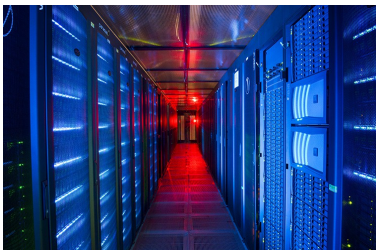
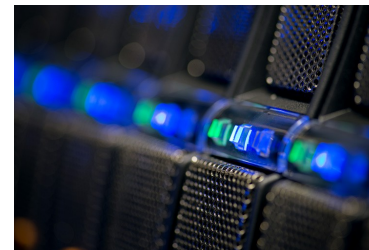
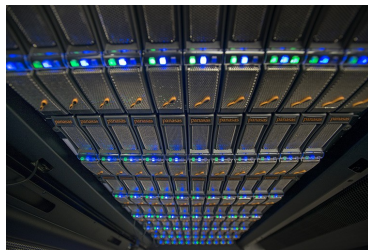




CEDA and the DDC : Overview



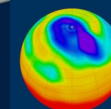
JASMIN (STFC/Stephen Kill)



Martin Jukes

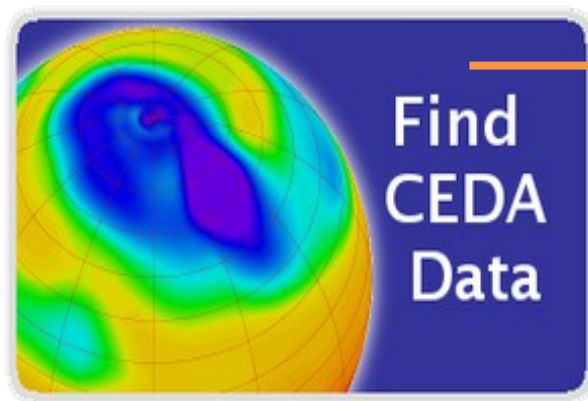
martin.jukes@stfc.ac.uk

Centre for Environmental Data Analysis

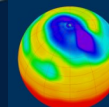




Centre for Environmental Data Analysis: CEDA



Data and information services for environmental science





Activities

People

- User help desk
- Environmental Data Specialists
- Software Developers

Community

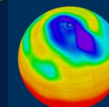
- Support
- Leadership
- Teamwork

Online

- Discover
- View & Transform
- Download

Platforms

- Storage
- Compute
- Workspace





NCAS Observations



NCAS Simulations

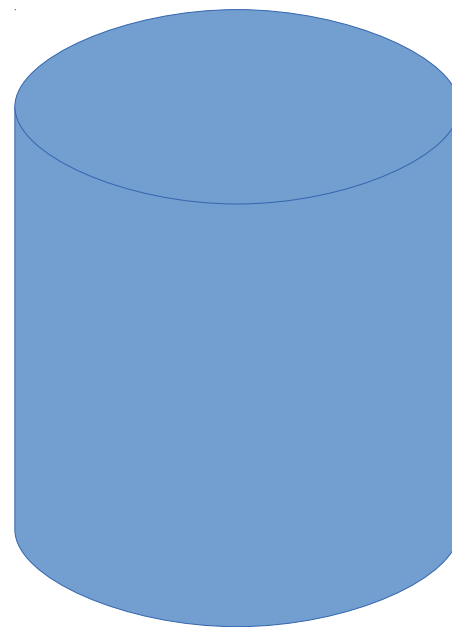
Other Simulations

WCRP, UK Met Office



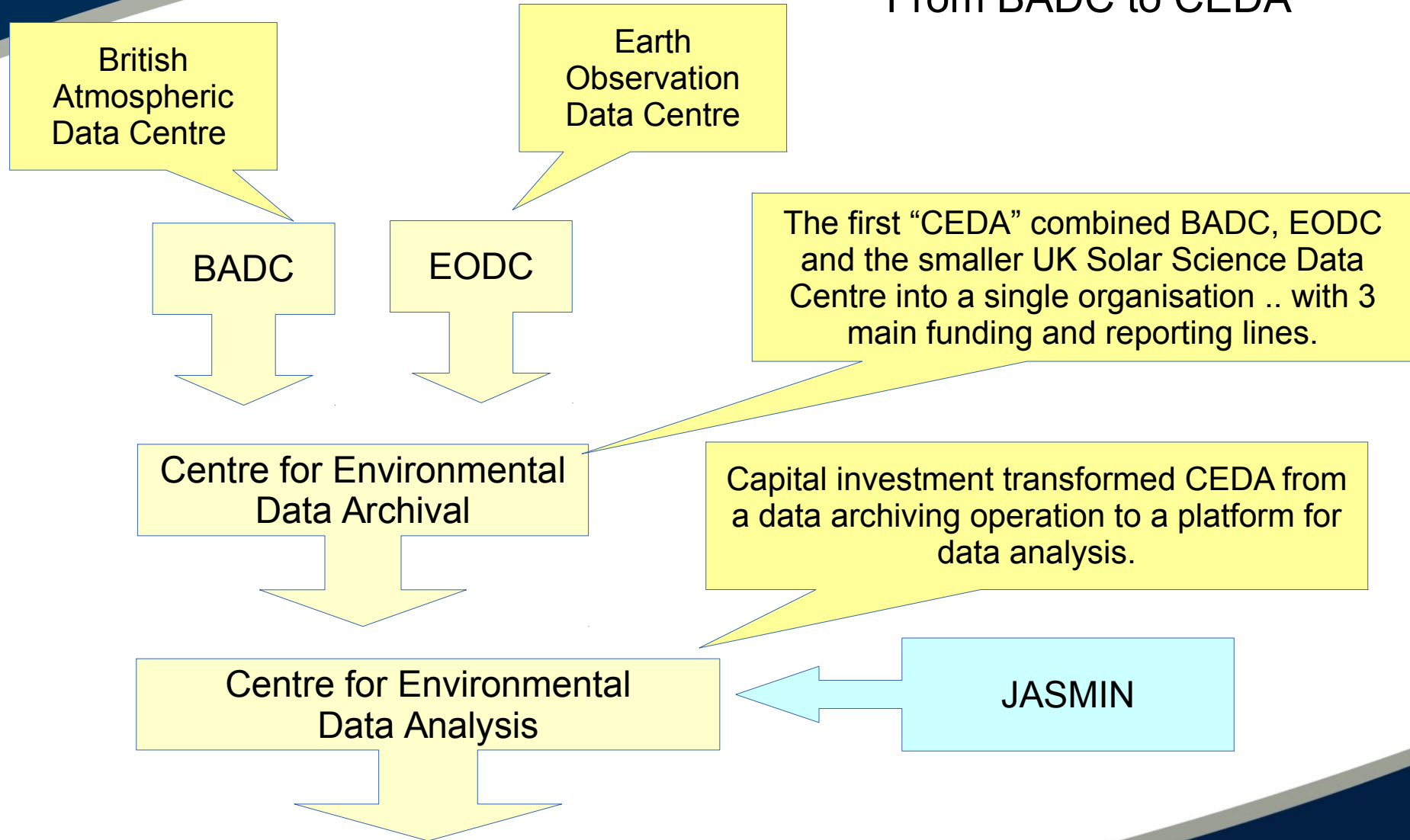
Sentinel and more

CEDA Data Centres





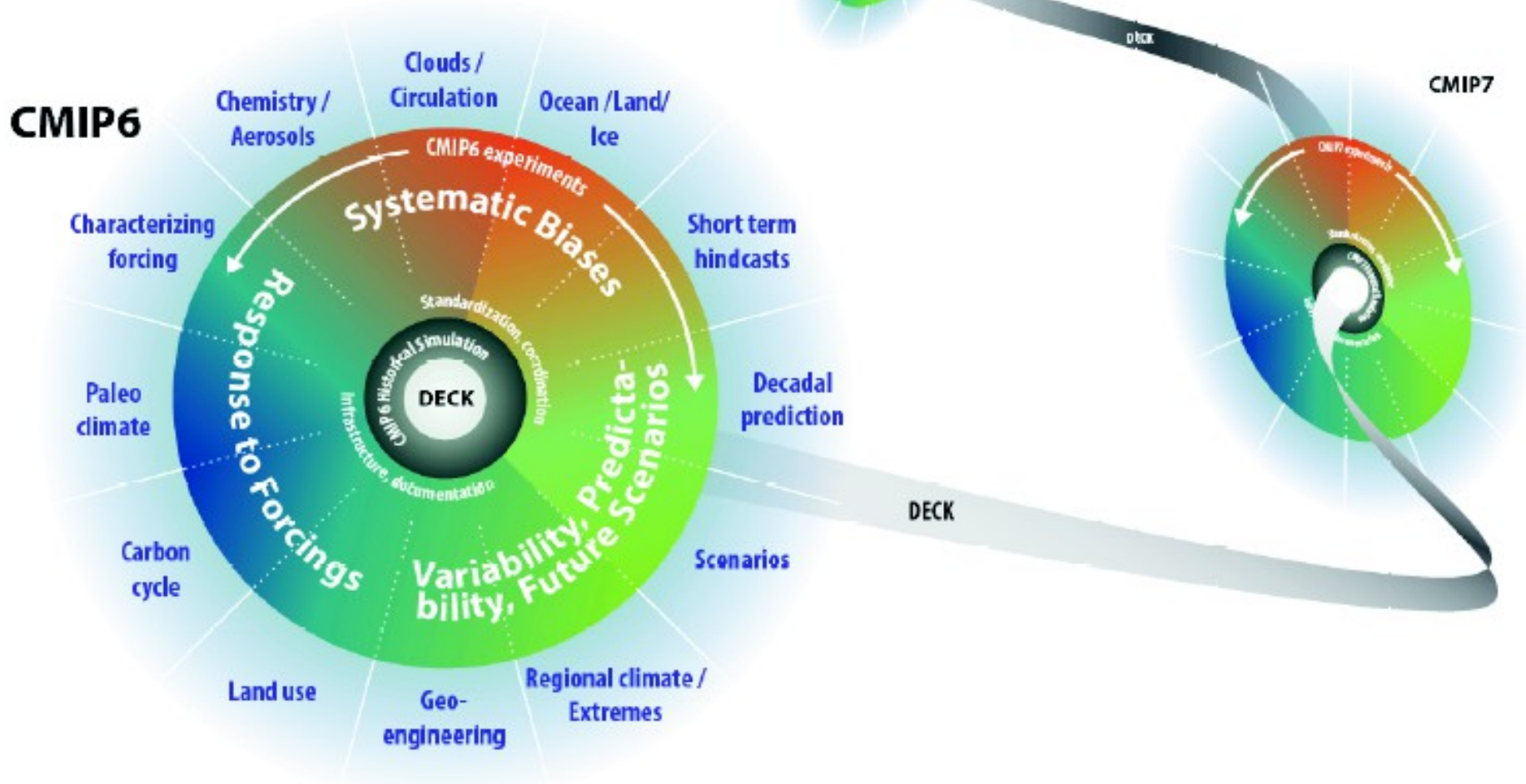
From BADC to CEDA

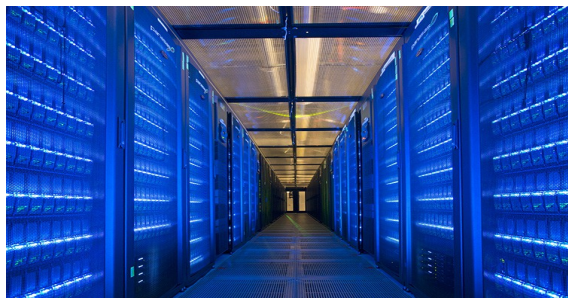


CMIP6 builds on CMIP5:

- more experiments;
