

climate change initiative

→ CMUG NEWSLETTER

Issue 6 | January 2016

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CMUG at COP21 in Paris

The Climate Modelling User Group (CMUG) attended the COP21 climate change conference in Paris in December 2015. IPSL scientist Patricia Cadule (right hand picture, seated right) attended the event providing a CMUG perspective on climate observations research. The side event was led by Pascal Lecomte (both pictures), Head of the Climate Office at the European Space Agency, accompanied by Patricia and IGBP-ESA Liaison Officer Cat Downy (seated left). More broadly, the side event provided information on CCI datasets that support understanding of the climate system which underpins the integrity of COP21 negotiations and its subsequent agreements. The event was visited by many delegates who were made aware of CCI CMUG activities, and the benefits of CCI CMUG datasets. For more information visit the ESA Twitter feed at <https://twitter.com/esaclimate/media>.

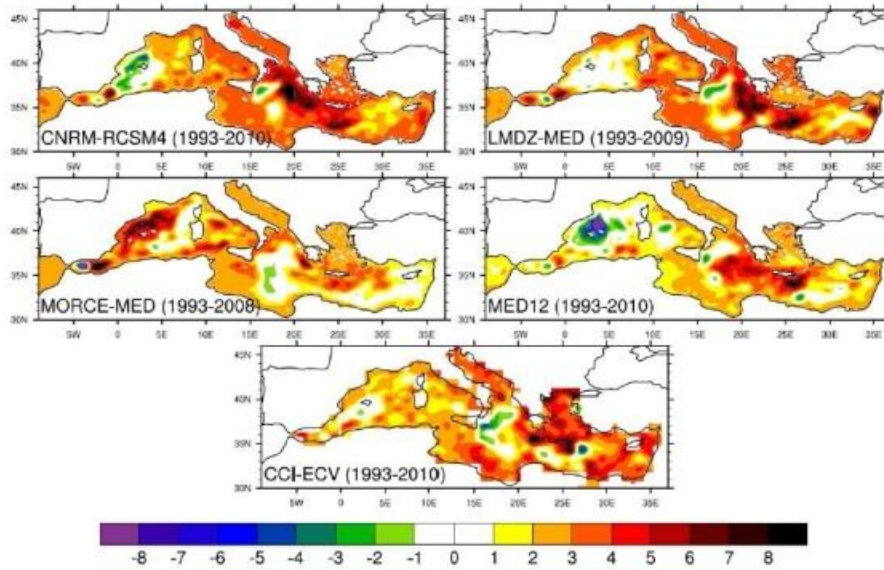
Other Outreach

In other outreach activities CMUG gave presentations at the UK Space conference in July 2015, and the EUMETSAT satellite conference in September 2015. CMUG attended the AGU conference in December 2015. A CMUG researcher attended the AGU conference in December 2015 and represented the project there. Abstracts have been submitted for the GCOS conference in the Netherlands in March 2016, and the Living Planet Symposium in Czech Republic in May 2016. For more information [click here to visit the CMUG events page](#).

Recent CMUG Research Results

Use of CCI sea level data over the Mediterranean

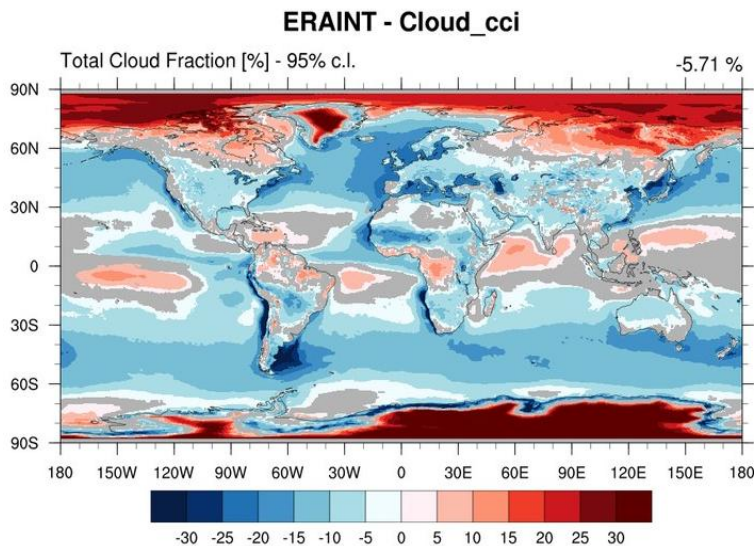
Météo France has extended the confrontation of models with CCI Sea Level data over the Mediterranean area to include the analysis of three coupled regional simulations (CNRM-RCSM, LMDZ-MED, MORCE-MED) and one Mediterranean Sea simulation (MED12) from the Med-Cordex multi-model ensemble. A paper on improving the representation of Mediterranean sea level in regional climate models is in preparation. CCI data enables researchers to better assess model performance in terms of sea level trends. The figure below shows the degree and distribution of modelled sea level anomalies compared with CCI data for the period 1993-2010. The work updates information in section 3.9 of the CMUG [Quality Assessment Report](#).



