climate change initiative

→ CLIMATE MODELLING USER GROUP

Introduction to the 11th CMUG Integration Meeting

Richard Jones, CMUG Science Lead
Met Office Hadley Centre

richard.jones@metoffice.gov.uk

cmug cci

Meeting Outline

9:15-10:00 Overview of CMUG phase 2

Presentation of CMUG plans for phase 2 (1 slide per WP/study) (30’)

10:00-11:00 First Breakout Session: Joint kick-offs for science studies

Room 1 (Moon) = WP5.1 Machine learning for process understanding

Room 2 (Mars) = WP5.8 Machine learning for wetland methane emissions

11:00-11:30 Coffee break 30’

11:30-12:30 Second Breakout Session: Joint kick-offs for science studies

Room 1 (Moon) = WP5.3 Land cover

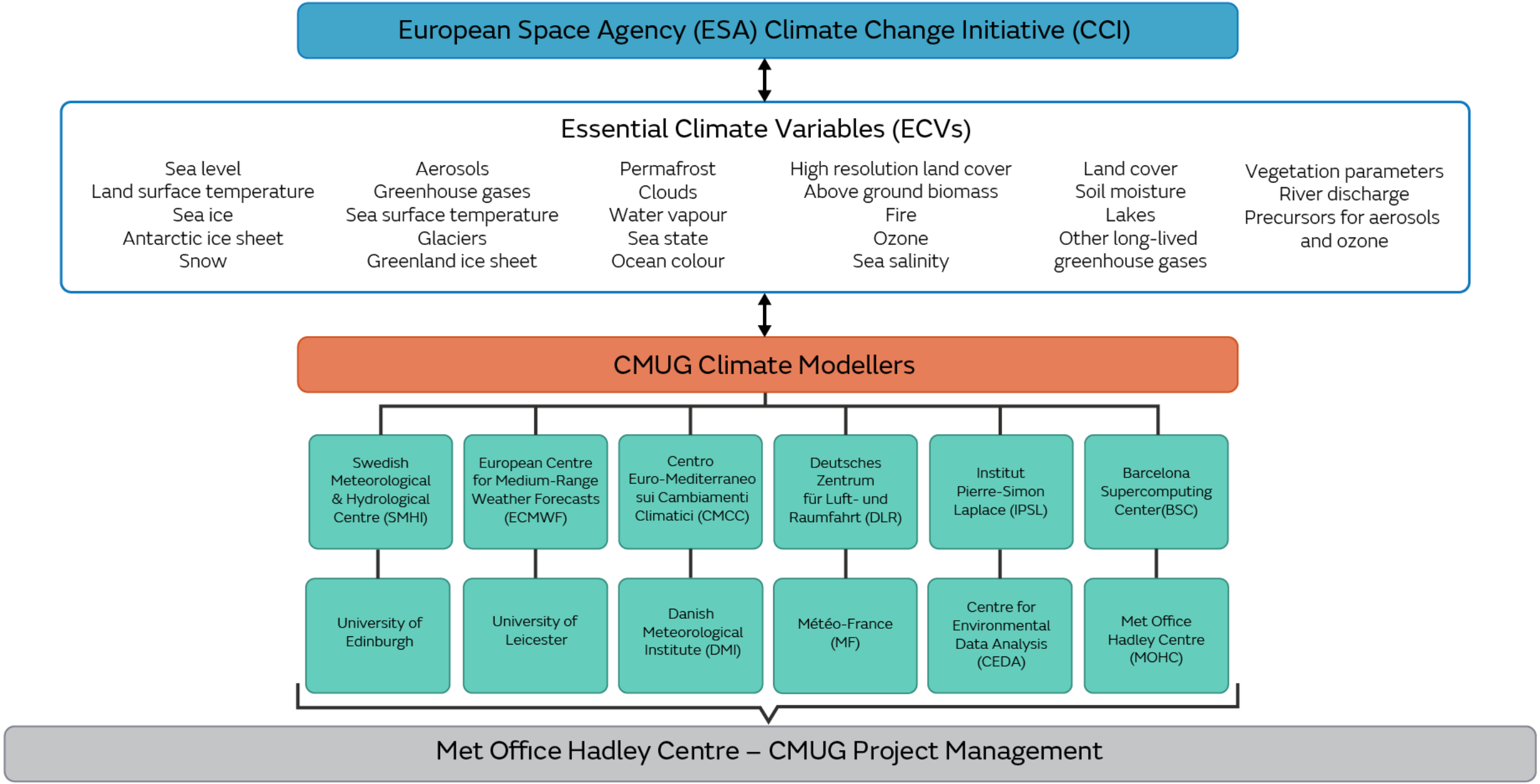
Room 2 (Mars) = WP5.6 Snow dynamics

Room 3 (Plenary) = WP5.7 Ice sheets

Room 4 (ECSAT) = Drop in for ESMValTool demo

12:30-13:00 Concluding remarks and meeting close (30')

Met Office Climate Modelling User Group (CMUG) Project Structure



CCI+ CMUG Phase 2 workpackages

WP 1: Climate Community Requirements Collection and Analysis

- WP1.1 User requirements for the new CCI ECVs
- WP1.2: User requirements update for all ECVs

WP 3: CMUG support to the future evolution of obs4MIPs

WP 4: CCI contributions to ESMValTool

WP 5: Cross-ECV Climate Science Studies

WP 6: Communications and Outreach

- Internal/external comms: Newsletters, Slide Decks, Website
- Internal/external meetings: Integration, Colocation, LPS, GCOS, WCRP