- more scientific themes;
- more diagnostics;
- more institutions;
- more models;

CMIP Continuity





JASMIN Data Analysis Platform

Web Access

Virtual
Desktop

Customised
Servers

Build your
own cluster

Batch
Compute

CEDA Archive
NERC Data Products; 3rd party data

Group Workspaces
Community workspaces

Parallel file system; high-speed, non-blocking, low latency networking;

Batch Compute; Community Cloud; Tape storage



The screenshot shows the official website of the IPCC Data Distribution Centre. The header includes the IPCC logo and the text 'INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE'. The navigation bar contains links for 'Home', 'About the IPCC', 'Data', 'Tools', 'Help', and 'Site map'. The main content area is titled 'Welcome to the IPCC Data Distribution Centre' and contains the following text:

London, DCC Home

Welcome to the Data Distribution Centre (DCC) of the Intergovernmental Panel on Climate Change (IPCC). The DCC provides climate, socio-economic and environmental data, both from the past and also in scenarios projected into the future. Technical guidelines on the selection and use of different types of data and scenarios in research and assessment are also provided.

The DCC is designed primarily for climate change researchers, but materials contained on the site may also be of interest to investors, governmental and non-governmental organizations, and the general public.

The DCC is overseen by the IPCC Task Group on Data and Scenarios Support for Climate and Climate Analyses (TGCA), and jointly managed by the British Atmospheric Data Centre (BADC) in the United Kingdom, the GFDL World Data Center Climate (WGCD) in Germany, and the Center for International Earth System Information Network (CIRES) at Columbia University, New York. The data are provided by co-operating modelling and data centres.

www.ipcc-data.org

Introduction to the IPCC Data Distribution Centre (Full page)

The DCC has been established to facilitate the timely distribution of a consistent set of up-to-date scenarios of changes in climate and related environmental and socio-economic factors for use in climate impacts assessments. The intention is that these new assessments can be used to review the progress of the IPCC (Full page).