Trends in Sea Height Anomalies from four models (mm/yr) over the period 1993-2010 compared with CCI data (bottom panel) - (Météo France)

Comparisons of CCI Cloud and Model data

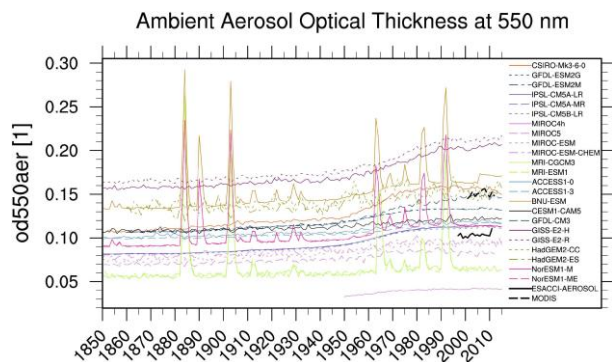
SMHI is progressing an updated cross assessment of CCI ECVs and CMIP5 models, and initial results look promising. Cloud cover from the Cloud CCI has been added to the ESMVal tool, and metrics are being developed to assess climate variability by comparing CCI cloud fraction with CLARA-A2, ERA-Interim, NCEP and CMIP3 models. The figure below shows a recent comparison between ERA Interim and Cloud CCI data, showing the difference to be most significant at the poles and the western coasts of South America and Africa. This updates information in section 3.7 of the CMUG [Quality Assessment Report](#).



Updated cross assessment of Cloud CCI and ERA-Interim (percentage difference) - (SMHI)

Using ESMVal to assess models against CCI datasets

The Earth System Model Evaluation (ESMVal) Tool is being used by DLR to evaluate known systematic biases common to ESMs, such as coupled tropical climate variability, monsoons, Southern Ocean processes, continental dry biases and others. ESMVal is also being used to compare modelled aerosol optical thickness with CCI data, with results shown in the figure below (Eyring et al. 2015, in press). Community participation in its development has encouraged collaboration and the open exchange of source code benefiting researchers and developers. ESMVal will play a crucial role in the CMIP6 for evaluating and understanding the next generation of climate models.



Timeseries of global oceanic mean aerosol optical depth (AOD) from individual CMIP5 models' historical (1850–2005) and RCP 4.5 (2006–2010) simulations, compared with MODIS and ESACCI-AEROSOL satellite data. (Eyring et al. 2015, in press).

CMUG partner LMU is integrating CCI terrestrial datasets into the ESMVal tool and producing statistics for regional climate models. A paper has been submitted to the Journal of Climate (Loew et al. 2016, in press).

Find more information in section 3.6 of the CMUG [Quality Assessment Report](#).

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Climate Data Forum

CMUG

Site

- Home
- Blog
- Community
- Showcase
- ECV Page

Links

- CCI CMUG website
- CCI CMUG wiki
- CCI Data Portal

Models

CMUG Data Forum

Welcome to the New Look Data Forum which has been relaunched to showcase the work varied out by CMUG on the validation of CCI datasets, and where the climate modeling community can share experience using CCI data sets. You'll see some fresh content including videos and blogs, and it will link to the CCI's new Data Portal which will go live soon.

