

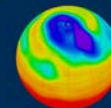


ESGF: Status and Update

Ag Stephens and many other CEDA/ESGF people

Centre for Environmental Data Analysis (CEDA)

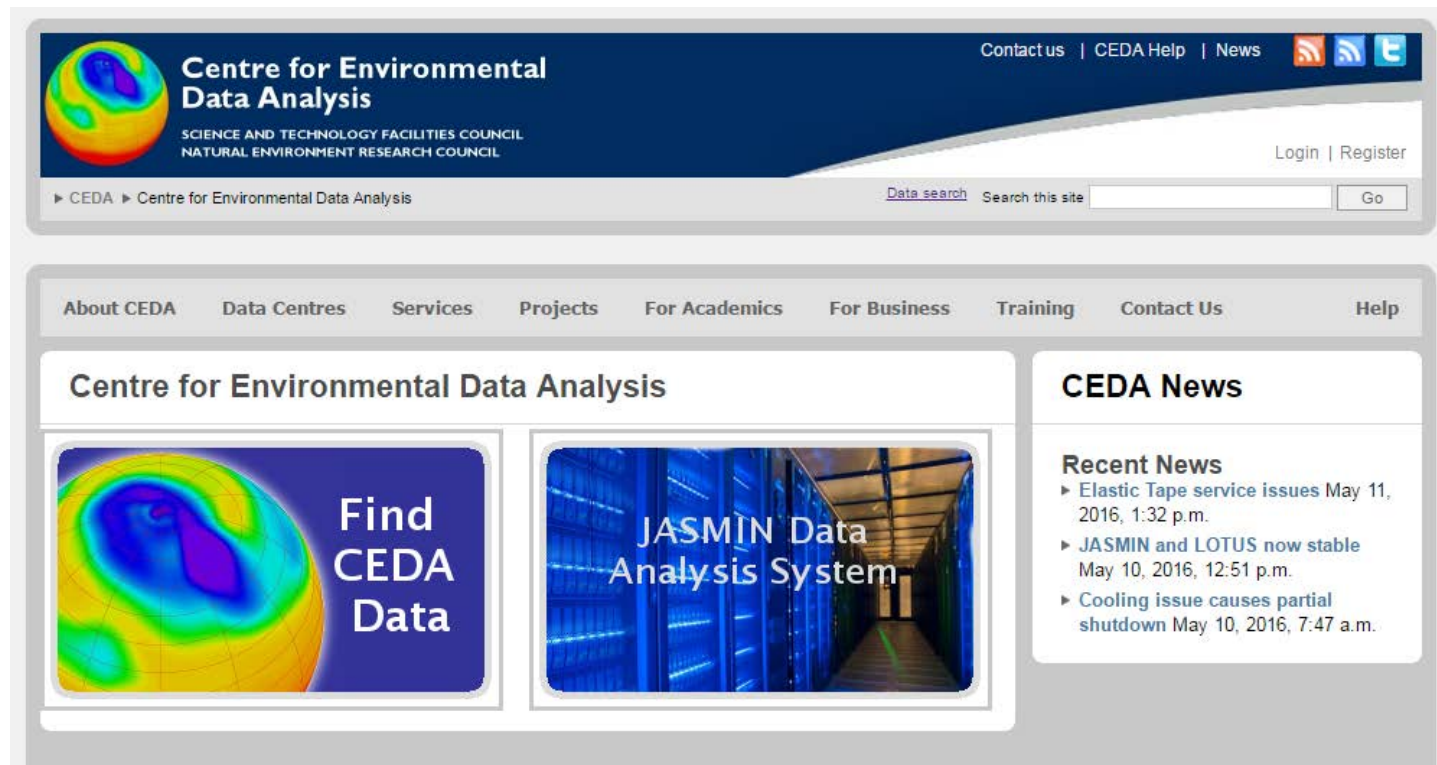
8th March 2018



The Centre for Environmental Data Analysis

<http://www.ceda.ac.uk>

- Data centres
- JASMIN platform



The screenshot shows the homepage of the Centre for Environmental Data Analysis (CEDA). The header features the CEDA logo, the text "Centre for Environmental Data Analysis", and the affiliations "SCIENCE AND TECHNOLOGY FACILITIES COUNCIL" and "NATURAL ENVIRONMENT RESEARCH COUNCIL". Navigation links include "Contact us", "CEDA Help", "News", and social media icons. A search bar and "Login | Register" links are also present. The main navigation menu includes "About CEDA", "Data Centres", "Services", "Projects", "For Academics", "For Business", "Training", "Contact Us", and "Help". The main content area has two large tiles: "Find CEDA Data" with a globe visualization and "JASMIN Data Analysis System" with a server rack image. A "CEDA News" sidebar on the right lists recent news items with dates and times.

Centre for Environmental Data Analysis
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL

Contact us | CEDA Help | News

Login | Register

► CEDA ► Centre for Environmental Data Analysis

Data search Search this site Go

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

Centre for Environmental Data Analysis

Find CEDA Data

JASMIN Data Analysis System

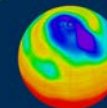
CEDA News

Recent News

- Elastic Tape service issues May 11, 2016, 1:32 p.m.
- JASMIN and LOTUS now stable May 10, 2016, 12:51 p.m.
- Cooling issue causes partial shutdown May 10, 2016, 7:47 a.m.

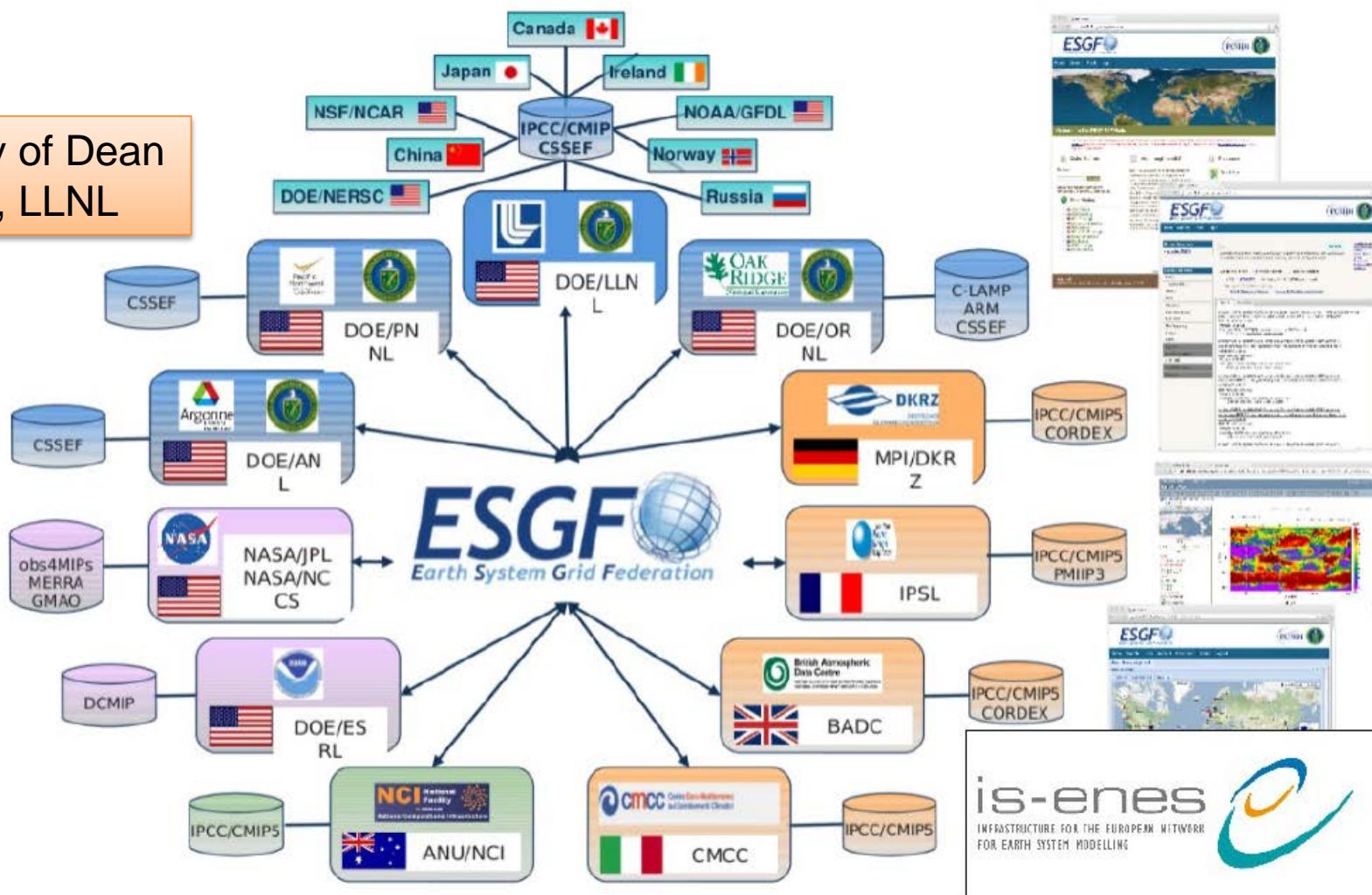


<https://esgf.llnl.gov>



Who?