In this section:



Centre for Environmental Data Analysis

SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL

[Contact us](#) | [CEDA Help](#) | [News](#)




[CEDA](#) > Data and information services for environmental science

[Data search](#)

[About CEDA](#)
[Data Centres](#)
[Services](#)
[Projects](#)
[For Academics](#)
[For Business](#)
[Training](#)
[Contact Us](#)
[Help](#)

Data and information services for environmental science



Find CEDA Data



JASMIN Data Analysis System

CEDA News

Recent News

- JASMIN Accounts Portal and application approvals at risk 5th July June 27, 2017, 9:25 a.m.
- CEDA ESGF nodes back in service June 23, 2017, 3:08 p.m.
- EUFAR Flight Finder & Sentinel OpenSearch back in service June 23, 2017, 12:38 p.m.



National Centre for Atmospheric Science

NATURAL ENVIRONMENT RESEARCH COUNCIL

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Original design by 1234 info



National Centre for Earth Observation

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ESGF Portal at CEDA

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

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

Technical Support

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 focused 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 worldwide. This portal allows you to find, select and download data free from the Federation.



Federated ESGF-CED Nodes

- ESGF60MRZ
- ESGF60EUNL
- ESGF60RUS
- ESGF60NASUPL
- ESGF60ENGLU

Search & Download Data

Simple Text Search [Go](#)

[Search with options](#)

Browse Projects

- [Time](#)
- [All](#)
- [New](#)
- [Parent projects \(1\)](#)
- [Peer projects \(0\)](#)
- [Child projects \(0\)](#)
- [Child projects \(0\)](#)
- [Child projects \(0\)](#)

esgf-index1.ceda.ac.uk

The screenshot shows the Open Data Portal website. At the top, there's a 'Data' link and a submission date 'Submitted by Dat Coenly on 13/04/2016 - 22:35'. The main content area has a large 'open data portal' logo and a welcome message: 'Welcome to the CCI Open Data Portal. A single point of entry to CCI data. Open, free and easily accessible.' A sidebar on the right lists various data categories: aerosols, clouds, fire, ghg, glaciers, ice sheet, ice sheets, ice sheets, land cover, and land cover. The bottom navigation bar includes links for 'CCI Dashboard', 'CCI Search', 'CCI FTP', and 'CCI Viewer'.



Petascale storage and cloud computing for big data challenges in environmental science

[Learn more »](#)

JASMIN Conference 2017: [Programme details](#)

ADVANCE NOTICE: Storage downtime 12/13 July affecting JASMIN and CEDA users



Data-intensive computing

JASMIN provides the UK's leading climate and earth-system science communities with an efficient and powerful environment. Many datasets, particularly those from the Met Office, are too big to be easily edited around. JASMIN enables scientists to bring their processing to the data.

Flexible data access

JASMIN provides convenient facilities to authenticate in order to access data. It also provides a range of tools for accessing data, including a web browser interface and a command-line interface. Data is deposited in the permanent archive.

Scalable future

JASMIN enables CEES to carry out the mission of delivering the UK's leading climate and earth-system science communities a home to identify and deliver the best solutions for their data-intensive needs. JASMIN is a more capable base for delivery of CEES's data centre services to the science community.

jasmin.ac.uk



CEDA support for TGICA



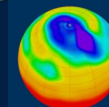
Project Management

Engaging with TGICA,
Users, TSUs

Create and Maintain
Login Service

Maintain and Rationalise
DDC Site

Funded by Dept. for Business, Energy and Industrial Strategy,
£99k in 2017/18.





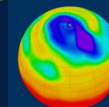
Rationalisation of the DDC

WHY?

- The DDC has many pages accumulated over multiple assessment cycles.
- They often combine comment on scientific assessment with guidance on organisation of the IPCC DDC site.
- Maintenance is time consuming, as updates to any content associated with scientific assessment needs extensive review.

HOW?

- Place scientific content that needs full TGICA review in documents in a repository, with DOIs for citation.
- Use CEDA catalogue mechanisms for documentation of content and access.





Sentinel data archive at CEDA

Currently acquiring global data from:

Sentinel 1A

Sentinel 1B

Sentinel 2A

Sentinel 3A

150 TB/month!

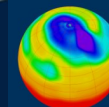
Mirror archive at CEDA:

