Climake initial announcement – overview note
4. Sep 2019

Climake is the new scripting tool proposed for creating PGD and clim files in the Météo-France environment (i.e. the MF BULL cluster "beaufix"), for LAM applications. An early announcement of this new script was done at the workshop in Madrid (refer to Claude's system session talk and LTM meeting). This note is the first consortium-wide announcement for this script, and provides details on how to use it.

Climake in a glance:

- the Climake set of scripts has been designed in a way so that updates with respect to the OLIVE equivalent configuration are simplified. This aspect will be of importance for MF updates.

- the Climake reference version is at MF, under the supervision of Florian Suzat.

Any user can clone the Climake folder to a local directory on "beaufix". To do so, go to the directory where you want to upload the Climake script system (for instance create a directory $HOME/CLIMAKE) and launch the command:

> ~suzat/SAVE/cloneClimake

As a result, you will get a directory tree under your current directory (for instance $HOME/CLIMAKE if you created one). This directory contains:
- a README file with more details for getting started
- a directory 'geometries' containing only the geometry related namelist blocks for each domain (both for PGD and 923). The LBC/telecom domains produced in MF are present there for any new sync. For a new geometry you'd like to create, you can add your own file there.[1]
- a directory 'namelists' containing the generic PGD and 923 namelists files (others than geometry). Note that the default version of the generic namelists are taken from the GCO historic archive (the one referenced via the "*genv*" command). But you can specify a custom path for namelists if you want.
- a directory 'scripts' containing the various scripts files needed for this configuration. They are ordered in 4 steps and can be edited for specific changes by the user. Take care of course not to break the general functioning of the script when doing so (or ask the Climake support for support ...).
- the 'Climake' main script for which you'll have to well define the command line options, according to the examples and explanations in the README file. As an alternative, you may use the input profile file to run Climake. "Climake" will make some controls of coherence of the command line options, and eventually launch the whole process. It will prompt the options before the start.

---

[1]*In future, we could add a few other domain definitions as default there for the partners, to be discussed.*

- be aware that Climake versions may evolve from time to time, be it simply for updating specific parameters like a binary reference version at MF. Thus, it is highly recommended to regularly clone the Climake script (within your local Climake directory) so that you make sure that you use the most recent version:

> *rsync -av ~suzat/SAVE/CLIMAKE*

This is further detailed in the README file. For convenience, at any launch, Climake will check whether the local version is the most recent one (from the administrator's repository), and it will prompt a warning message if this is not the case.

- Climake will offer a few basic cases, like the operational LBC-telecom domain definitions (those defined in MF's production suite). Climake will generate output and log-file information, which should enable any user to cross-check a Climake run from somebody else ... or himself.
Note that to save space on $HOME directory, the $WORKDIR is not saved and will automatically be erased. But if you want, you can save the $WORKDIR so that you will be able to keep all temporary files. If you do so, please take great care not to keep a large volume of data stored on disk under $HOME (on "beaufix"). For work files you want to keep safe, "hendrix" should definitely be considered.

- Climake will use GMTED-2010 7.5s as the default input orography data base (which is now being used in the Arome models at MF).

We suggest to now also use these data for new LAM clim files, including new LBC domains.
You don't have to recompute already now any of your own local model clim files though,
you may decide later whether you want to change them for your integration domain(s).
Conversely, you may decide to change the orography input base in Climake (eg use GTOPO30), by directly modifying the Climake script in your local directory.
We can provide a simple support for the edit of the script if required.

- Climake for the time being offers to compute PGD/e923 files for LBC/telecom domains or model integration domains.
Climake will generate by default both the PGD and the e923 clim file. Note 1: for LBC/telecom domains, the PGD file is actually not required (we nevertheless decided to keep it hard-coded in the script). Note 2: for model configurations not using SURFEX, the PGD file also won't be necessary.

We recall that for model integration domains (the most "standard" case in a way), the e923 orography is computed in a two step procedure. The first step will use a spectral fitted orography over a quadratic truncation (this is generic behaviour) and compute the grid-point orography (and store it in the file). In the second step, the spectral orography is padded with zeroes in order to fill the spectrum as for a linear truncation spectral orography, though physically the spectral orography field will have OROGRAPHY_TRUNCATION resolution (thus QUADRATIC in the general case). The orography in the PGD file will be overwritten with the grid-point field from the e923 conf at the end of Climake (step 4).

For LBC/telecom domains, there is only one step in the orography computation using straight away a quadratic truncation (standard tuning but you could choose CUBIC or LINEAR, see footnote) and the second orography pass is not required.

The extension of Climake to lat/lon (so-called BDAP) domains is under way and will be part of a version release update later this year.

There are other minors features not detailed here, but in the README. Do not hesitate to ask for information, or maybe for new features.

Climake has been developed by GMAP with the help of Aladin team staff. A special thank here to Florian, Suzana, Mariska and Martina.
The main contact at MF for Climake will be Florian Suzat (florian.suzat@meteo.fr).
We suggest that you also send questions in cc to Claude (claude.fischer@meteo.fr), Mariska (maria.derkova@shmu.sk) and Suzana (suzana.panezic@cirus.dhz.hr).