Courtesy of Dean
Williams, LLNL



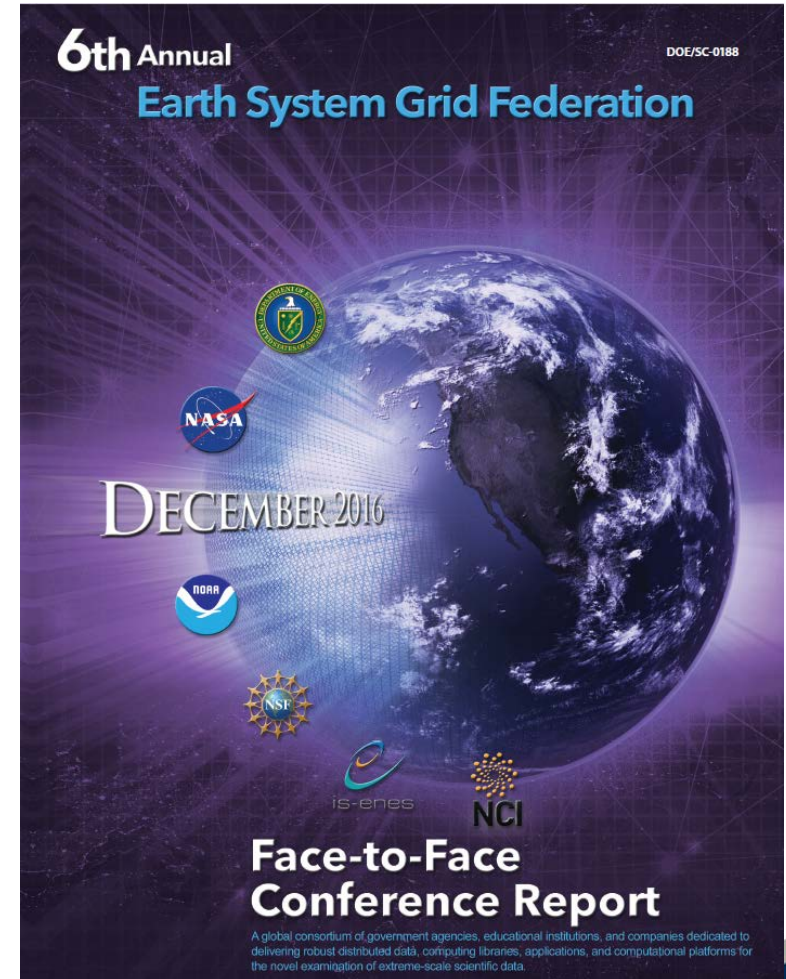
There is an annual conference

Latest report:

*ESGF Conference –
December 2016*

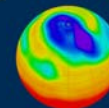
Latest conference:

<https://esgf.llnl.gov/2017-F2F.html>





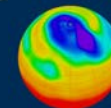
HOW DOES ESGF WORK?





Working Teams

1. User Interface and Search and Dashboard Working Team
2. Compute Working Team
3. Identity Entitlement Access Working Team
4. Installation Working Team and Software Security Working Team
5. International Climate Network Working Group,
Replication/Versioning, and Data Transfer Working Team
6. Node Manager Working Team and Tracking / Feedback
Notification Working Team
7. Publication, Quality Control, Metadata, and Provenance Capture
Working Team
8. User Support and Documentation Working Team



Tier 1 and Tier 2

Tier 1 consists of LLNL, DKRZ, CEDA, IPSL, JPL, NCI (...).

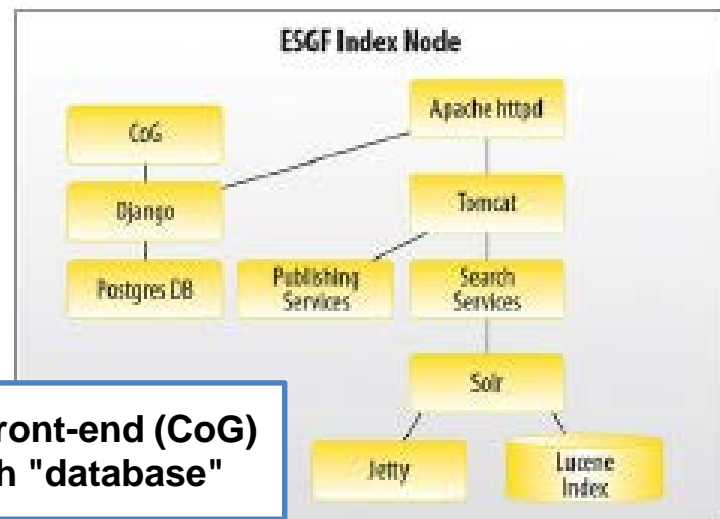
All Tier 1 nodes run the following:

- Identity Provider service
- Data Nodes
- Index Nodes

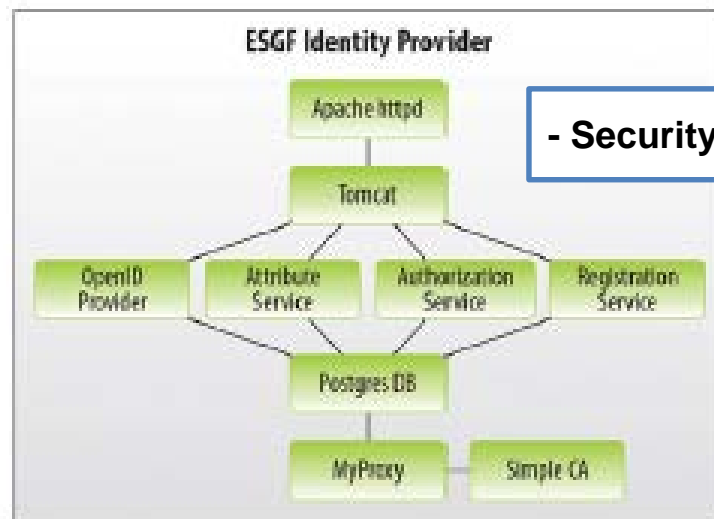
Tier 2 consists of all other ESGF nodes, including GFDL, ORNL, KNMI and CMCC. Only need to run:

- Data Node

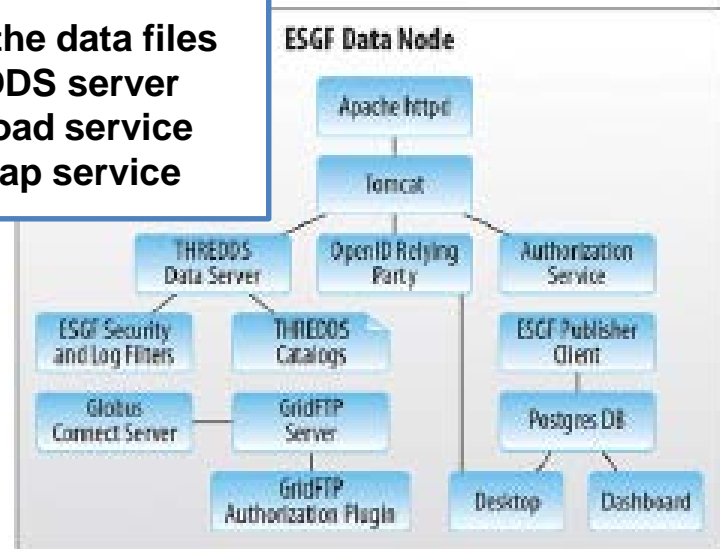
Types of ESGF Node



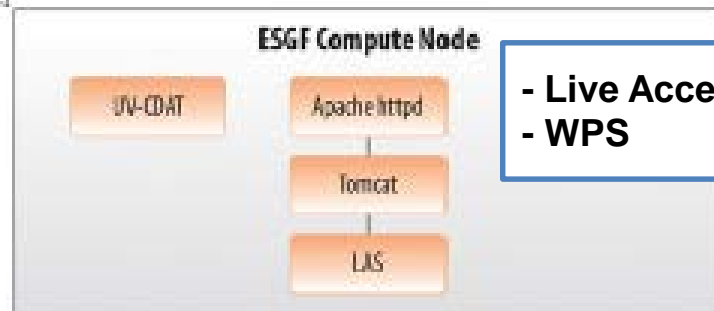
- Web front-end (CoG)
- Search "database"



- Security services



- Hosts the data files
- THREDDS server
- Download service
- OpenDap service



- Live Access Server
- WPS

Fig. 1. Current ESGF software architecture (end of 2015).



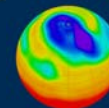
Science & Technology
Facilities Council

USER-FACING SERVICES



**National Centre for
Atmospheric Science**

NATURAL ENVIRONMENT RESEARCH COUNCIL



**Centre for Environmental
Data Analysis**

SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL



Front-end (CoG)



Supported by

 **NERC**
SCIENCE OF THE ENVIRONMENT

 **Science & Technology**
Facilities Council

 **is-enes**
INTEGRATED SCIENCE ENVIRONMENT NETWORK
FOR LARGE SCALE RESEARCH

Powered by

**ESGF** and **GGG**

Welcome, [Guest](#) | [Login](#) | [Create CEDA Account](#)

**WCRP** **CMIP5**
World Climate Research Programme

You are at the [ESGF-INDEX1.CEDA.AC.UK](#) node

Home

Technical Support

Project

☒ CMIP5 (754)

Product

Institute

Model

☒ HadGEM2-ES (754)

Experiment

Experiment Family

Time Frequency

Realm

CMIP Table

Ensemble

Variable

Variable Long Name

CF Standard Name

Data Node

Enter Text:

?

Search

Reset

Display 10 results per page

[\[More Search Options \]](#)

☐ Show All Replicas ☐ Show All Versions ☐ Search Local Node Only (Including All Replicas)

Search Constraints: ✖ CMIP5 | ✖ HadGEM2-ES

Total Number of Results: 754
-1- 2 3 4 5 6 Next >>

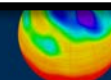
Please login to add search results to your Data Cart

Expert Users: you may display the search URL and return results as XML or return results as JSON

1. project=CMIP5, model=HadGEM2-ES, Met Office Hadley Centre, experiment=ESM fixed climate 1, time_frequency=fx, modeling realm=atmos, ensemble=r0i0p0, version=20120215
Description: HadGEM2-ES model output prepared for CMIP5 ESM fixed climate 1
Data Node: esgf-data1.ceda.ac.uk
Version: 20120215
Total Number of Files (for all variables): 3
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#)

2. project=CMIP5, model=HadGEM2-ES, Met Office Hadley Centre, experiment=1 percent per year CO2, time_frequency=mon, modeling realm=atmos, ensemble=r1i1p1, version=20120123
Description: HadGEM2-ES model output prepared for CMIP5 1 percent per year CO2
Data Node: esgf-data1.ceda.ac.uk
Version: 20120123
Total Number of Files (for all variables): 10
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#)

3. project=CMIP5, model=HadGEM2-ES, Met Office Hadley Centre, experiment=1 percent per year CO2, time_frequency=mon, modeling realm=landice, ensemble=r1i1p1, version=20110330
Description: HadGEM2-ES model output prepared for CMIP5 1 percent per year CO2





Supported
by



Science & Technology
Facilities Council



Powered by



Welcome, Ag. | You are a **project administrator** | [Register a New Project](#) | [My Profile](#) | [Log out](#)

ESGF Portal at CEDA

[Home](#) [About Us](#) [Contact Us](#)

You are at the **ESGF-INDEX1.CEDA.AC.UK** node

Technical Support

Last Search | My Data Cart (0)

CEDA ESGF Search Portal

Use this portal to find, select and download data held in the globally distributed **Earth System Grid Federation (ESGF)** archives.

