The NEMO configurations

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NEMO configurations

The "offiline" or "forced" NEMO configuration which is described here is an ocean-sea ice configuration based on the ORCA (2° resolution) tripolar grid, coupled with the marine biogeochemistry model PISCES. This configuration is named ORCA2_LIM_PISCES and is based on the v3.6 stable version of NEMO - the one which will be used for the CMIP6 exercise

To find out more about the model description and the reference configurations, go here: ■http://www.nemo-ocean.eu/About-NEMO. To use and extract NEMO, you first need to register and choose a login/passwd

1. Retrieving NEMO and the reference configurations

XIOS is not available when getting NEMO. So first of all extract and install XIOS 1.0. This operation need to be done only once

```
cd $WORKDIR
svn co http://forge.ipsl.jussieu.fr/ioserver/svn/XIOS/branchs/xios-1.0 -r 703  xios-1.0
ln -s   xios-1.0   XIOS
cd XIOS
on ada :   ./make_xios --arch X64_ADA --full --prod --job 8
on curie :   ./make_xios --arch X64_CURIE --full --prod --job 8
```

```
#-H- NEMO_v6  NEMOGCM for CMIP6 exercise
#-H- NEMO_v6  libIGCM tag libIGCM_v2.7
#-M- NEMO_v6  Christian.Ethe@ipsl.jussieu.fr
#-C- NEMO_v6  tags/libIGCM_v2.7                                                HEAD  10 libIGCM
#-C- NEMO_v6  branches/2015/nemo_v3_6_STABLE/NEMOGCM                           5618  7   .
#-C- NEMO_v6  trunk/ORCA1_LIM3_PISCES                                          HEAD  17  .              modeles/
#-C- NEMO_v6  CONFIG/UNIFORM/v6/NEMO_v6                                        HEAD  8   NEMO_v6
```

1.1. Setting up NEMO with the modipsl environment

1.1.1. Retrieval

```
mkdir NEMO_STD
cd NEMO_STD
svn co http://forge.ipsl.jussieu.fr/igcmg/svn/modipsl/trunk modipsl
cd modipsl/util
./model NEMO_v6
```

1.1.2. Compiling and installing

Compiling NEMOGCM : config ORCA2_LIM_PISCES on ADA/CURIE

```
cd modipsl/modeles/NEMOGCM/CONFIG
./makenemo -h  all   # help to see the options and the available arch
```

Available compilers at CNRS :

- ALTIX_JADE : ifort compiler options for CINES SGI-ALTIX Jade, ■http://www.cines.fr/spip.php?rubrique291
- BG_BABEL : babel IBM BlueGene/P at french IDRIS, ■http://www.idris.fr/su/Scalaire/babel
- X64_ADA : Ada IBM x3750 at french IDRIS, ■http://www.idris.fr/ada/ada-hw-ada.html
- TX7_ULAM : ulam IBM X3950 M2 at french IDRIS, ■http://www.idris.fr/su/Scalaire/ulam/hw-ulam.html
- X64_CURIE : Curie BULL at french TGCC, ■http://www-hpc.cea.fr/en/complexe/tgcc-curie.htm
- X64_TITANE : titane BULL at french CCRT, ■http://www-ccrt.cea.fr/fr/moyen_de_calcul/titane.htm

- X86_CESIUM : cesium pre/post processing HP at french CCRT, doesn't exist anymore.

```
on ada : ./makenemo -n ORCA2_LIM_PISCES -m X64_ADA -j 8
on curie : ./makenemo -n ORCA2_LIM_PISCES -m X64_CURIE -j 8
```

And the copy the binary in the appropriate directory

```
cp ORCA2_LIM_PISCES/BLD/bin/nemo.exe   ../../../bin/.
```

2. Creating the job

```
cd modipsl/config/NEMO_v6
cp EXPERIMENTS/ORCA2_LIM_PISCES/clim/config.card .

../../libIGCM/ins_job
```

3. Running the model

3.1. Input files: atmospheric forcings, initial states, namelists

The card files (opa9.card for orca2_lim and pisces.card for pisces) contain the list of files needed to perform the simulation.
These files are described here: ■https://forge.ipsl.jussieu.fr/igcmg_doc/wiki/DocImodelAnemo

3.2. The run

This example is a 50-years run of ORCA2_LIM_PISCES split in 1-year jobs.

```
JobName=OR2L2P
#----- Short Name of Experiment
ExperimentName=ORCA2clim
#----- DEVT TEST PROD
SpaceName=DEVT
LongName="ORCA2_LIM2_PISCES NEMO configuration"
TagName=ORCA2_LIM2_PISCES
#D- Choice of experiment in EXPERIEMENTS directory
ExpType=ORCA2_LIM2_PISCES/clim
#============================
#-- leap, noleap, 360d
CalendarType=noleap
#-- Begin and end of Job
#-- "YYYY-MM-DD"
DateBegin=0001-01-01
DateEnd=0050-12-31
#============================
#-- 1Y, 1M, 5D, 1D
PeriodLength=1Y
#============================
```

3.2. Submlit the job

```
on ada :   llsubmit Job_OR2L2P1 /
on curie:  ccc_msub Job_OR2L2P1
```

3.3. Performance

The ORCA2_LIM and ORCA2_LIM_PISCES configurations' performance can be found here:
■https://forge.ipsl.jussieu.fr/igcmg/wiki/PerformancesIPSLCM5A#NEMO2