

What is CMUG?

CMUG is the Climate Modelling User Group. It was set up by the ESA CCI to facilitate communication between the providers of the CCI ECV datasets and the climate modelling, research, and service communities. CMUG provides feedback in the form of user requirements and assessments of the ECV datasets to the CCI ECV projects and carries out research using the ECVs in climate modelling.

Evolution of Obs4MIPs

Obs4MIPs is a collection of documented datasets formatted according to the Coupled Model Intercomparison Project (CMIP) model output requirements and made available on the Earth System Grid Federation (ESGF). This effort was initiated with support from NASA and the U.S. Department of Energy (DOE) and has now expanded to include contributions from a broader community including ESA. Obs4MIPs underpins model evaluation in CMIP (and beyond) and thus makes a significant contribution to the assessment of and sustained improvement in model quality, e.g., as reported by IPCC. CCI projects of most interest to the CMIP community contribute datasets to obs4MIPs.



CMUG are currently producing an obs4MIPs User Requirements and Gap Analysis report, for this we are gathering feedback from the user community through a series of interviews. We are trying to sample the breadth of applications for observational climate data and synthesise these into a set of recommendations which can be acted on by the obs4MIPs steering group or ESMO, the overarching body governing obs4MIPs. Please contact us if you would like to provide input.

CMUG Outreach

CMUG has a communications and outreach work package which spearheads our efforts to link the observation and modelling communities. This is done through newsletters and articles, and, mainly, through meetings such as our Climate Science Working Group (CSWG) meetings, and these Integration meetings. Here we bring together the climate modellers within CMUG and the CCI observation providers to facilitate discussion. This includes feedback on the utility of the datasets produced and clarification on best practice when using them for model evaluation, assimilation and other applications.

CMUG Objectives

- Support integration within the CCI programme
 - Through requirements and user assessment from data users
 - Through feedback from a "climate system" perspective
- Foster the exploitation of satellite-derived Essential Climate Variables (ECVs)
 - By promoting the use of CCI datasets to climate modellers
 - By building partnership and links with the climate modelling community
 - By working to include CCI data in standard databases and tools
- Assess quality and impact of individual/combined CCI ECVs in climate research and data assimilation contexts
 - By assessing suitability of products for climate applications (e.g. climate modelling, decadal prediction, reanalysis, etc)
 - By quantifying their added value on model performance in an objective manner



ESMValTool

The Earth System Model Evaluation Tool (ESMValTool) is an open-source community-developed diagnostics and performance metrics tool for the evaluation and analysis of Earth System Models (ESMs). ESMValTool allows for a comparison of single or multiple models against predecessor versions and observations. The aim of the ESMValTool is to take model evaluation to the next level by facilitating analysis of many different ESM components, providing well-documented source code and scientific background of implemented diagnostics.



CMUG are working to add diagnostics and performance metrics to ESMValTool which enable tailored analysis for model evaluation with ESA CCI data. This includes implementing new CCI datasets and corresponding diagnostics into the ESMValTool, updating existing datasets, and exploring the use of the CCI datasets uncertainty information.

Scientific Studies – for study details, see other posters



WP5.1 Machine Learning, DLR



WP5.2 Vegetation Phenology, CMCC and Met Office



WP5.3 CCI Land Cover, Météo-France



WP5.4 Ocean Biogeochemistry, Met Office and BSC



WP5.5 Cloud and Aerosol Analysis, BSC and ECMWF



WP5.6 Snow Dynamics, IPSL



WP5.7 Ice Sheets, SMHI and DMI



WP5.8 Tropical Wetland Methane Emissions, NCEO