Start searching now

- For a faceted search across all projects, click [here](#), or the "Search with options" link on the right.
- For a free-text search, type some text in the box on the right and click "Go".

What can you find here?

The ESGF consists of federated data centres that enable access to the largest archive of climate data world-wide. This portal allows you to find, select and download data files from the federation.

You will find data from **CMIP5**, **CORDEX** and many other high-profile projects through this portal.

Project-specific searches

The following projects require an **account** at CEDA ([create CEDA account](#)) or an openID from an ESGF peer site, and some also require a **Group Registration** (see links below) to access their data. Exceptions are flagged as "publicly available".

Search data for...

[All projects](#)

[CMIP5](#)

Register to...

(see below for project-specific registration details)



Federated ESGF-CoG Nodes

ESGF@DKRZ
ESGF@DOE/LLNL
ESGF@IPSL
ESGF@NASA/JPL
ESGF@NOAA/ESRL
ESGF@NSC/LIU

Search & Download Data ?

Simple Text Search

Search with options

Browse Projects

Parent projects (0)

Peer projects (0)

Child projects (5)

CMIP5-CEDA
CORDEX-CEDA
ESACCI-CEDA
Obs4MIPs-CEDA
SPECS-CEDA

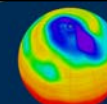
Enter Tag

Start typing, or use the 'Delete' key to show all available tags.

ESGF-CEDA Tags: None



**National Centre for
Atmospheric Science**
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**Centre for Environmental
Data Analysis**

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NATURAL ENVIRONMENT RESEARCH COUNCIL

Search/licences per project

Search data for...	Register to...
All projects	(see below for project-specific registration details)
CMIP5 <i>Coupled Model Intercomparison Project Phase 5</i> Includes related MIP data from EUCLIPSE, GeoMIP, LUCID, PMIP3 and TAMIP	CMIP5 Research CMIP5 Commercial
CORDEX <i>Coordinated Regional Climate Downscaling Experiment</i>	Please perform an HTTP download of a single file to register. Registration links will follow soon.
obs4MIPs <i>Observations for Climate Model Intercomparisons</i>	obs4MIPs Research
SPECS <i>Seasonal-to-decadal climate Prediction for the improvement of European Climate Services</i>	Please perform an HTTP download of a single file to register. Registration links will follow soon.
ESA CCI <i>European Space Agency Climate Change Initiative Earth Observation data.</i>	This data is publicly available without registration.

Are you a JASMIN User?

If you are a JASMIN login user you may be able to access many of the data sets available through this portal directly on the JASMIN



Supported projects (1)

- Coupled Model Intercomparison Project Phase 6 (CMIP6) (coming soon)
- Coupled Model Intercomparison Project Phase 5 (CMIP5)
- Coupled Model Intercomparison Project Phase 3 (CMIP3)
- Empirical-Statistical Downscaling (ESD)
- Coordinated Regional Climate Downscaling Experiment (CORDEX)



Fig. 13. Major federated ESGF worldwide sites.

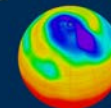
- Accelerated Climate Modeling for Energy (ACME)
- Parallel Ocean Program (POP)
- North American Regional Climate Change Assessment Program (NARCCAP)
- Carbon Land Model Intercomparison Project (C-LAMP)
- Atmospheric InfraRed Sounder (AIRS)
- Microwave Limb Sounder (MLS)

- Inter-Sectoral Impact Model Intercomparison Project (ISI MIP)
- Computational Modeling Algorithms and Cyberinfrastructure (CMAC)
- Vertical Structure and Physical Processes of Weather and Climate (GASS and YoTC)
- Collaborative REAnalysis Technical Environment - Intercomparison Project (CREATE IP)



Supported projects (2)

- Cloudsat
- Observations for Model Intercomparison Projects (Obs4MIPs)
- Analysis for Model Intercomparison Projects (ana4MIPs)
- Cloud Feedback MIP (CFMIP)
- Input4MIPs
- European Space Agency Climate Change Initiative (ESA CCI) Earth Observation data
- Seasonal-to-decadal climate Prediction for the improvement of European Climate Services (SPECS)
- NASA NEX Global Daily Downscaled Climate Projections (NEX GDDP)
- NASA NEX Downscaled Climate Projections (NEX-DCP30)
- High Impact Weather Prediction Project (HWPP)
- Coupled NEMS
- Climate Model Development Task Force (CMDTF)



The ESGF Web Front-end (CoG)

Configured, with front page and search page, per Project or search across all Projects

- Shared configurations so all CoG interfaces look alike.

Provides links to:

- THREDDS download/OpenDap
- WGET scripts
- Metadata
- ES-Doc records/service
- Errata information
- PID service



The search interface

ESGF Portal at CEDA

Welcome, Ag. | you are a project administrator | Register a New Project

You are at the ESGF-INDIA

Home About Us Contact Us

Last Seen

Project

Product

Institute

Downscaling Method

Experiment

Experiment Family

Time Frequency

Realm

CMIP Table

Ensemble

Variable

Variable Long Name

CF Standard Name

Driving Model

Data Node

CORDEX

Domain

Downscaling Method

Enter Text:

Display results per page

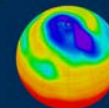
☐ Show All Replicas ☐ Show All Versions ☐ Search Local Node Only

Search Constraints: ☒ specs | ☒ HadGEM3

Total Number of Results: 3136
-1- 2 3 4 5 6 Next >>

Add all displayed results to Data Cart Remove all displayed results from Data Cart
Expert Users: you may display the search URL and return results as XML or return results as JSON

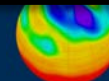
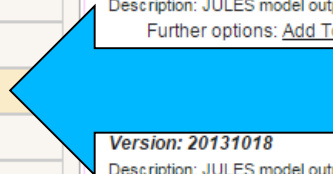
1. specs.output.MOHC.HadGEM3.solarIrradiance.S19901101.mon.ocean.Omon.so.r1i1p1
Data Node: esgf-data2.ceda.ac.uk
Version: 20160325
Total Number of Files (for all variables): 40
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#)
[Add to Data Cart](#)
2. specs.output.MOHC.HadGEM3.solarIrradiance.S19961101.mon.ocean.Omon.uo.r1i1p3
Data Node: esgf-data2.ceda.ac.uk
Version: 20160325
Total Number of Files (for all variables): 40
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#)
[Add to Data Cart](#)
3. specs.output.MOHC.HadGEM3.solarIrradiance.S20021101.mon.sealce.Olmon.sit.r2i1p2
Data Node: esgf-data2.ceda.ac.uk
Version: 20160325
Total Number of Files (for all variables): 40
[\[Show Metadata \]](#) [\[Show Files \]](#) [\[THREDDS Catalog \]](#) [\[WGET Script \]](#)
[Add to Data Cart](#)





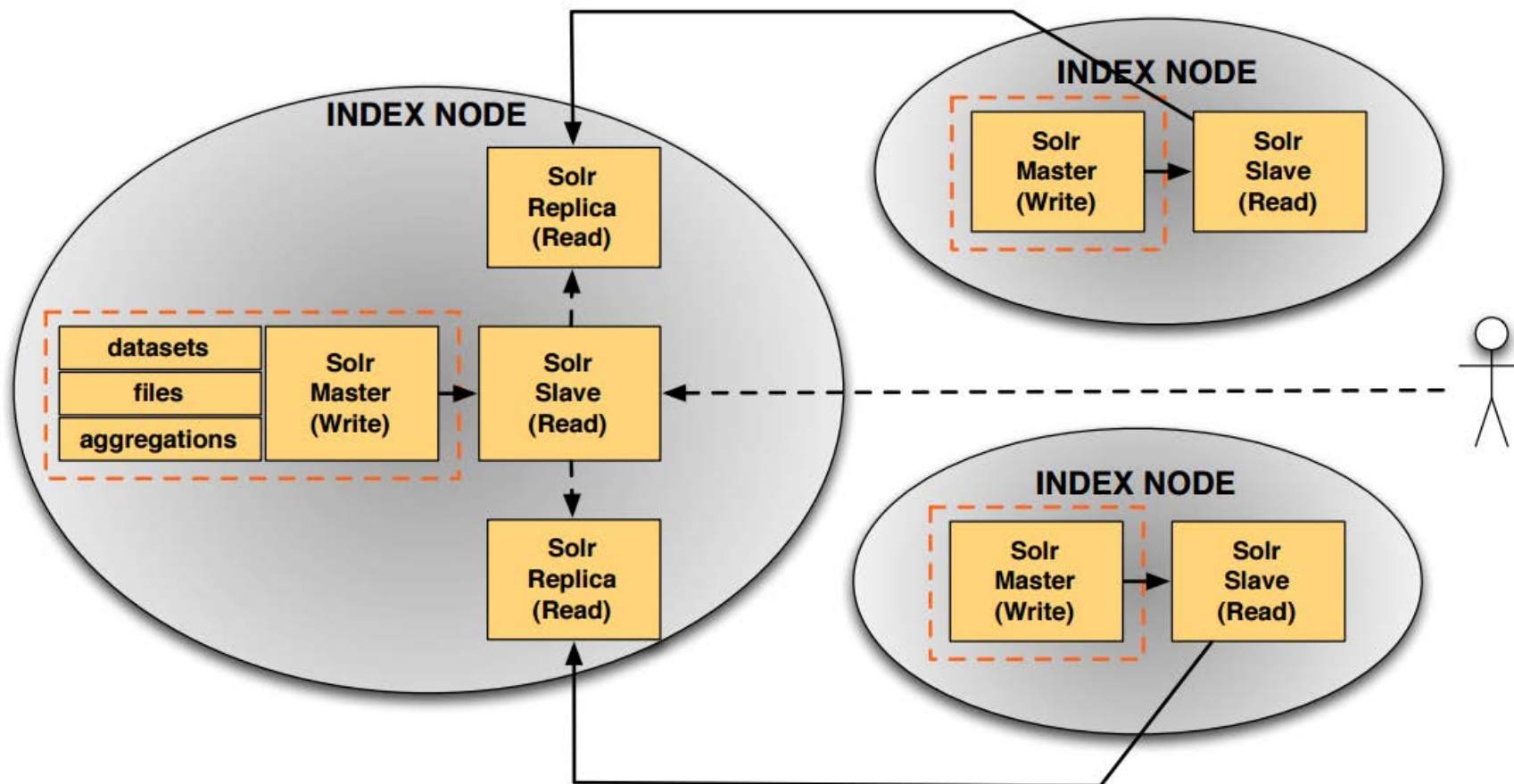
Facet selection

G4sea Salt (11)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.co2.NA.mon.evspsb1
abrupt4xCO2 (360)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
esmControl (33)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.co2.NA.mon.mrro
esmFdbk1 (29)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
esmFdbk2 (29)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.co2.NA.mon.mrso50
esmFixClim1 (23)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
esmFixClim2 (22)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.co2.NA.mon.mrsor
esmHistorical (24)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
esmrcp85 (25)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.co2.NA.mon.swe
historical (177)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
historicalExt (80)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.noco2.NA.day.dis
historicalGHG (124)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
historicalNat (97)	isimip-ft.output.JULES.WA.hadgem2-es.historical.nosoc.noco2.NA.day.mrro
midHolocene (31)	Data Node: esg.pik-potsdam.de Version: 20131018 Description: JULES model output prepared for ISI-MIP Fasttrack Phase (http://www.pik-potsdam.de/isi-mip/ToU) Further options: Add To Cart
piControl (42)	
rcp26 (184)	
rcp45 (195)	
rcp60 (166)	
rcp85 (234)	
Time Frequency	
Product	
Realm	
Variable	





