IPSLCM6_LR - (IPSLCM6_rc1) configuration

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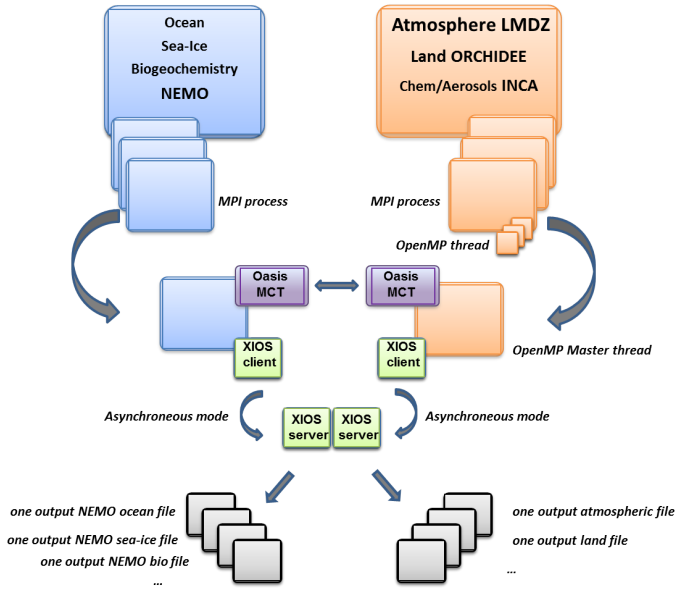
1. IPSLCM6 model

You can find here a description for IPSLCM6 model

The version rc1 (IPSLCM6_rc1) runs on **Curie-TGCC thin nodes**.



2. Resolutions and configurations

IPSLCM6 model will be available at different resolutions/configurations :

- **IPSLCM6A-VLR_rc0** : LMDZ(Old Physics) 96x95x39-ORCHIDEE (Choisnel) - NEMO-LIM2-PISCES ORCA2. You can find here informations for the VLR (IPSLCM6_rc0) configuration.
- **IPSLCM6-LR** (under development, **not available**) : LMDZ 144x144x79-ORCHIDEE (CWRR) - NEMO-LIM3-PISCES eORCA1xL75

2.1. IPSLCM6-LR_rc1

The resolution of LMDZ is 144x142 (2.5° in longitude and 1.5° in latitude) with 79 vertical levels. The ocean configuration is eORCA1L75 : global ocean with a tripolar grid with one South pole, one North pole above Siberia and one North pole above northern America. The resolution is 1°. In the tropical region, the latitudinal resolution decreases to 1/2°. There are 76 vertical levels, with 1m resolution near the surface, and 200m in the abyss.

For LMDZ, the new physics is used. Current test (Sept. 2015) is NP 5.17h.

IPSLCM6-LR_rc1 is composed of following components and tools (Sept. 2015) :

```
#-H- IPSLCM6_rc1  IPSLCM6_rc1 coupled configuration
#-H- IPSLCM6_rc1  Working configuration started 27/03/2015
#-H- IPSLCM6_rc1  NEMOGCM branches/v3_6_STABLE/NEMOGCM revision 5618
#-H- IPSLCM6_rc1  XIOS branch xios-1.0 revision 592
#-H- IPSLCM6_rc1  IOIPSL/src svn tags/v2_2_2
#-H- IPSLCM6_rc1  LMDZ5 trunk revision 2327
#-H- IPSLCM6_rc1  ORCHIDEE version trunk rev 2724
#-H- IPSLCM6_rc1  OASIS3-MCT 2.0_branch rev 1129
#-H- IPSLCM6_rc1  IPSLCM6 svn
#-H- IPSLCM6_rc1  libIGCM trunk 1174
#-M- IPSLCM6_rc1  arnaud.caubel@lsce.ipsl.fr
#-C- IPSLCM6_rc1  IOIPSL/tags/v2_2_2/src                    HEAD         8  IOIPSL/src     modeles
#-C- IPSLCM6_rc1  trunk/ORCHIDEE                            2848        14  ORCHIDEE       modeles
```

```
#-C- IPSLCM6_rc1  branches/OASIS3-MCT_2.0_branch/oasis3-mct 1129        15  oasis3-mct     .
#-C- IPSLCM6_rc1  LMDZ5/trunk                                2327        11  LMDZ           modeles
#-C- IPSLCM6_rc1  CONFIG/UNIFORM/v6/IPSLCM6                  HEAD         8  IPSLCM6        config
#-C- IPSLCM6_rc1  trunk/libIGCM                              1174        10  libIGCM        .
#-C- IPSLCM6_rc1  branches/2015/nemo_v3_6_STABLE/NEMOGCM             5618         7  .              modeles
#-C- IPSLCM6_rc1  trunk/ORCA1_LIM3_PISCES                    HEAD        17  .              modeles/NEMOGCM/CONFIG
#-C- IPSLCM6_rc1  XIOS/branchs/xios-1.0                       604        12  XIOS           modeles
```

Caution : this is subject to quick changes !

2.1.1. How to use it

Here are the commands you need to know if you want to retrieve and compile the IPSLCM6 model and if you want to setup and run a piControl experiment (only piControl experiment is available):

```
mkdir YOUR_DIRECTORY ; cd YOUR_DIRECTORY
svn_ano # svn co http://forge.ipsl.fr/igcmg/svn/modipsl/trunk modipsl
cd modipsl/util
./model IPSLCM6_rc1
cd ../config/IPSLCM6
gmake IPSLCM6-LR
cp EXPERIMENTS/IPSLCM6/EXP00/config.card .
vi config.card # modify JobName (at least) : MYJOBNAME, restarts
../../util/ins_job # Check and complete job's header
# ../../util/ins_job -m Intel # on ada after a compilation with Intel 2016.2
cd MYJOBNAME
vi Job_MYJOBNAME # modify PeriodNb, adjust the time, headers ...
llsubmit Job_MYJOBNAME # IDRIS
ccc_msub  Job_MYJOBNAME # TGCC
```

2.1.2. Restart files

Not available yet. Waiting for reference simulations.

2.1.3. Output level

By default, only **monthly outputs** and **low output levels** are activated.

2.1.4. Lengths, frequencies

2.1.4.1. Period length

Default period length is 1Y, i.e in config.card :

```
PeriodLength=1Y
```

Note that clean_PeriodLength.job will remove last period files, i.e last simulated year files.

2.1.4.2. Pack Frequency

Default pack frequency is 1Y, i.e in config.card :

```
PackFrequency=1Y
```

2.1.4.3. Rebuild frequency

Since we run with XIOS (server mode) as output library, **the rebuild step is not needed anymore**.

2.1.4.4. How to add a parameter in NEMO's namelist?

- let find the parameter in namelist_ref. For example in modeles/NEMOGCM/CONFIG/SHARED/namelist_ice_lim3_ref

- let find the namelist's name : for example &namicedyn
- let add a line with the new of the parameter in the file PARAM/namelist_lim3_ORCA1_cfg in the &namicedyn section

2.1.4.5. What is the maximum length for a simulation name?

Due to limitation in NEMO, a simulation should have **less than 39 characters**.

2.1.5. Computing centres

2.1.5.1. TGCC Bull Curie thin nodes (not anymore in service)

Default configuration on **598 cores** allows you to run **3 simulated years per day**. Because of load-balancing (difference between ocean computing time and atmosphere computing time), not all configurations (in terms of number of process/threads) are efficient. If you want to run a configuration with less cores, ask Arnaud Caubel what would be the optimum configuration.