Recent data held on-line, older data on near-line tape storage

Self-service access for data download, or

Local processing on JASMIN

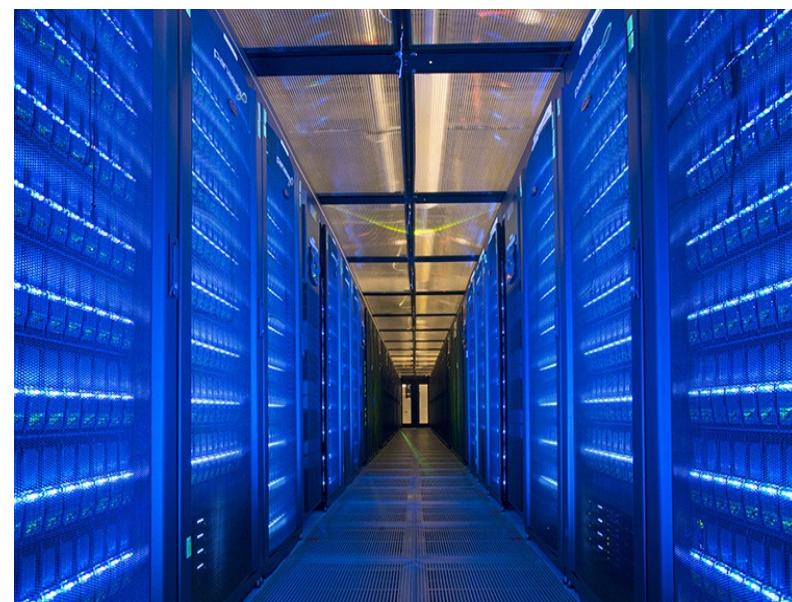
Sentinel 2B, 3B and 5P expected this year



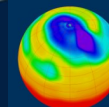


Petascale storage and cloud computing for big data challenges in environmental science

- 16 Petabytes high performance storage
- ~5,000 computing cores
- High-performance network design
- Private cloud, to enable flexible usage



5Pb of storage is used for the archive .. the rest is a flexible work area for users.

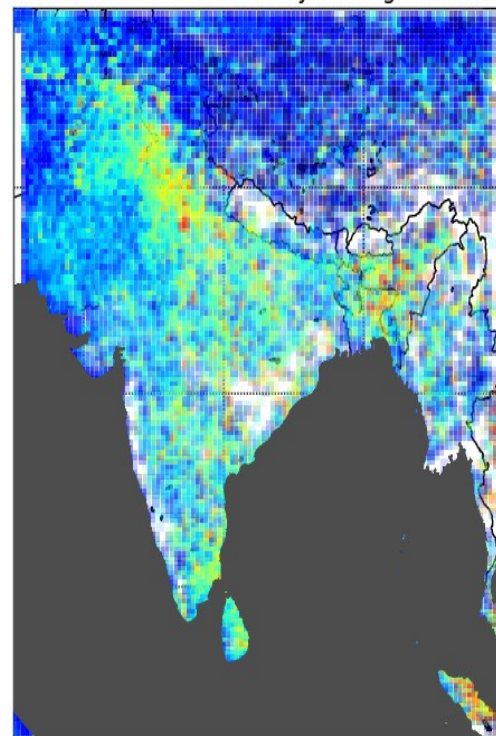


Understanding oxidant chemistry over the Indian subcontinent

Atmospheric chemistry is highly susceptible to changes in composition due to both natural and anthropogenic causes. Studying this balance is vital when observing air quality, especially over countries known for their poor air quality e.g. India.

Formaldehyde is a product of volatile organic compounds that are a precursor for tropospheric ozone and organic aerosol, both of which are harmful at elevated concentrations to human health. JASMIN is being used to run the GEOS-Chem model at 25 km over India to interpret satellite observations for formaldehyde from the Ozone Monitoring Instrument (OMI) – taking full advantage of co-located meteorological data archives and computing facilities.

OMI Vertical Columns monthly average 0.5x0.5 grid

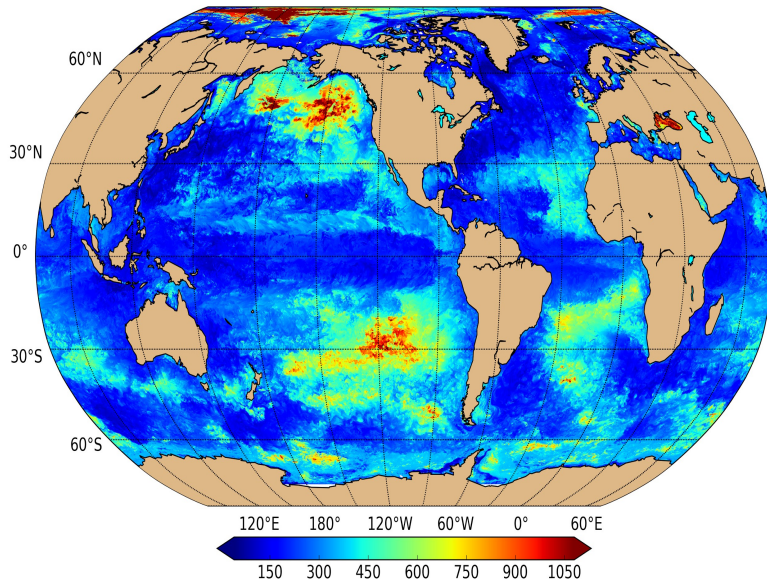


Contact: Paul Palmer (University of Edinburgh)

'The Weather' of the Ocean

Mesoscale ocean features, such as eddies, are present at the surface of the ocean and are sometimes described as 'the weather' of the ocean; as they are typically turbulent systems, less than 100 km and with timescales on the order of a month.