Search is Federated







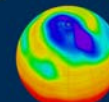
List results and add to Data Cart

Total Number of Results: 317

-1- 2 3 4 5 6 Next >>

Add all displayed results to Data Cart Remove all displayed results from Data Cart
Expert Users: you may display the search URL and return results as XML or return results as JSON

- 1. project=GeoMIP, model=IPSL-CM5A-LR, Institut Pierre-Simon Laplace, experiment=Quadruple preindustrial CO2 and balance with time_frequency=day, cmor_table=day, modeling_realm=atmos, ensemble=r1i1p1, version=20130428**
Description: IPSL-CM5A-LR model output prepared for GeoMIP quadruple preindustrial CO2 and balance with solar constant reduction
Data Node: vesg.ipsl.upmc.fr
Version: 20130428
Total Number of Files (for all variables): 56
[[Show Metadata](#)] [[Show Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS Visualization](#)]
 Remove from Data Cart
- 2. project=GeoMIP, model=IPSL-CM5A-LR, Institut Pierre-Simon Laplace, experiment=Quadruple preindustrial CO2 and balance with time_frequency=day, cmor_table=cfDay, modeling_realm=atmos, ensemble=r1i1p1, version=20130428**
Description: IPSL-CM5A-LR model output prepared for GeoMIP quadruple preindustrial CO2 and balance with solar constant reduction
Data Node: vesg.ipsl.upmc.fr
Version: 20130428
Total Number of Files (for all variables): 62
[[Show Metadata](#)] [[Show Files](#)] [[THREDDS Catalog](#)] [[WGET Script](#)] [[LAS Visualization](#)]
 Add to Data Cart
- 3. project=GeoMIP, model=IPSL-CM5A-LR, Institut Pierre-Simon Laplace, experiment=Quadruple preindustrial CO2 and balance with**





View data set metadata

Dataset Metadata

ID = geomip.output.IPSL.IPSL-CM5A-LR.G1.day.atmos.day.r1i1p1.v20130428|vesg.ipsl.upmc.fr

Version = 20130428

Timestamp = 2016-02-01T12:11:12.967Z

Accesss = HTTPServer, GridFTP, OPENDAP, LAS

Cf Standard Names = cloud_area_fraction, surface_upward_latent_heat_flux,
surface_upward_sensible_heat_flux, relative_humidity, specific_humidity, specific_humidity,
precipitation_flux, convective_precipitation_flux, air_pressure_at_sea_level, relative_humidity,
relative_humidity, relative_humidity, surface_downwelling_longwave_flux_in_air,
surface_upwelling_longwave_flux_in_air, toa_outgoing_longwave_flux,
surface_downwelling_shortwave_flux_in_air, surface_upwelling_shortwave_flux_in_air,
wind_speed, air_temperature, air_temperature, air_temperature, air_temperature,
eastward_wind, eastward_wind, northward_wind, northward_wind,
lagrangian_tendency_of_air_pressure, geopotential_height

Cmor Table = day

Data Node = vesg.ipsl.upmc.fr

Dataset Id Template = geomip.%(product)s.%(institute)s.%(model)s.%(experiment)s.%(
time_frequency)s.%(realm)s.%(cmor_table)s.%(ensemble)s

Datetime Start = 1850-01-01T12:00:00Z

Datetime Stop = 1899-12-31T12:00:00Z

Drs Id = geomip.output.IPSL.IPSL-CM5A-LR.G1.day.atmos.day.r1i1p1

East Degrees = 356.25

Ensemble = r1i1p1

Experiment = G1

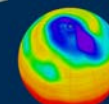
Experiment Family = All

Forcing = GHG,SI


Format = netCDF, CF-1.4

Height Bottom = 100000.0

Height Top = 1000.0



Links to Model / Experiment / Simulation Documentation


es-doc
 Earth System Documentation

Documentation Viewer v0.9.1.0
 [Support](#)

[Model](#)
[Experiment](#)

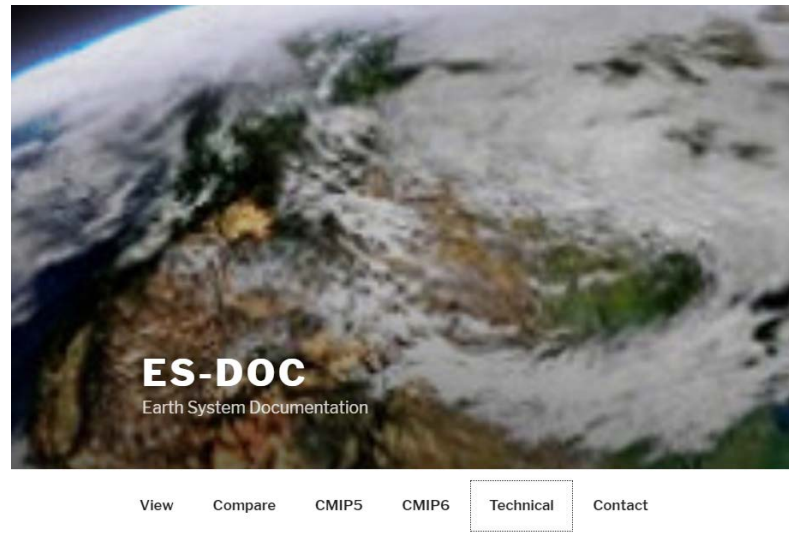
CMIP5 Model : MOHC - HADGEM2-ES
[Details](#)
[Components](#)

