Wikiprint Book

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How to use the IPSL models and tools at LSCE

The LSCE computing environment is detailed here: ■https://w3.lsce.ipsl.fr/informatique/util/index.php. You can only access this webpage via the LSCE network.

- The interactivity

  The network includes a cluster for the interactive mode. This cluster is considered as a unique machine called **asterix.lscelb.extra.cea.fr** which can be shorten into **asterix.lscelb**.

The direct access to the cluster is only possible from the LSCE or from the CCRT machines. The cluster can be accessed via ssh and xdmcp protocols.

- The computing cluster

  The LSCE has a small computing cluster. See its users' manual here: ■https://w3.lsce.ipsl.fr/informatique/util/calcul/batch.php. This cluster is considered as a unique machine called *obelix.lscelb.extra.cea.fr* which can be shorten into **obelix.lscelb**.

1. Modipsl and compiling

By default the compiling is meant to function in MPI parallel mode. The compiler is `ifort` (*Intel* compiler). The **lxiv8** target in modipsl/util/AA_make.gdef is used on obelix. To this day, only ORCHIDEE is installed on obelix.

You must modify the makefile **to run in sequential mode**. To do so change the following lines in modipsl/util/AA_make.gdef

```
#-Q- lxiv8    F_C = mpif90 -c -cpp
#-Q- lxiv8    F_O = -DCPP_PARA -O3 $(F_D) $(F_P) -I$(MODDIR) -module $(MODDIR)
#-Q- lxiv8    F_L = mpif90
```

in

```
#-Q- lxiv8    F_C = ifort -c -cpp
#-Q- lxiv8    F_O = -O  $(F_D) $(F_P) -I$(MODDIR) -module $(MODDIR)
#-Q- lxiv8    F_L = ifort
```

Then recreate the makefile with ./ins_make and compile as usual.

2. libIGCM and environment

libIGCM can be used on the LSCE computing cluster.

The default shell at LSCE is `tcsh`, which syntax is different from the `ksh` syntax used by libIGCM. To configure your environment correctly in order to correctly run libIGCM in `ksh`, the easiest is to copy the files `/home/users/igcmg/.bashrc` in your `$HOME`.

3. Example of parallel MPI job

Here is an example of a simple job to run the orchidee_ol executable. All input files and the executable must be in the directory before running the executable.

```
######################
## OBELIX      LSCE ##
######################
#PBS -N MyTest
#PBS -m a
#PBS -j oe
#PBS -q medium
#PBS -o Script_Output_SECHSTOM.000001
#PBS -S /bin/ksh
#PBS -v BATCH_NUM_PROC_TOT=4
#PBS -l nodes=1:ppn=4
```

```
cd $PBS_O_WORKDIR
mpirun -np ${BATCH_NUM_PROC_TOT} orchidee_ol
```

To submit it you need to use the command **qsub**, and you can follow your simulation with the command **qstat -u login**