Wikiprint Book

Title: 1. modipsl

Subject: lgcmg_doc - Doc/Tools

Version: 59

Date: 05/01/24 07:44:50

Table of Content

Tools developed by IPSL and IPSL partners

Many software programs are developed at IPSL or at IPSL's partners (see list below).

1. modipsl

modipsl is a suite of scripts which allow you to :

- obtain a given model configuration from a server;
- compile a configuration on a specific machine.

More information on how to retrieve and use modipsl can be found here.

2. libIGCM

libIGCM is a running environment library which allow you to run a simulation on a specific machine by launching computing and post-processing jobs.
Detailed information about **libIGCM** can be found ■here.

3. XIOS

XIOS (XIOS stands for XML-IO-SERVER) is an output library which allows you to manage I/Os in climate models in a flexible and efficient way. XIOS 1.0 is currently used in all of IPSL components. Here are XIOS main features :

- library dedicated to IO management of climate code, developed at IPSL.
- XML configuration file.
- attached mode (library) or server mode (asynchronous transfer), multiple (sequential writing) or single (parallel writing) output file.
- NetCDF format.

More information can be found ■here.

4. IOIPSL and REBUILD

4.1. IOIPSL

IOIPSL is an I/O library for the IPSL models. This library is not being further developed (except to fix bugs). The XIOS library has replaced IOIPSL in the IPSL models for output handling. IOIPSL is still used in IPSL components for restart and input actions.

4.2. Rebuild

Rebuild is a tool which allows you to concatenate model output files in NetCDF format. At the end of a simulation, files for each process are automatically (thanks to libIGCM) assembled to a global grid into one single output file. Rebuild is developed at IPSL and is a fortran code included in IOIPSL extended version.
For each machine a Rebuild executable is provided in the shared tools folder. You can also compile your own executable adapted to your machine, see how to install here. Thanks to XIOS output library (parallel writing functionality) rebuild is not used anymore in v6 configuration.

5. Tools to prepare a coupled configuration

5.1. MOZAIC

MOZAIC is the legacy code used to build interpolation weights between ocean and atmosphere. It should be considerer as obsolete. It's a messy sequential code. See DocToolsMozaic?

5.2. MOSAIX

MOSAIX is the new code that creates the interpolation weights between ocean and atmosphere. It's a set a bash, Python and fortran code that uses XIOS for computing the weigthts. It can be used in parallel.

5.3. CPLRESTART

CPLRESTART is a small fortran code that builds the restart file for OASIS. It needs outputs from forced configurations (grid_T file from NEMO, histmth file from LMDZ). See DocToolsCplrestart?

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6. AddNoise

AddNoise allows you to apply an equi-distributed white noise which amplitude can be specified in a restart file in order to prepare ensemble experiments. See also : DocEsetup

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7. FAST/ATLAS

Detailed information about Fast and Atlas can be found ■here.

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8. WEB applications

■http://webservices.ipsl.fr/

8.1. Trusting

■http://webservices.ipsl.fr/trusting/

8.2. Intermonitoring

The ■https://github.com/PBrockmann/interMonitoring intermonitoring is closely related to the monitoring. Read more in chapter *Simulation and post-processing*: DocFsimu.

See also information at webservices page : ■http://webservices.ipsl.fr/monitoring/

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9. OASIS

OASIS is a tool developed at Cerfacs (Toulouse, France) which allows you to couple different climate model components. It allows the synchronized exchange and the interpolation of information between model components. OASIS is used in the IPSL Earth System model to couple NEMO (the ocean model) and LMDZ (the atmospheric model). The modipsl and libIGCM tools manage the OASIS setup and compilation. OASIS3 (sequential coupler) was used in IPSLCM5 coupled model. OASIS3-MCT (parallel coupler) is currently used in IPSLCM6 coupled model.

More information on OASIS is available ■here.