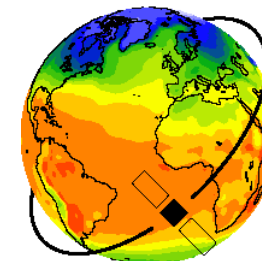


Recent developments in the Earth System Model evaluation tool



ESMValTool

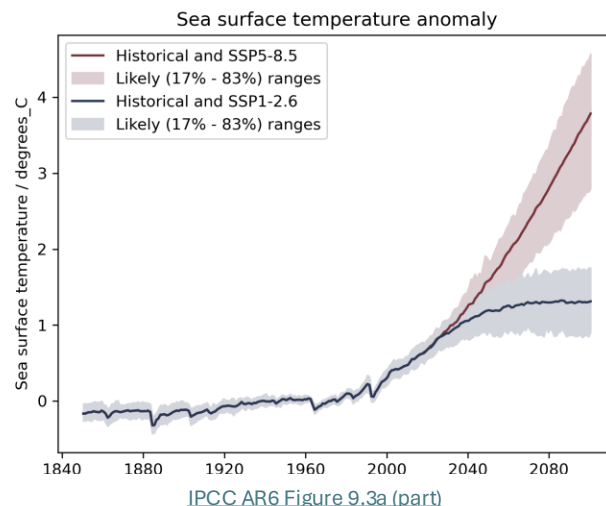
Earth System Model Evaluation Tool

Bouwe Andela¹ (b.andela@esciencecenter.nl), Birgit Hassler², Manuel Schlund², and the ESMValTool development team

¹ Netherlands eScience Center
² German Aerospace Center (DLR)

Introduction

ESMValTool (**E**arth **S**ystem **M**odel **e**Valuation **T**ool) is open-source, [community](#)-developed software for the evaluation of Earth system models, mainly in the context of multi-model analyses, e.g. the Coupled Model Intercomparison Project (CMIP). [ESMValTool](#) provides a large number of “[recipes](#)” that reproduce published figures, for example, some of the figures found in reports of the Intergovernmental Panel on Climate Change (IPCC). [ESMValCore](#), the framework powering ESMValTool, provides capabilities that make it easy to work with data produced for CMIP as well as related observational and reanalysis data, e.g. discovering, [downloading](#), and [preprocessing](#) these data. Here, we present new features that have been added to ESMValCore and ESMValTool in the past year.



Easily reproduce figures from IPCC Assessment Reports

Several recipes for producing figures from IPCC AR5 and AR6 are now available in ESMValTool. These can be used to quickly and easily reproduce these figures.

Faster with less memory



Many more [preprocessor functions](#) and the underlying [Iris](#) functions have now been re-implemented using Dask arrays, reducing the memory requirements of the tool and enabling parallel and distributed execution.

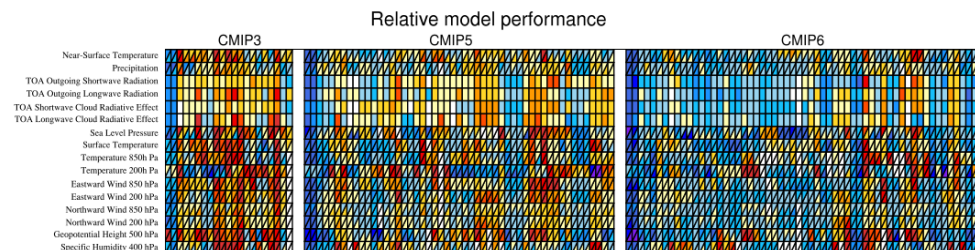
Further performance improvements are planned this year as part of the [ESIWACE3](#) service project.



ESIWACE3 has received funding from the European High Performance Computing Joint Undertaking (EuroHPC JU) and the European Union (EU) under grant agreement No 101093054.

More datasets supported

More [observational and reanalysis datasets](#) can now be converted to the CMIP data request standard using the tool. CORDEX grids are now better supported.



IPCC AR6 Figure 3.42a

Improved training material and more Jupyter notebooks

New [Jupyter notebooks](#) showcasing the use of the [Python API](#) for finding, downloading, preparing data for analysis, running the [preprocessor functions](#), and composing recipes are now available.

The [tutorial](#) has been updated and www.esmvaltool.org is now open-source too.



This poster can be re-used under the [CC-BY license](#).