New Features

Dr Rogers Saunders, Chief Scientist for CMUG, pictured right, has made a video outlining the benefits of the CMUG-CCI data sets for use in climate modelling, reanalysis, and other applications [here](#). Roger is Head of Satellite Imagery Applications Group at the UK Met Office, and has more than 25 years experience in processing satellite data for imagery, climate and NWP applications and has worked at ESOC, ECMWF and the Met Office on satellite related projects.

Dr Yoko Tsushima, also pictured right, a senior scientist at the Met Office, has written a [blog](#) on the use of the CMUG-CCI cloud satellite data sets for climate modelling. Yoko is working on understanding cloud-radiation fields and feedbacks using satellite observations and GCMs, including the development of metrics to assess radiative feedbacks in climate models. She is working on a resolution hierarchy for clouds, precipitation, and radiation models, and is leading the development of a set of cloud metrics for the [EUCLIPSE](#) project.

CCI Data Portal

The refresh of this CMUG Data Forum is in parallel with the development of CCI's new Data Portal which is due to be launched soon.

Contribute

We welcome contributions from modellers, scientists, and others with ideas, suggestions and potential applications for the CMUG datasets. The forum is a good place to publicise your work and network with other climate modellers and scientists.

Get in Touch

Contact the CMUG project office at cmug@metoffice.gov.uk

Roger Saunders

Yoko Tsushima

Data

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The CMUG Climate Data Forum

The CMUG climate data forum is being relaunched soon with a different look and feel (left), and with new content and features. It includes a video by CMUG Chief Scientist Roger Saunders outlining the project's aims and achievements. There's also a new blog by the Met Office's Yoko Tsushima on the potential for using Cloud CCI datasets for validating climate models. Validated satellite based cloud records will complement the longer time series but low spatial resolution of ground based records. The Forum includes links to CMUG datasets pending the launch of ESA CCI's data portal.

Participation in the Forum is encouraged via user blogs and videos, and feedback is always welcome.

Visit www.esa-data-cci.org.

Publications

Several new CMUG papers are in preparation and some have been submitted for publication. The paper below on the use of ESMVal in CMUG is under review for the journal Geoscientific Model Development.

Eyring, V., Righi, M., Ewaldsson, M., Lauer, A., Wenzel, S., Jones, C., Anav, A., Andrews, O., Cionni, I., Davin, E. L., Deser, C., Ehbrecht, C., Friedlingstein, P., Gleckler, P., Gottschaldt, K.-D., Hagemann, S., Juckes, M., Kindermann, S., Krasting, J., Kunert, D., Levine, R., Loew, A., Mäkelä, J., Martin, G., Mason, E., Phillips, A., Read, S., Rio, C., Roehrig, R., Senftleben, D., Sterl, A., van Uft, L. H., Walton, J., Wang, S., and Williams, K. D.: ESMValTool (v1.0) - a community diagnostic and performance metrics tool for routine evaluation of Earth System Models in CMIP, *Geosci. Model Dev. Discuss.*, 8, 7541-7661, doi:10.5194/gmdd-8-7541-2015, 2015. Click [here](#) to access it.

In addition LMU has submitted a paper to the *Journal of Climate* (Loew et al. (2016): Assessing surface solar radiation fluxes in the CMIP ensembles. *Journal of Climate*, in press) and ECMWF is preparing two papers, one is a comparative analysis of the assimilation of UV nadir-backscatter and infrared limb-emission ozone data, and one assesses ozone round-robin assimilation experiments in preparation for the ERA5 reanalysis.

CMUG 6th Integration meeting LMU, Munich, March 2016

The next CCI CMUG Integration Meeting will be held on 14-16 March 2016 at the Ludwig Maximilians University (LMU) in Munich, Germany. This annual meeting will be reviewing Phase 2 ECV datasets and evaluating CMUG scientific achievements against objectives. It will also identify applications for climate observations data, and assess the relevance and helpfulness of new ECV data for climate modellers. For more information on this and other CMUG outreach events [click here to visit the CMUG events page](#).



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