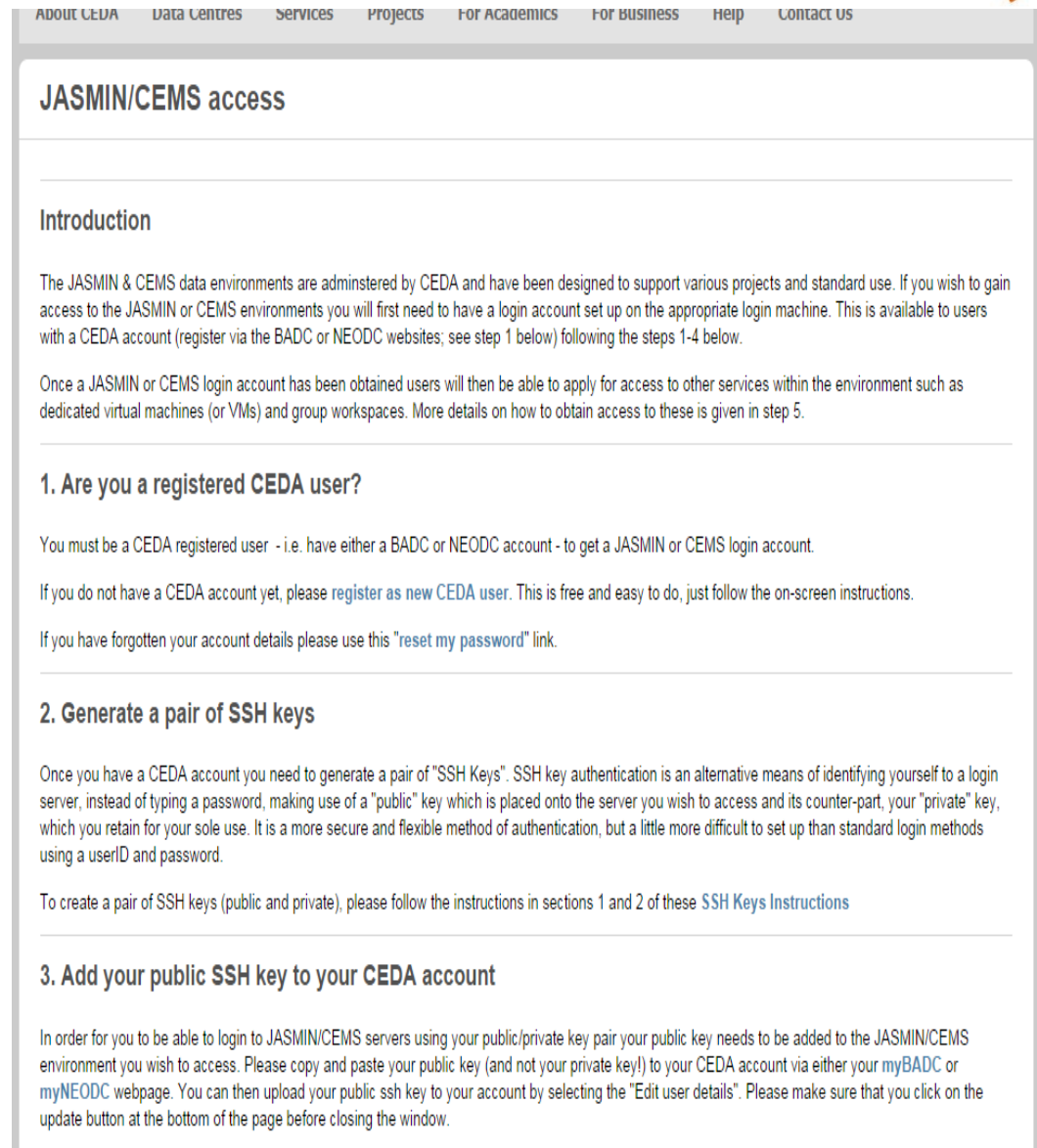
- Login through the Jasmin server at BADC:

<http://www.ceda.ac.uk/help/users-guide/jasmin-cems-access/>

- `ssh -C jasmin-sci1.ceda.ac.uk`

- Terms and conditions:

Access is restricted to non-commercial use during the project, but becomes unrestricted after the end of the SPECS project. In this context "restricted" means only available for research, including research by commercial bodies. Access is granted to all users registered with ESGF who indicate their acceptance of the terms of use.

A screenshot of the JASMIN/CEMS access page on the CEDA website. The page has a navigation bar at the top with links for "ABOUT CEDA", "Data Centres", "Services", "Projects", "FOR ACADEMICS", "FOR BUSINESS", "Help", and "Contact Us". The main heading is "JASMIN/CEMS access". Below this is an "Introduction" section. The text explains that the JASMIN & CEMS data environments are administered by CEDA and require a login account. It provides instructions on how to register via the BADC or NEODC websites and follow steps 1-4. A second paragraph states that once a login account is obtained, users can apply for access to other services like virtual machines and group workspaces, with details in step 5. The page is divided into three numbered sections: "1. Are you a registered CEDA user?", "2. Generate a pair of SSH keys", and "3. Add your public SSH key to your CEDA account". Each section contains detailed instructions and links to further resources like "register as new CEDA user" and "SSH Keys Instructions".

# Uploading your data

- Rsync or scp transfer:

```
rsync --rsh=ssh [options] <src> jasmin-  
sc1.ceda.ac.uk:/group_workspaces/jasmin/specs/<model>  
/<batch>/
```

- Expected transfer rate of ~1TB/day
- Quality checker expected to be run to detect any error or misleading names, global attributes or corrupted data

# Getting SPECS data

2 methods:

- “command line” option: connecting to the Jasmin server and get the data with rsync/scp
- Earth System Grid Federation (ESGF) portal

## Available at this stage of the project:

- Decadal: MPI: 1961-01 → 2012-01  
IPSL: 1961-01 → 2013-01
- Extended decadal : MPI: 1901-01 → 2010-01
- HorizResImpact: IC3: 1993
- Seasonal: CMC1-CanCM3: 1981-03 → 2014-07

## To come (simulations completed, waiting for the upload):

- soilMoisture (IC3),
- seaIceNit (Uread)
- decadal (SMHI, CCCMa)
- improvedStratVertRes (MF)

Thank you for your attention,  
questions?