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# CliMAF, a Climate Model Assessment Framework

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CliMAF (Climate Model Assessment Framework) is a python framework developed in the ANR Convergence project that initially aimed at providing the French climate modelling community with an efficient way to analyse and evaluate our climate simulations efficiently. CliMAF offers a user-friendly way to access various data structures (CF-compliant netcdf files), apply most common pre-treatments to the selected climate data (time averaging, selection of a geographical domain, regridding, etc.), plot the result and possibly insert the images in an html page. CliMAF totally handles the outputs by storing them in a smart cache directory that avoids recomputing using a store key which fully handles data provenance. Additionnaly, any diagnostic script that can be executed within a command line taking as argument an input netcdf file and an output netcdf file or figure and some simple-type parameters can become a CliMAF operator (i.e. incorporated to the CliMAF framework). This takes advantage of the "gluing" capacity of Python.

We now use those CliMAF building blocks at IPSL, CNRM and CERFACS. We use them in Jupyter Notebooks for a specific analysis, as well as in a more massive collection of in-house evaluation diagnostics called C-ESM-EP (CliMAF Earth System Model Evaluation Platform). The C-ESM-EP has been largely used during the development of IPSL-CM6 and we have particularly appreciated its flexibility and adaptability to add new diagnostics following the scientificic needs of the modelling group.

We will present the philosophy of CliMAF and some illustrations of its use.