MESO-CLIP is a NERC funded project that is investigating how small scale features change the properties of the ocean surface. Due to the high model resolution necessary, 8 km at equator and 4 km at 60N, national HPC facilities (ARCHER) are required; resulting in large output volumes, with ~1TB stored per year of model simulation.

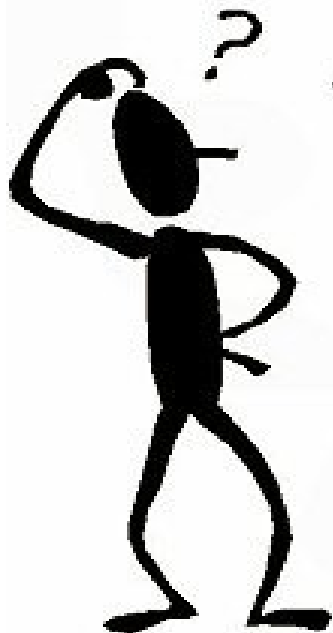


This research would not have been possible without JASMIN, purely due to data volume and the velocity of data generation.

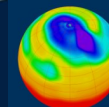
Contact: Dr Adam Blaker (NOC Southampton)



International Connections



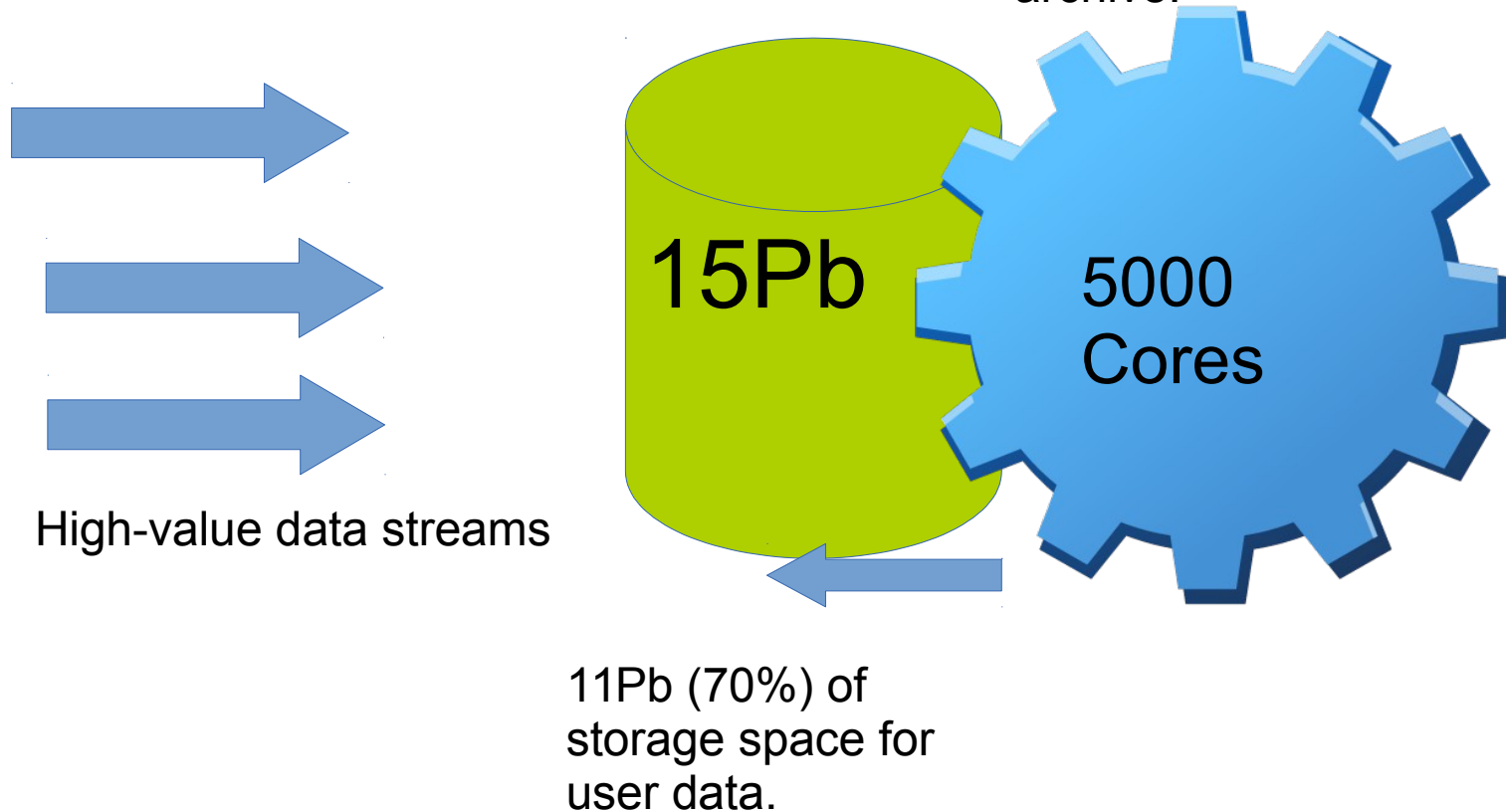
- World Climate Research Programme (WCRP)
 - ESGF (Earth System Grid Federation)
 - ES-DOC (Earth System Documentation)
 - MIP Tables (Model Intercomparison Project tables)
- Intergovernmental Panel on Climate Change (IPCC)
- European Space Agency (ESA)
- Copernicus
- Research Data Alliance (RDA)
- European Open Science Cloud
- European Strategy Forum on Research Infrastructures (ESFRI)
- European Network of Earth System modelling for climate (ENES)
- Climate and Forecast Conventions (CF)



