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

European Commission

SEVENTH FRAMEWORK PROGRAMME

IC3

Plan

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 experiements and models
- Schedule for data availibilty

SPECS motivation

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

+ Brazil

20 partners, coordination IC3

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

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_seaIceInit_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

List of required variables

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

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

Experiments description

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	HTESSEL,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
snowInit	HTESSEL,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

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

Common repository access

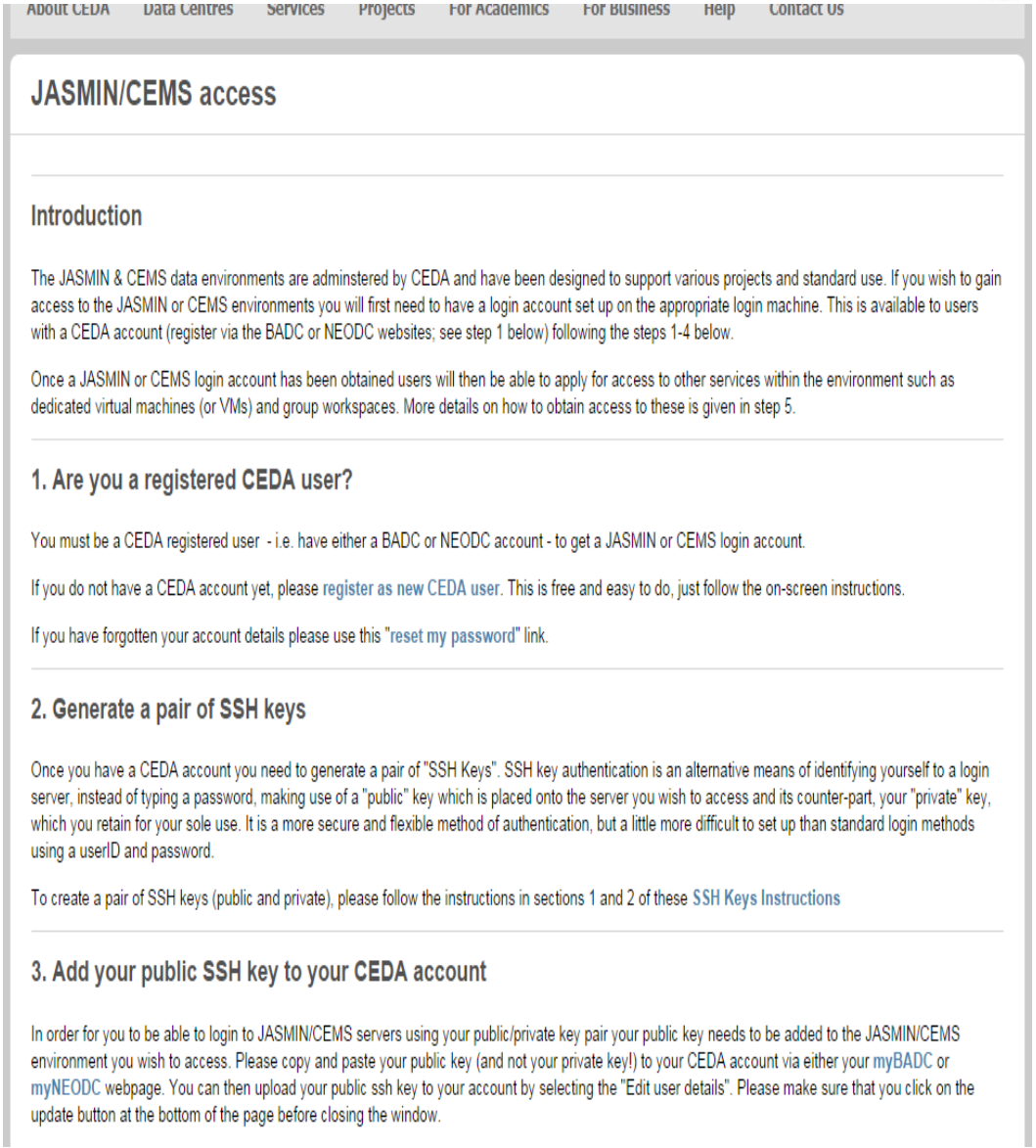
- Login through the Jasmin server at BADC:

  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.



About CEDA | Data Centres | Services | Projects | For Academics | For Business | Help | Contact Us

JASMIN/CEMS access

Introduction

The JASMIN & CEMS data environments are adminstered by CEDA and have been designed to support various projects and standard use. If you wish to gain access to the JASMIN or CEMS environments you will first need to have a login account set up on the appropriate login machine. This is available to users with a CEDA account (register via the BADC or NEODC websites; see step 1 below) following the steps 1-4 below.

Once a JASMIN or CEMS login account has been obtained users will then be able to apply for access to other services within the environment such as dedicated virtual machines (or VMs) and group workspaces. More details on how to obtain access to these is given in step 5.

1. Are you a registered CEDA user?

You must be a CEDA registered user - i.e. have either a BADC or NEODC account - to get a JASMIN or CEMS login account.

If you do not have a CEDA account yet, please register as new CEDA user. This is free and easy to do, just follow the on-screen instructions.

If you have forgotten your account details please use this "reset my password" link.

2. Generate a pair of SSH keys

Once you have a CEDA account you need to generate a pair of "SSH Keys". SSH key authentication is an alternative means of identifying yourself to a login server, instead of typing a password, making use of a "public" key which is placed onto the server you wish to access and its counter-part, your "private" key, which you retain for your sole use. It is a more secure and flexible method of authentication, but a little more difficult to set up than standard login methods using a userID and password.

To create a pair of SSH keys (public and private), please follow the instructions in sections 1 and 2 of these SSH Keys Instructions

3. Add your public SSH key to your CEDA account

In order for you to be able to login to JASMIN/CEMS servers using your public/private key pair your public key needs to be added to the JASMIN/CEMS environment you wish to access. Please copy and paste your public key (and not your private key!) to your CEDA account via either your myBADC or myNEODC webpage. You can then upload your public ssh key to your account by selecting the "Edit user details". Please make sure that you click on the update button at the bottom of the page before closing the window.

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:

  CMIP5-like access to a SPECS catalog. Web portal with user-friendly search facilities

Current data availibility

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
- HorizlResImpact: IC3: 1993
- Seasonal: CMC1-CanCM3: 1981-03 → 2014-07

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

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

Thank you for your attention, questions?