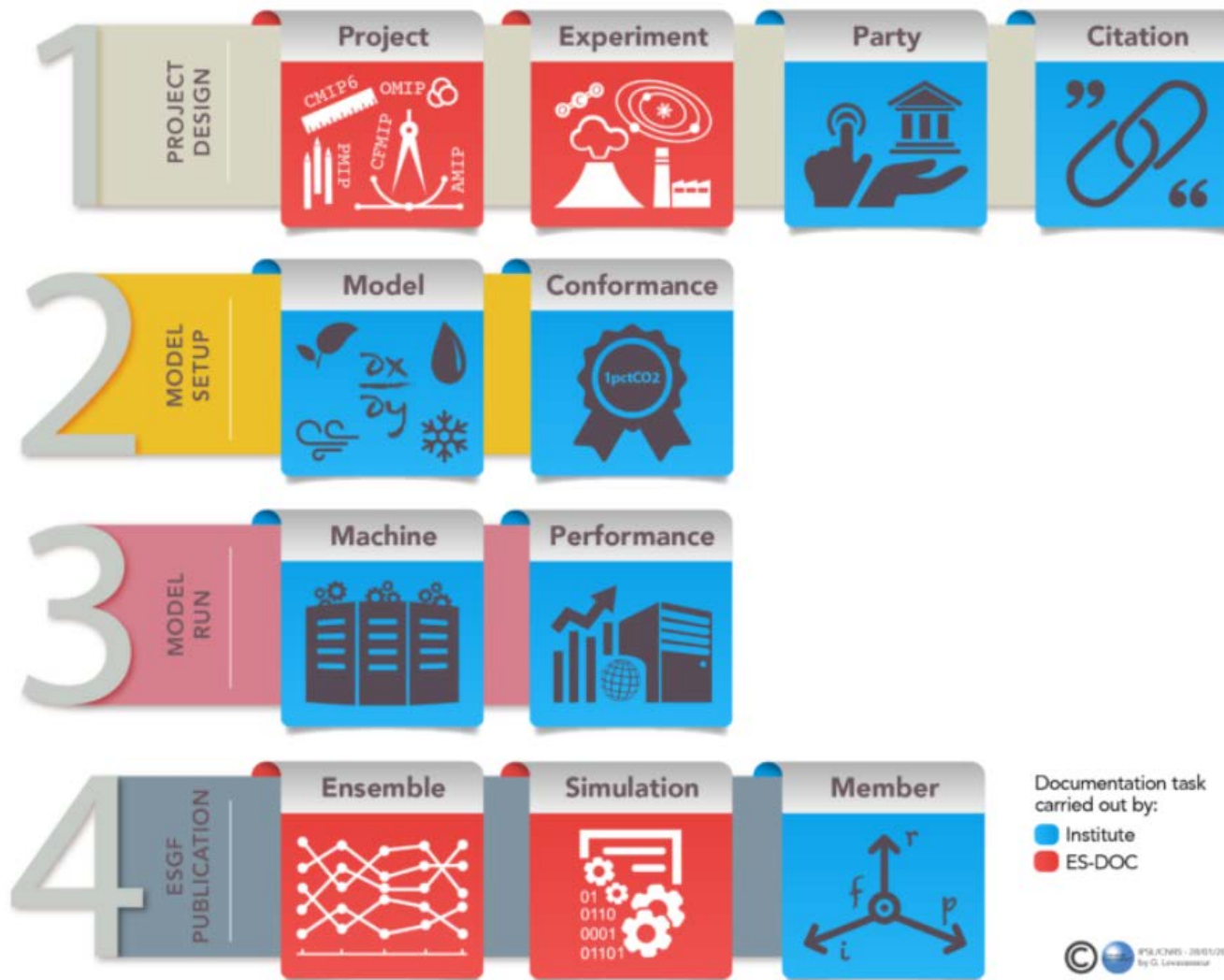
Overview

Project	cmip5
Institute	MOHC
Name	HADGEM2-ES
Long Name	Hadley Global Environment Model 2 - Earth System
Funder	UK Met Office Hadley Centre
Principal Investigator	Chris Jones
Release Date	2009-01-01
Description	<p>The HadGEM2-ES model was a two stage development from HadGEM1, representing improvements in the physical model (leading to HadGEM2-AO) and the addition of earth system components and coupling (leading to HadGEM2-ES). [1] The HadGEM2-AO project targeted two key features of performance: ENSO and northern continent land-surface temperature biases. The latter had a particularly high priority in order for the model to be able to adequately model continental vegetation. Through focussed working groups a number of mechanisms that improved the performance were identified. Some known systematic errors in HadGEM1, such as the Indian monsoon, were not targeted for attention in HadGEM2-AO. HadGEM2-AO substantially improved mean SSTs and wind stress and improved tropical SST variability compared to HadGEM1. The northern continental warm bias in HadGEM1 has been significantly reduced. The power spectrum of El Nino is made worse, but other aspects of ENSO are improved. Overall there is a noticeable improvement from HadGEM1 to HadGEM2-AO when comparing global climate indices. [2] In HadGEM2-ES the vegetation cover is better than in the previous HadCM3LC model especially for trees, and the productivity is better than in the non-interactive HadGEM2-AO model. The presence of</p>

ES-DOC (<https://es-doc.org>)

For documenting the Earth
System model components







CMIP6 Data Information View



Dataset [cmip5.output1.MIROC.MIROC5.decadal1969.mon.atmos.Amon.r5i1p1.pr](#)

General Information

Dataset Id	cmip5.output1.MIROC.MIROC5.decadal1969.mon.atmos.Amon.r5i1p1.pr
Persistent identifier	hdl:21.14100/lptest_dataset_1 Replaced
Version	20120710
Newer version	21.14100/lptest_dataset_following Newer
Older version	21.14100/lptest_dataset_previous

Data host(s)

esgf-original.dkrz.de	Original
esgf-dev3.dkrz.de	Replica
blabla.dkrz.de	Replica
esgf-dev2.dkrz.de	
esgf-dev2.foo.bar	

Errata

[my_errata_id_1](#)

Files belonging to this dataset

pr_Amon_MIROC5_decadal1969_r5i1p1_197001-197912.nc	hdl:21.14100/lptest_file_1
pr_Amon_MIROC5_decadal1969_r5i1p1_197001-197912.nc	21.14100/lptest_file_2

PIDS for:

- Datasets
- Files
- Collections



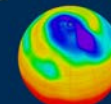
fd4c485-4437-427b-8f27-6da24447b778

DETAILS

MATERIALS (5)

AFFECTED DATASETS (5)

Project	CMIP5
Institute	IPSL
Title	fd4c485-4437-427b-8f27-6da24447b778
Description	bacd792e-8ace-42d2-af2f-ab5221b243c8
Severity	Medium
Status	On Hold
Affected Experiments	abrupt4xCO2 aqua4K decadal1961 historical sstClimSulfate
Affected Models	CanAM4 CESM1-FASTCHEM GISS-E2-H MPI-ESM-P MRI-AGCM3-2H
Further Info	https://es-doc.org/cmip6-dataset-errata
ESDoc Identifier	54485-4437-427b-8f27-6da24447b778



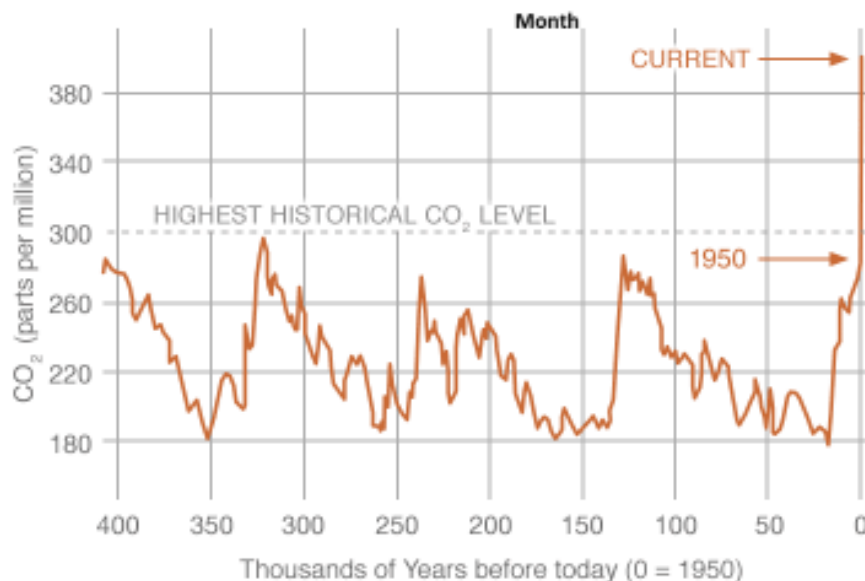
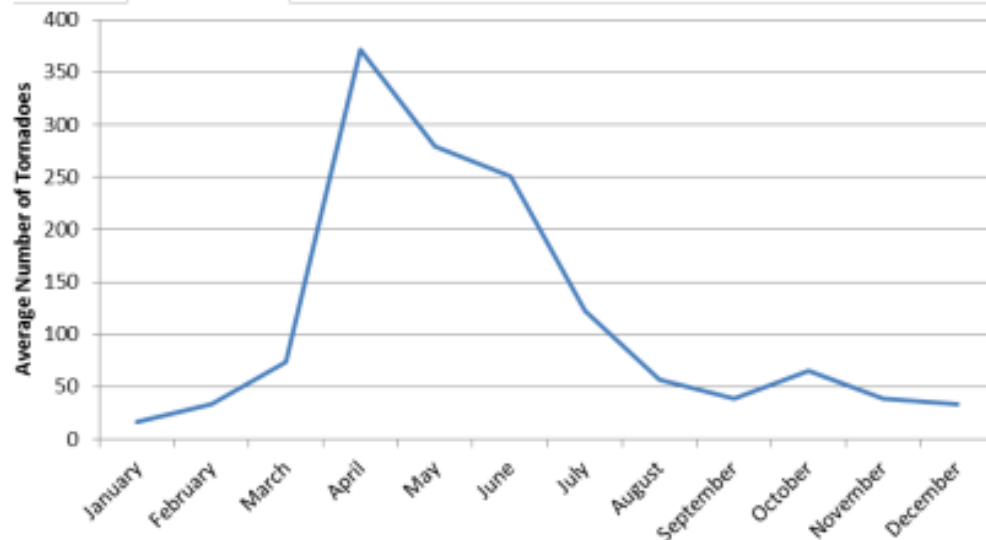


fda4c485-4437-427b-8f27-6da24447b778

DETAIL 8

MATERIAL 8 (5)

AFFECTED DATA SET 8 (5)





es-doc
Earth System Documentation

Dataset Errata Viewer v0.5.3

fda4c485-4437-427b-8f27-6da24447b778

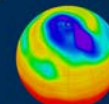
DETAILS

MATERIALS (5)

AFFECTED DATASETS (5)

#	ESG-F Dataset Identifier
1	cmip5.output1.IPSL.CESM1-FASTCHEM.aqua4K.6hr.atmosChem.Amon.r1i1p1#v20180101
2	cmip5.output1.IPSL.CanAM4.abrupt4xCO2.subhr.atmos.6hrLev.r1i1p1#v20180101
3	cmip5.output1.IPSL.GISS-E2-H.decadal1961.fx.atmosChem.cfMon.r1i1p1#v20180101
4	cmip5.output1.IPSL.MPI-ESM-P.historical.6hr.aerosol.cfSites.r1i1p1#v20180101
5	cmip5.output2.IPSL.MRI-AGCM3-2H.sstClimSulfate.3hr.atmosChem.cfOff.r1i1p1#v20180101

Affected Datasets = 5



Links to Errata information



Dataset Errata Search v0.5.3.0

[Support](#)
[PID Lookup](#)

Project:	Experiment:	Institute:	Model:	Variable:	Severity:	Status:
CMIP5 ▼	historical ▼	* ▼	* ▼	* ▼	* ▼	* ▼

Total Issues = 111. Filtered Issues = 3.

#	Institute	Title	Created ▼	Updated	Closed	Severity	Status
1	IPSL	fda4c485-4437-427b-8f27-6da24447b778	2018-03-07	--	--	Medium	On Hold
2	IPSL	09fd9e73-a655-4b34-9497-57341769919f	2018-03-07	--	--	Medium	On Hold
3	IPSL	847b31a9-83c3-4f2e-bff4-558baa2ab47b	2018-03-07	--	--	Critical	On Hold

Total Issues = 111. Filtered Issues = 3.

v0.5.3.0 © ES-DOC



es-doc

Earth System Documentation

Errata Search v0.2.8.0

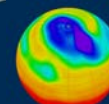
Support

Project:	Severity:	Status:	Institute:	Model:	Experiment:	Variable:
CMIP5	*	*	*	*	*	*

Total Issues = 202. Filtered Issues = 57.