The CEDA-JASMIN offer

The CEDA archive is fed by a broad range of data streams, observational and modelling

Flexible processing environment with high speed access to the archive.



Using JASMIN analysis services

1. The 2017/18 contract provides for a machine with
 - 16 CPUs
 - 16 Gb RAM
 - 20Tb of attached disk, and 20Tb tape allocation
 - read access to the CEDA archive
 - standard JASMIN software (netCDF etc)
2. TSUs may regulate access and coordinate use of disk space (e.g. a folder for each chapter ... or some shared files)
3. Data which needs curation may be transferred to archive (the 20Tb allocation is not for long term storage).



Further info

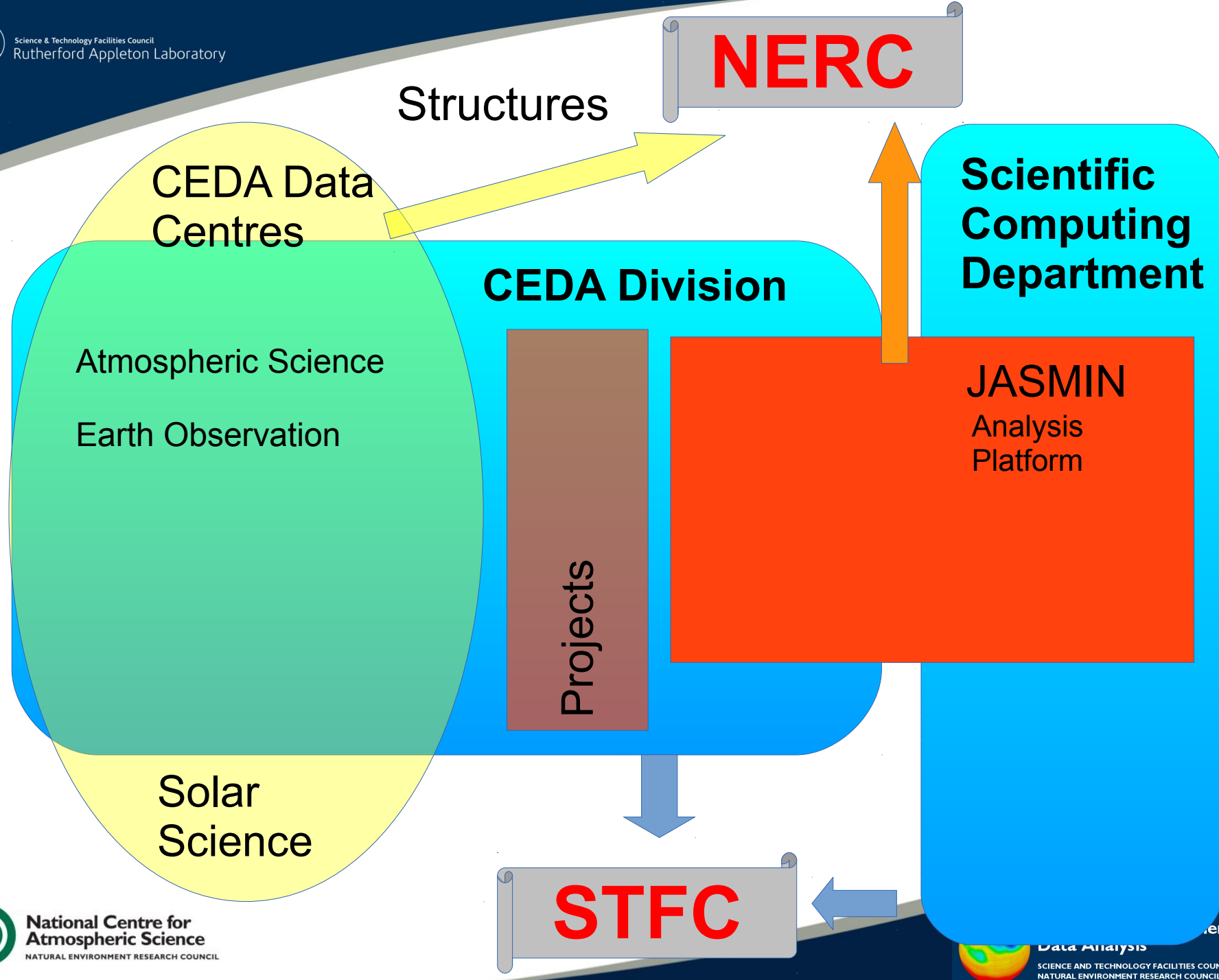
- Centre for Environmental Data Analysis