CMUG Phase 2 Science Studies

Machine learning for process understanding

Land cover

Ice Sheets

Cloud and aerosol

Machine learning for wetland methane

Snow dynamics

Ocean biogeochemistry seasonal predictability

Vegetation

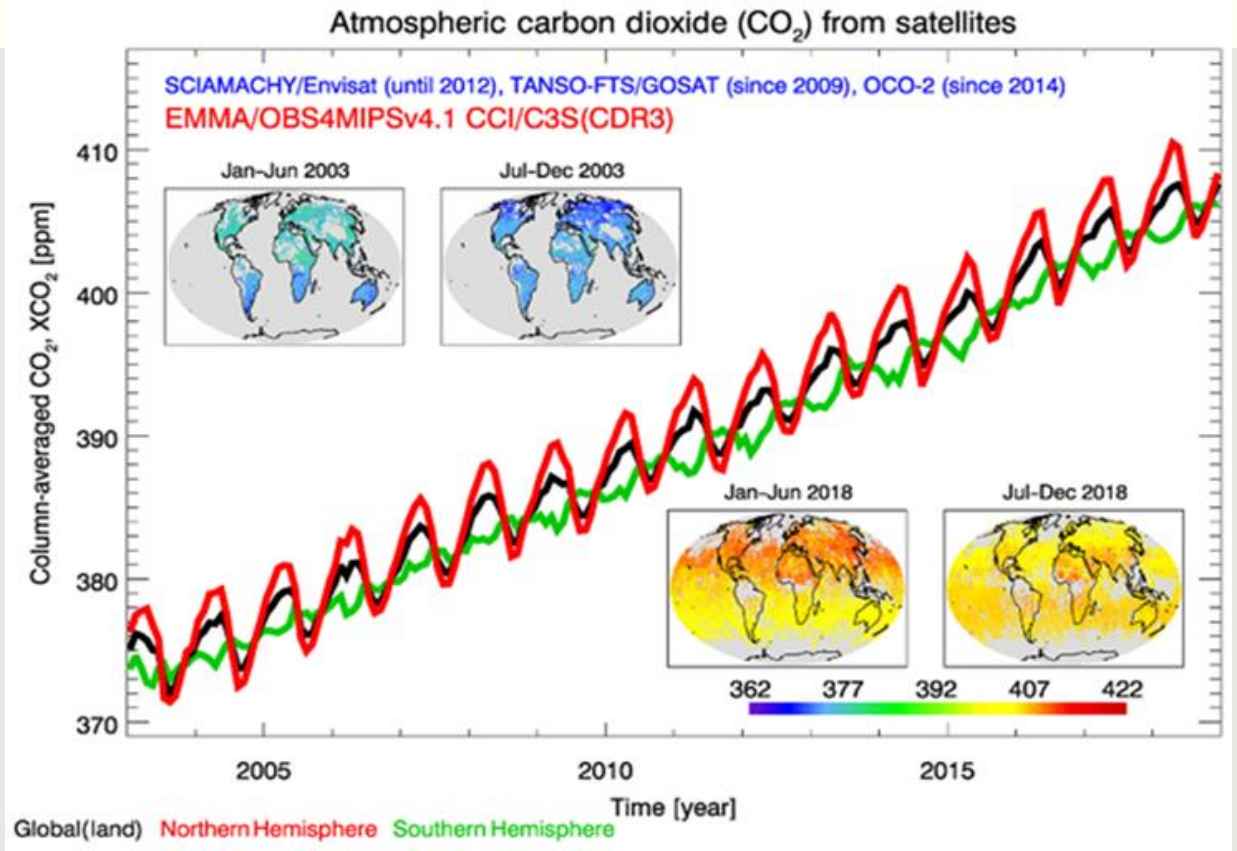
Obs4MIPs

Obs4MIPs (Observations for Model Intercomparison Projects) is a climate modelling community initiative to encourage widespread uptake of satellite observations for climate model verification and development.

- Excellent platform for sharing CCI data
- Consistent format
- Easily accessible
- Metadata included
- User documentation (Technical note)

How should obs4MIPs evolve??

- Higher resolution datasets
- Storage solutions
- Accessibility
- Data format
- Licensing



XCO2 CCI_GHG data set from obs4MIPs. Time series over land for three latitude bands and global maps. From Reuter et al. (2020).

ESMValTool

CMIP: understand climate changes and make the multi-model **output publicly available in a standardized format**

https://www.wcrp-climate.org/wgcm-cmip

CORDEX: develop regional climate downscaling **and foster communication and knowledge exchange** with users of regional climate information

https://cordex.org/

ESMValTool: *a community tool for fast and easy evaluation and analysis of Earth System Models*

- Traceable and reproducible
- Model performance assessment and quality control
- Publicly available, international community effort
- ESMValTool plots used in IPCC AR6
- CORDEX implementation under development
- Plans for use with CMIP7
- https://www.esmvaltool.org/

Summary

ESA Climate Change Initiative produces freely available long term climate data records of 26 Essential Climate Variables

CMUG is demonstrating and encouraging use of CCI datasets for a wide range of climate modelling and climate science applications

ESMValTool and Obs4MIPs are key community resources for evaluation and analysis of climate models

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