<< < Page 1 of 3 > >> 25 / page

#	Institute	Title	Created	Updated	Closed	Severity	Status
1	IPSL	My Issue Title	2016-12-06	2016-12-06	--	High	New
2	BADC	Test issue title - 120b27f7-029a-45ea-85e8-15a8efcd60 ...	2016-11-05	--	--	Medium	Wont Fix
3	DKRZ	Test issue title - 19c7fa72-fbc5-4eb4-b41b-1c28b23eb4 ...	2016-11-05	--	2016-11-09	High	Wont Fix
4	BADC	Test issue title - 2da439d5-5cd3-448c-950e-ee594627c1 ...	2016-11-05	--	--	Medium	Resolved
5	DKRZ	Test issue title - 16717c3a-3a8e-41cd-b46c-a5b0a913c5 ...	2016-11-04	--	2016-11-08	Critical	On Hold
6	BADC	Test issue title - 175df12d-eeef-49c8-af97-d9b811d922 ...	2016-11-03	--	--	Medium	New
7	DKRZ	Test issue title - 6f9a158a-15ea-4f12-874c-9c47b55641 ...	2016-11-02	--	--	Low	New
8	DKRZ	Test issue title - 3d45ccb8-410e-4a67-bac0-2d9aa17b62 ...	2016-11-02	--	2016-11-06	High	New
9	DKRZ	Test issue title - a6ad64dc-693e-47aa-bb2b-97519de9d1 ...	2016-11-02	--	2016-11-06	Medium	Wont Fix
10	BADC	Test issue title - b392d71d-4021-45fe-ba9f-eeedde3240d ...	2016-11-01	--	2016-11-05	Critical	Resolved
11	IPSL	Test issue title - 75e035bb-7b20-4ab4-a72a-eb68c4d612 ...	2016-11-01	--	--	Low	Wont Fix
12	IPSL	Test issue title - 0879a5c2-edfc-46d3-9fd4-4c0583ac46 ...	2016-10-31	--	--	Critical	New
13	DKRZ	Test issue title - 2956beca-bcd4-40fd-a143-86fed49f28 ...	2016-10-30	--	2016-11-03	Low	Resolved





Links to download: THREDDS server

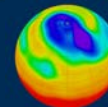


file:/esg/content/thredds/esgcat/51/cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i

Dataset

Size
Last
Modified

	project=CMIP5, model=HadCM3, Met Office Hadley Centre, experiment=10- or 30-year run initialized in year 2002, time_frequency=mon, modeling_realm=aerosol, ensemble=r1i2p1, version=20110711		--
	dryso2_aero_HadCM3_decadal2002_r1i2p1_200211-201212.nc	3.435 Mbytes	--
	cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i2p1.dryso2.20110711.aggregation		--
	cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i2p1.dryso2.20110711.aggregation - Subset 1		--
	dryso4_aero_HadCM3_decadal2002_r1i2p1_200211-201212.nc	3.435 Mbytes	--
	cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i2p1.dryso4.20110711.aggregation		--
	cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i2p1.dryso4.20110711.aggregation - Subset 1		--
	wetso2_aero_HadCM3_decadal2002_r1i2p1_200211-201212.nc	3.435 Mbytes	--
	cmip5.output1.MOHC.HadCM3.decadal2002.mon.aerosol.aero.r1i2p1.wetso2.20110711.aggregation		--





Download file or access via OpenDap

OPeNDAP Dataset Access Form

Action:

Get ASCII

Get Binary

Show Help

Data URL:

https://esgf-data1.ceda.ac.uk/thredds/dodsC/esg_dataroot/cmip5/output1/MOHC/

Global Attributes:

institution: Met Office Hadley Centre, Fitzroy Road, Exeter, Devon,
EX1 3PB, UK, (<http://www.metoffice.gov.uk>)
institute_id: MOHC
experiment_id: decadal2002
source: HadCM3 - Hadley Centre Coupled Model Version 3 (2000)

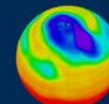
☒ **dryso2: Grid**

time: 0:1:0

lat: 0:1:0

lon: 0:1:0

standard_name:
tendency_of_atmosphere_mass_content_of_sulfur_dioxide_due_to_dry_dep
osition
long_name: Dry Deposition Rate of SO₂
units: kg m⁻² s⁻¹





Alternative search: esgf-pyclient

Examples of `pyesgf.search` usage

Prelude

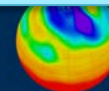
```
>>> from pyesgf.search import SearchConnection
>>> conn = SearchConnection('http://pcmdi9.llnl.gov/esg-search',
...                          distrib=True)
```

Find how many datasets containing 'humidity' in a given experiment family:

```
>>> ctx = conn.new_context(project='CMIP5', query='humidity')
>>> ctx.hit_count
20372
>>> ctx.facet_counts['experiment_family']
{u'All': 20372, u'Atmos-only': 1658, u'Control': 493, u'Decadal': 12922, u'ESM': 410, u'Histori
```

Find the OPeNDAP URL for an aggregated dataset:

<http://esgf-pyclient.readthedocs.org/>

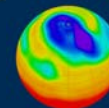




esgf-pyclient: consult facets

Find how many datasets containing 'humidity' in a given experiment family:

```
>>> ctx = conn.new_context(project='CMIP5', query='humidity')
>>> ctx.hit_count
20372
>>> ctx.facet_counts['experiment_family']
{u'All': 20372, u'Atmos-only': 1658, u'Control': 493, u'Decadal': 12922, u'E
```

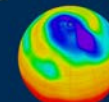




esgf-pyclient: get download URLs

Find download URLs for all files in a dataset

```
>>> ctx = conn.new_context(project='obs4MIPs', model='Obs-TES')
>>> ctx.hit_count
1
>>> ds = ctx.search()[0]
>>> files = ds.file_context().search()
>>> len(files)
3
>>> for f in files:
...     print f.download_url
http://esg-datanode.jpl.nasa.gov/thredds/fileServer/esg_dataroot/ol
http://esg-datanode.jpl.nasa.gov/thredds/fileServer/esg_dataroot/ol
http://esg-datanode.jpl.nasa.gov/thredds/fileServer/esg_dataroot/ol
```

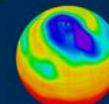
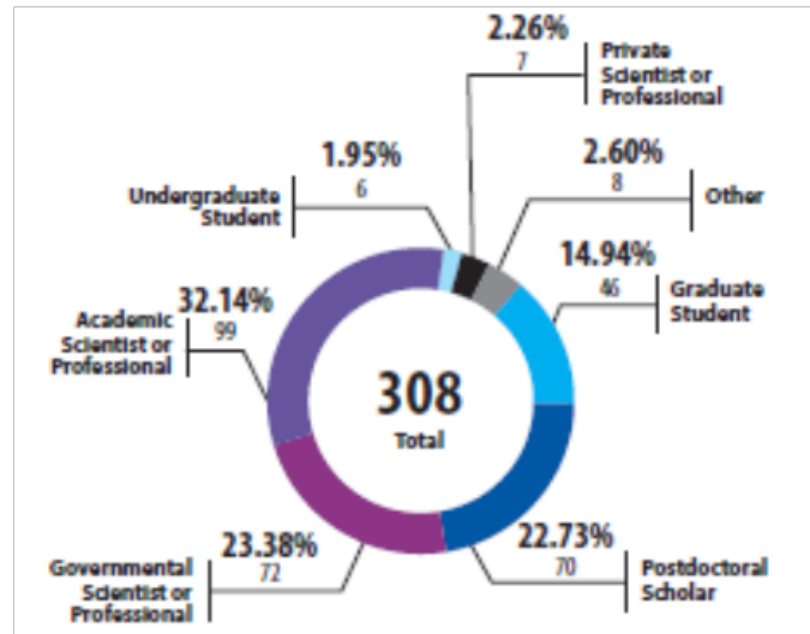
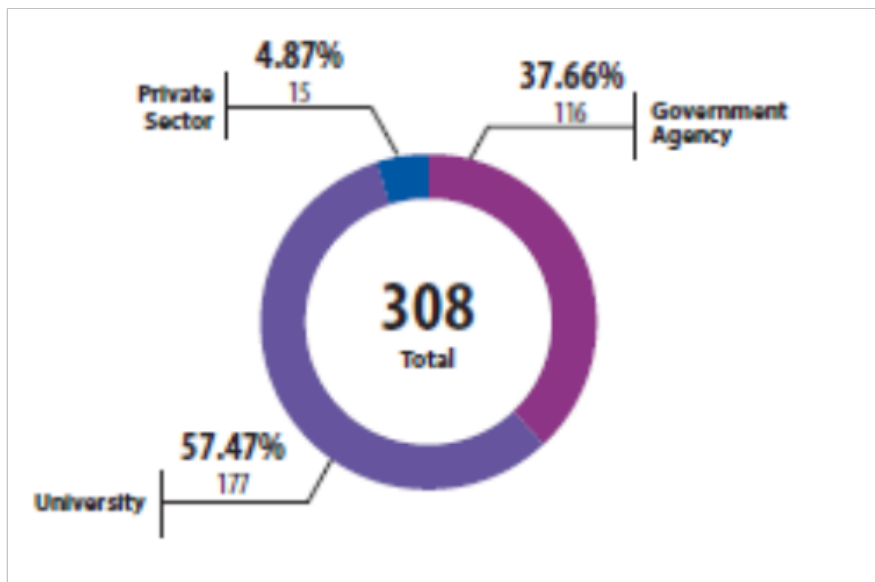


The ESGF Dashboard:

- Collects statistics from each node in the federation
- Provides aggregated metrics/statistics across the entire federation.



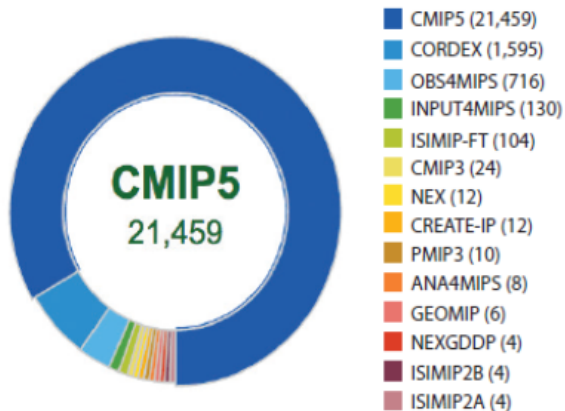
The ESGF Dashboard



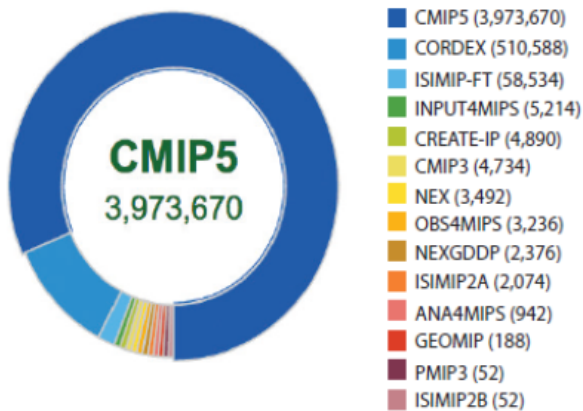


The ESGF Dashboard

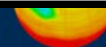
Registered Users Per Project



Number of Downloads Per Project

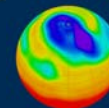


Continent	% of downloads
North America	26.5
South America	2.0
Europe	27.0
Africa	0.5
Asia	34.4
Australasia	9.6