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

- JASMIN

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

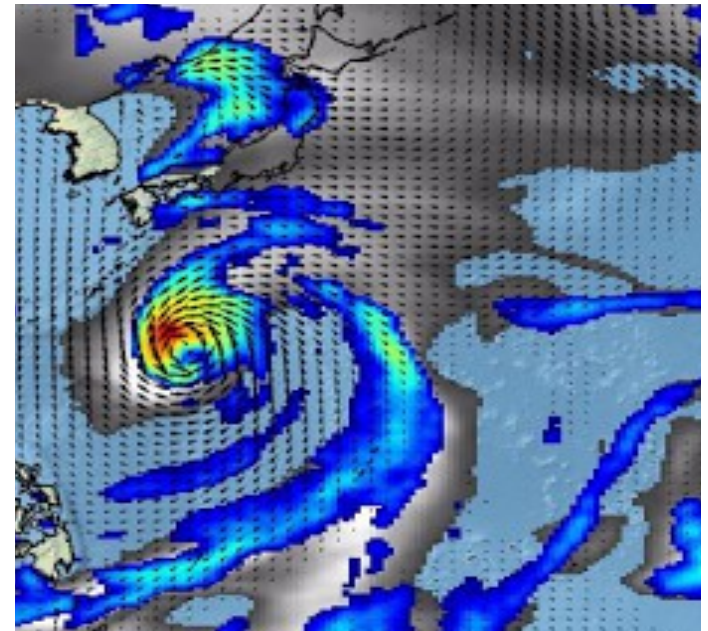
victoria.bennett@stfc.ac.uk



HRCM - simulating the building blocks of climate

High Resolution Climate Modelling (HRCM) is a collaboration between the Hadley Centre (UK Met Office) and the Climate Directorate within NCAS.

JASMIN has enabled routine tracking of tropical cyclones (50 years of N512 data can now be processed in one day with just 50 jobs) and analysis of eddy vectors (reducing total processing time from 3 months to merely 24 hours with 1600 batch jobs).



Contact: Prof P.L Vidale (NCAS, University of Reading)
More info: <http://hrcm.ceda.ac.uk/>



cedadev / ipcc_ddc Private

Unwatch 11 Star 0 Fork 0

Code Issues 7 Pull requests 0 Projects 3 Wiki Settings Insights

Filters is:issue is:open Labels Milestones New issue

<input type="checkbox"/>	7 Open 0 Closed	Author	Labels	Projects	Milestones	Assignee	Sort
<input type="checkbox"/>	Final Report #7 opened just now by martinjuckes Final Report						
<input type="checkbox"/>	Draft final report #6 opened 2 minutes ago by martinjuckes Draft Final Report						
<input type="checkbox"/>	Interim Report to BEIS #5 opened 5 minutes ago by martinjuckes BEIS interim report						
<input type="checkbox"/>	Document repository: use of Zenodo enhancement #4 opened 13 minutes ago by martinjuckes						
<input type="checkbox"/>	Annual DDC Usage Reports – procedural clarification #3 opened 17 minutes ago by martinjuckes TGICA25-1 webex						
<input type="checkbox"/>	DDC Portal Linking #2 opened 18 minutes ago by martinjuckes						
<input type="checkbox"/>	DDC Science Paper enhancement #1 opened 24 minutes ago by martinjuckes TGICA25-1 webex						