PUBLICATION



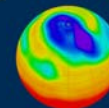
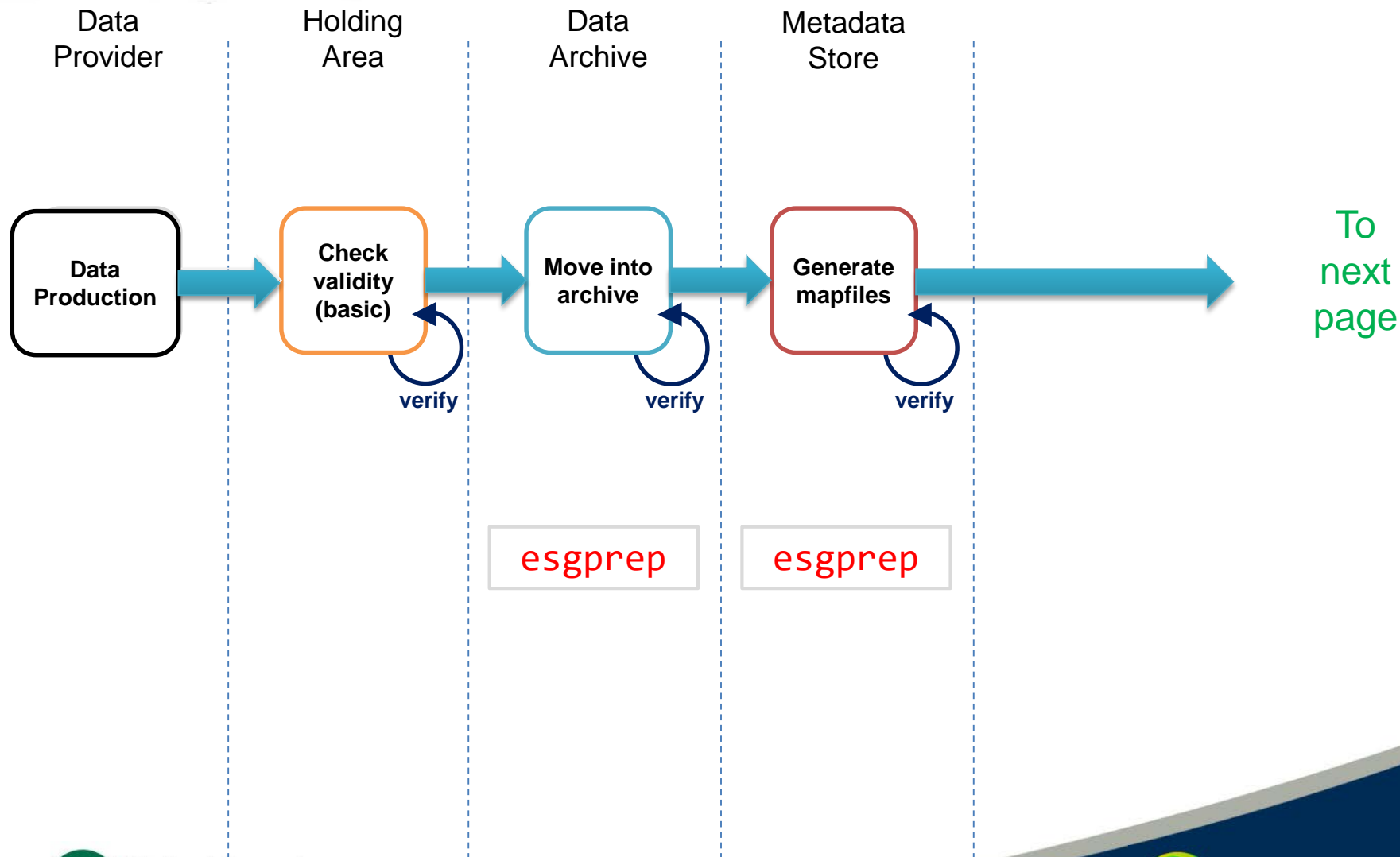
What does "publish to ESGF" mean?

The ESG Publisher tool performs a number of functions:

1. Validation of data files (based on agreed specification)
2. Records information about each data set in a **database**.
3. Writes **THREDDS XML** records for each data set and its files/aggregations.
4. Contacts an ESGF Index Node to add the data set information to the **ESGF Search** system.

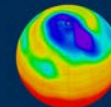
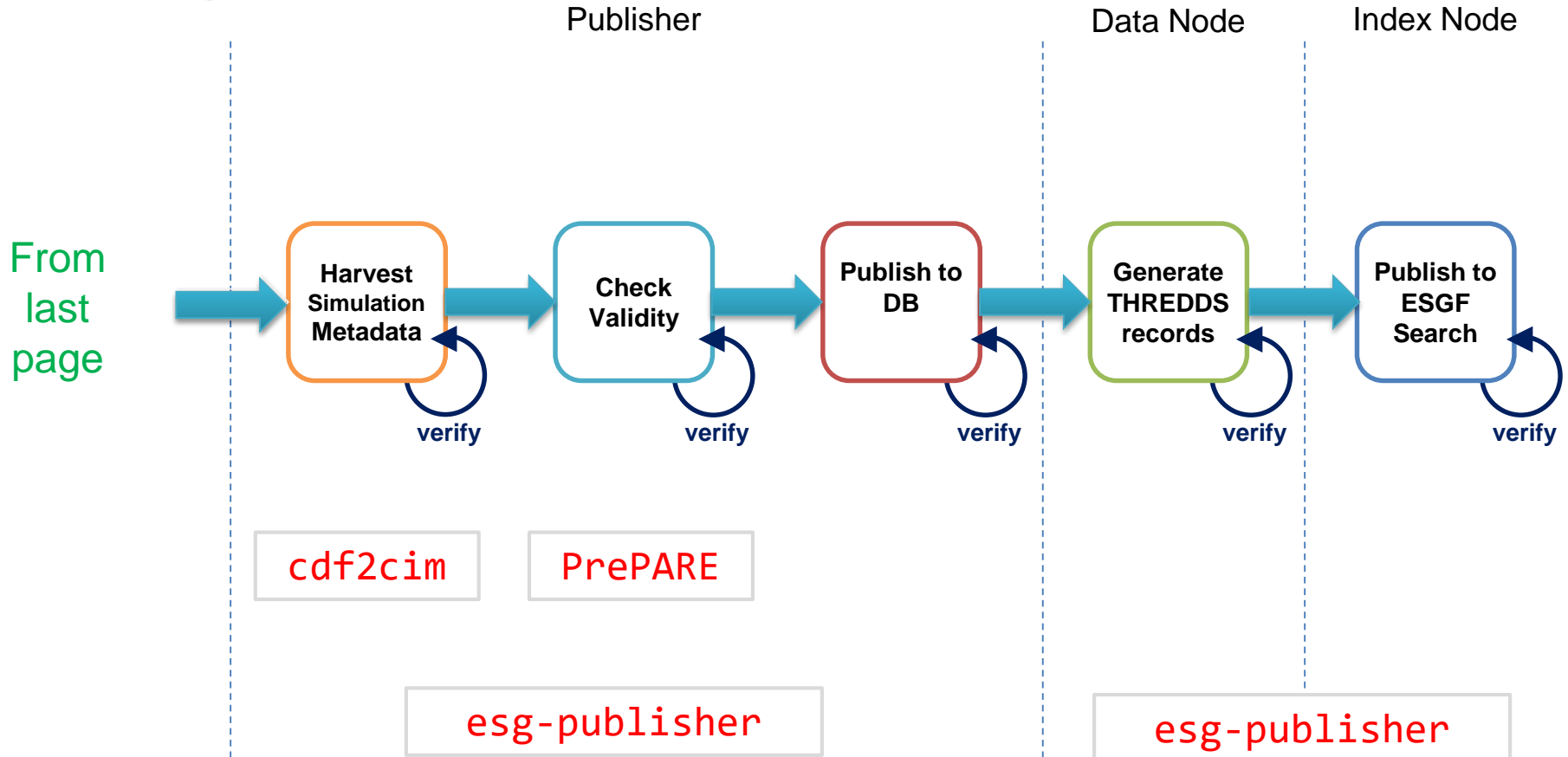


The publication pipeline (1)



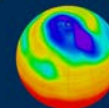


The publication pipeline (2)





COMPLIANCE



CMIP6 ESGF Publication Requirements

Defines file syntax, DRS and other requirements that must be complied with before publication to ESGF.

- DRS and Directory structure
- File names and Global Attributes for CMIP6
- CMIP6 Data Request (DReq)
- Controlled Vocabularies

CMIP5 Data Reference Syntax (DRS)

An example CMIP5 Data set Id:

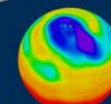
`cmip5.output1.MOHC.HadGEM2-ES.rcp45.day.atmos.day.r1i1p1.v20111128`

- Project: cmip5
- Product: output1
- Institute: MOHC
- Model: HadGEM2-ES
- Experiment: rcp45
- Frequency: day
- Realm: atmos
- MIP Table: day
- Ensemble: r1i1p1
- Version: v20111128



Global Attributes

CMIP6 global attribute see note 1	description	Examples	corresponding attribute in CMIP5	form see note 2	when required?	further information and rationale
experiment	short expt. description	"pre-industrial control", "abrupt quadrupling of CO2"	experiment	CV	always	no change from CMIP5
experiment	frequency		sampling frequency		"day"	
	grid		grid		see note 10	
external variables	measures	areaceno	-	CV	appropriate	variables that are referenced but not included in the file.
forcing index	index for variant of forcing	2	-	integer >0 (see note 8)	always	distinguishes variants that differ in forcing
further info url	location of documentation	see note 9	-	CV	always	points to definitive (and revisable) documentation
frequency	sampling frequency	"day"	frequency	CV	always	no change from CMIP5
grid	grid	see note 10	-	free form	always	briefly describes grid characteristics
grid_label	grid identifier	"gn", "gr", "gs1x1", "gr1", "gr2"	-	CV (see note 11)	always	used in file name to distinguish among files when the variable is reported on more than one grid.
grid_resolution	approximate horizontal	"50 km", "100 km", "250 km", "1x1".	-	CV	always	Added to provide an indication of approximate grid resolution.



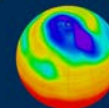
Why is compliance important?

Non-compliance leads to:

- ESGF software not able to work with data - **so processing cannot be automated!**
- Vocabularies vary so *silent errors* may occur - e.g. **data is inconsistent.**
- End-users have **persistent headaches** - having to write code to normalise files.
- **Cannot build delivery tools/services on top of the data!**

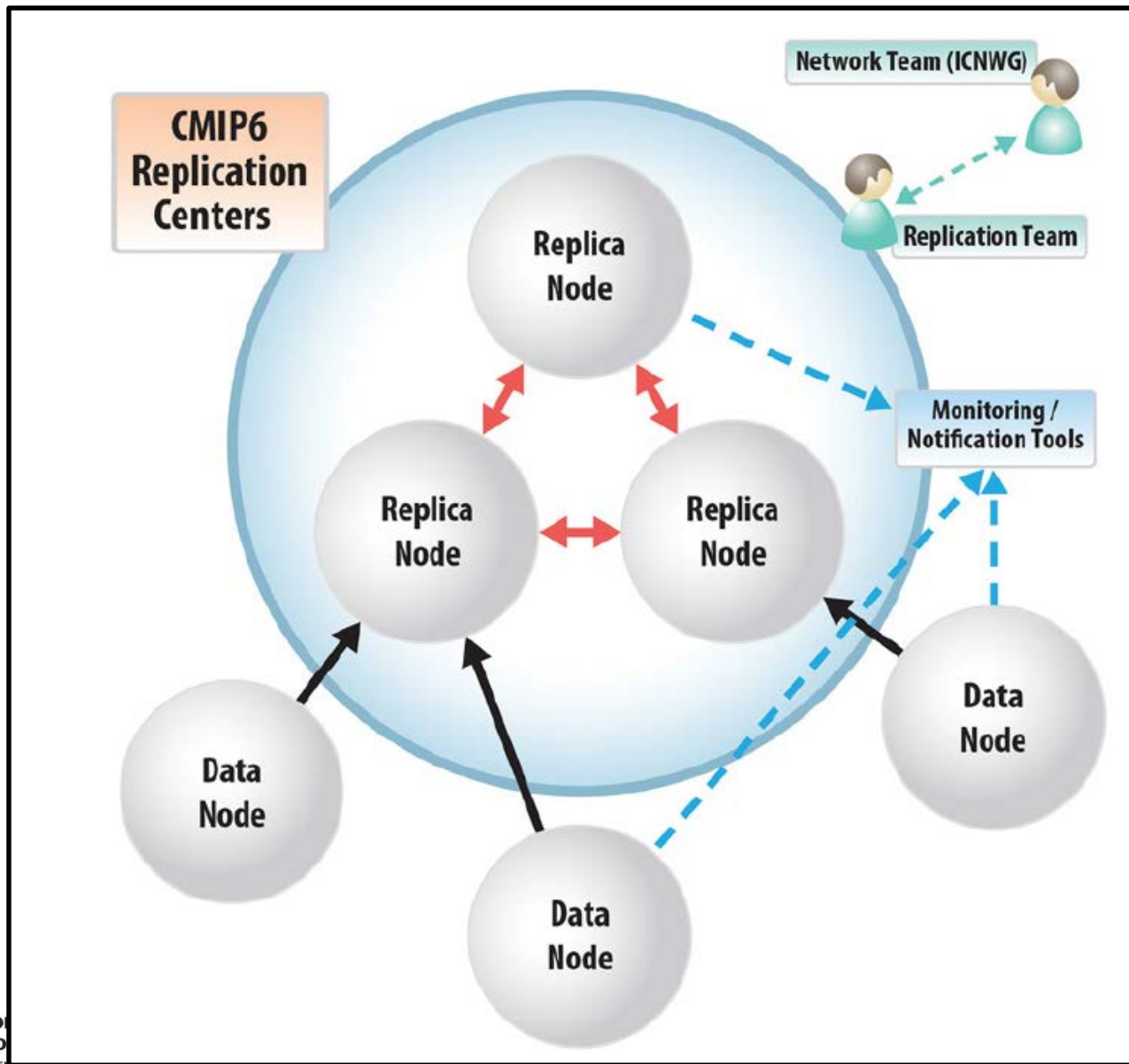


REPLICATION



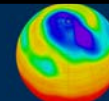
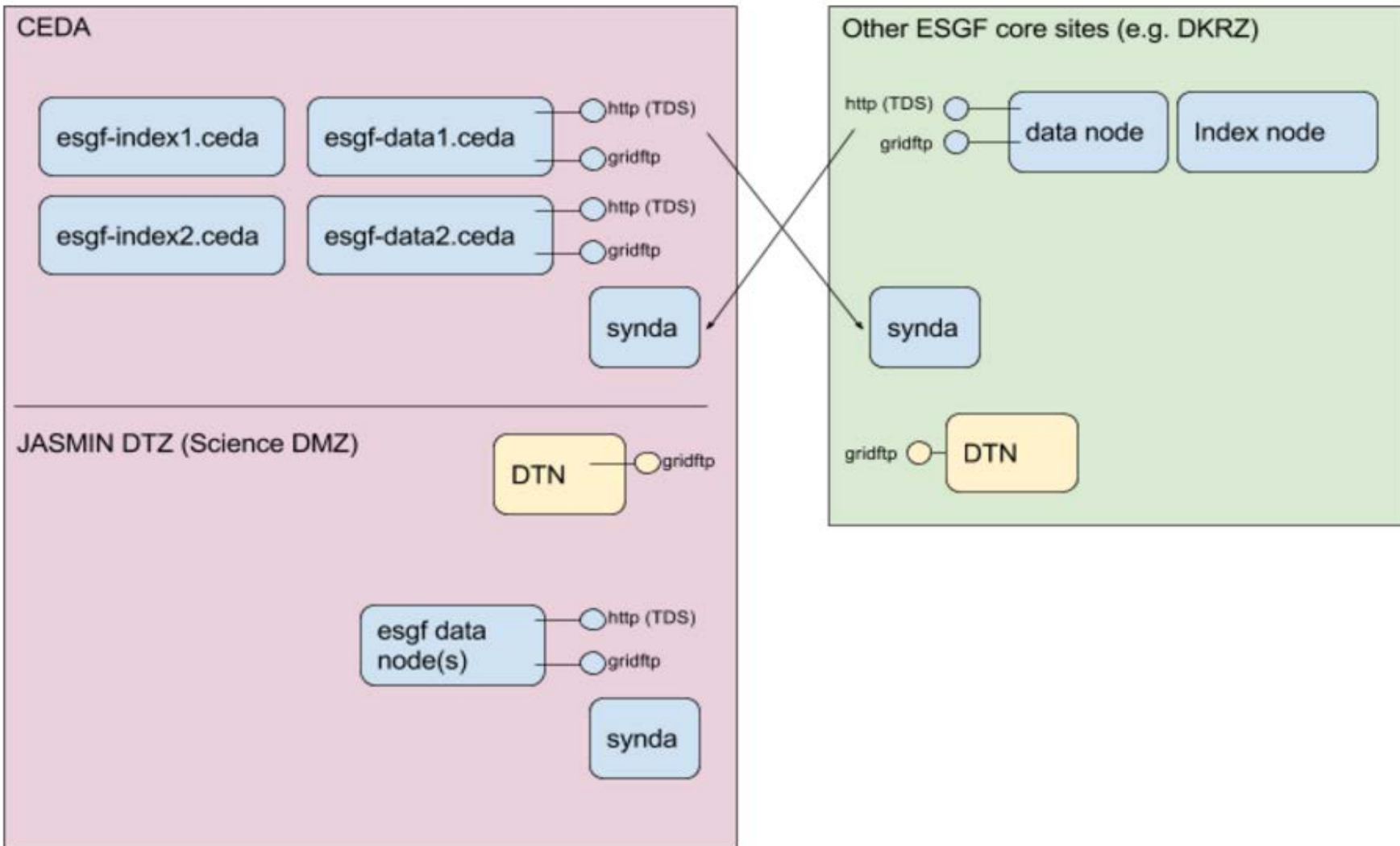


Replicating the data around the globe





Replication - using "synda"



Synda - for replication

Synda is a command-line search and download tool. Main features include:

- Support for all ESGF projects (e.g. CMIP5, CORDEX)
- Parallel downloads, incremental process (download only new data)
- Transfer priority, download management and scheduling, and history stored in a database
- GridFTP enabled – important for replication
- Post-processing capabilities – for automation



Synda - for replication

Usage

Search file

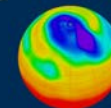
```
synda search 20160101-20161231 "Air Temperature" -f
```

Download file

```
synda get tasmax_day_FGOALS-s2_piControl_r1i1p1_20160101-20161231.nc
```

Manage a large number of files with install / remove

<https://github.com/Prodiguer/synda/>

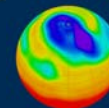


Replication system for CMIP6

- Work coordinated via ESGF-RVWT (Replication and Versioning working team).
- ICNWG (International Climate Network Working Group) has made progress with making the paths over which these toolboxes operate as efficient as possible.
- Testing between partner sites has achieved **impressive transfer rates even over long paths** (e.g. ~100s MBytes/sec to/from the US and Australia from the UK).



CMIP6 Preparation: Data Challenges



CMIP6 Data Challenges

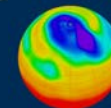
The following areas were highlighted as essential features for delivering CMIP6:

- Core services working
- Publication
- Search
- PID service
- Download
 - HTTP
 - Globus
- Replication
- “Core Data” available at all the Tier 1 nodes



CMIP6 Data Challenges Timetable

Data Challenge number	ESGF Data Challenge date commences (US date)	Challenge Completed Release at Tier 1 nodes
DC1	15 January 2018	29 January 2018
DC2	12 February 2018	22 February 2018
DC3	8 March 2018	22 March 2018
DC4	5 April 2018	19 April 2018
DC5	3 May 2018	17 May 2018
<i>CMIP6 production ready</i>	<i>1 June 2018</i>	



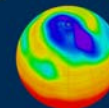


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Thank you



**National Centre for
Atmospheric Science**
NATURAL ENVIRONMENT RESEARCH COUNCIL



**Centre for Environmental
Data Analysis**
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL