

Wikiprint Book

Title: 1. FAQ : Setting up and performing a simulation

Subject: Igcmg_doc - Doc/FAQ

Version: 100

Date: 06/29/24 09:27:12

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Frequently Asked Questions

Frequently (and not so frequently) Asked Questions

1. FAQ : Setting up and performing a simulation

1.1. How do I overwrite an existing simulation?

If you want to relaunch a simulation from the beginning you need to delete everything created previously. All the output files must be deleted because they cannot be overwritten. They are 2 ways to do it, one using the `purge` tool from libIGCM otherwise to delete everything manually.

1. Use libIGCM purge

To purge your simulation (ie delete all outputs) just run:

```
path/to/libIGCM/purge_simulation.job
```

2. Manual purge

Do remove all outputs created by simulation, do the following:

1. Delete the `run.card` file in your experiment directory.
2. Delete all output directories:
 - at TGCC
 - `$CCCSTOREDIR/IGCM_OUT/TagName/(...)/JobName`
 - `$CCCWORKDIR/IGCM_OUT/TagName/(...)/JobName`
 - `$SCRATCHDIR/IGCM_OUT/TagName/(...)/JobName`
 - at IDRIS
 - `(new ergon?):$HOME/IGCM_OUT/TagName/(...)/JobName`
 - `jeanzay : $WORKDIR/IGCM_OUT/TagName/(...)/JobName`
1. Launch the job.

TIP: If you have already done a simulation before you could find all output paths in the `Script_output*` file. Delete it before starting a new simulation.

1.2. How do I continue or restart a simulation?

See [here](#).

1.3. How do I setup a new experiment?

See [here](#).

1.4. How can I start from another simulation?

See [here](#).

1.5. How do I create the LMDZ histins.nc file?

You have several options to create instantaneous output file. The easiest one is to change the output frequency of one of the existing files. For instance, you can change the output frequency of the `histhf.nc` file to instantaneous without changing the file name. To do so, keep HF in WriteFrequency in `config.card`:

```
[ATM]
#
WriteFrequency="1M 1D HF"
```

Change the 3rd column of the `phys_out_filetimesteps` parameter in `PARAM/output.def_OutLevel`. `OutLevel` is chosen in `lmdz.card` and by default `OutLevel=low`. Specify `1800.s` in `PARAM/output.def_low` if you want the output to be saved every 30 minutes:

```
phys_out_filetimesteps = 1.mth, 1.day, 1800.s, 0.125day, 0.125day, 1800.s
```

You can also change `phys_out_filelevels` in the 3rd column.

2. FAQ : Running the model

2.1. How do I read the Script_Output file?

During each job execution, a corresponding `Script_Output` file is created.

Important : If your simulation stops you can look for the keyword "IGCM_debug_CallStack" in this file. This word will be preceded by a line giving more details on the problem that occurred.

Click [here for more details](#).

2.2. The LMDZ parallelism and the Bands files

See [here](#).

2.3. How do I define the number of MPI jobs and the number of OpenMP threads?

If you run your model in MPI mode only (without OpenMP) the number of MPI processes is defined in `config.card` by the `JobNumProcTot` parameter:

```
#-- Total Number of Processors
JobNumProcTot=32
```

If you run your model in hybrid mode (MPI-OpenMP), the number of MPI processes and the number of OpenMP threads are set in `config.card` in the section "Executable". You still need to precise the CPU total number in `JobNumProcTot` parameter by summing all components processes.

For instance, for LMDZ : 16 MPI processes and 2 OpenMP threads (ATM component needs $2OMP \times 16MPI = 32CPU$).

```
ATM= (gcm.e, lmdz.x, 16MPI, 2OMP)
```

Notice that the job header differs from the one for openMP because you fill the total of core to use.

2.4. Why does the `run.card` file contain the keyword `Fatal`?

The keyword `Fatal` indicates that something went wrong in your simulation. Below is a list of the most common reasons:

- a problem was encountered while copying the input files
- the frequency settings in `config.card` are erroneous
- `run.card` has not been deleted before resubmitting a simulation, or "OnQueue" has not been specified in `run.card` when continuing a simulation
- a problem was encountered during the run
- the disk quotas have been reached
- a problem was encountered while copying the output files
- a post processing job encountered a problem

`pack_XXX` has failed and caused the simulation to abort. In this case, you must find `STOP HERE INCLUDING THE COMPUTING JOB` located in the appropriate output pack file.

- `rebuild` was not completed successfully (for ORCHIDEE_OL)

See the corresponding chapter about [monitoring and debug](#) for further information.

2.5. How do I use a different version of libIGCM?

libIGCM is constantly being updated. We recommend to choose the latest tag of libIGCM. Here is what to do:

- save the old libIGCM version (just in case)
- get new libIGCM
- reinstall the post processing jobs
- make sure that there has been no major change in AA_job, otherwise reinstall the main job

```
cd modipsl
mv libIGCM libIGCM_old
svn checkout http://forge.ipsl.jussieu.fr/libigcm/svn/tags/libIGCM_v2.8.4 libIGCM
libIGCM/ins_job #
```

In case you need version XXX of the trunk of libIGCM, change the "svn checkout" line into:

```
svn checkout -r XXX http://forge.ipsl.jussieu.fr/libigcm/svn/trunk/libIGCM libIGCM
```

If AA_job has been modified, you must :

- move to the experiment directory,
 - delete or move old jobs
- rerun the new jobs using ins_job. MYCONFIG could be IPSLCM6 or ORCHIDEE_OL, for example:

```
cd ../../config/MYCONFIG/MYEXP
mv Job_MYEXP OLDJOB # save the old job
../../libIGCM/ins_job
# modifier Job_MYEXP : NbPeriod, memory,... as it was done in OLDJOB
```

2.6. How do I restart a simulation to recover missing output files?

TO BE DONE ON JEANZAY (idea : change \$STOREDIR by jeanzay workdir)

This method shows how to rerun a complete simulation period in a different directory (REDO instead of DEVT/PROD).

Example : To rerun v3.historicalAnt1 to recompute a whole year (e.g. 1964) you must :

- On the file server (CCCSTOREDIR), create the necessary RESTART file.

```
## Directory
mkdir $CCCSTOREDIR/...IGCM_OUT/IPSLCM5A/REDO/historicalAnt/v3.historicalAnt1
cd $CCCSTOREDIR/...IGCM_OUT/IPSLCM5A/REDO/historicalAnt/v3.historicalAnt1
# RESTART
mkdir -p RESTART ; cd RESTART
ln -s ../../../../PROD/historicalAnt/v3.historicalAnt1/RESTART/v3.historicalAnt1_19640831_restart.nc v3.historicalAnt1REDO
```

- There is nothing to do for the Bands file, it's save at previous period in PARAM directory, and the simulation know where to find it.
- If you are running a coupled model : On the scratch disk (\$CCCSCRATCHDIR/IGCM_OUT), create the mesh_mask file

```
mkdir $CCCSCRATCHDIR/...IGCM_OUT/IPSLCM5A/REDO/historicalAnt/v3.historicalAnt1REDO
cd $CCCSCRATCHDIR/...IGCM_OUT/IPSLCM5A/REDO/historicalAnt/v3.historicalAnt1REDO
# mesh_mask
mkdir -p OCE/Output
cd OCE/Output
ln -s ../../../../PROD/historicalAnt/v3.historicalAnt1/OCE/Output/v3.historicalAnt1_mesh_mask.nc v3.historicalAnt1REDO
cd ../../
```

- On the computing machine:
 - create a new directory

```
cp -pr v3.historicalAnt1 v3.historicalAnt1REDO
```

- in this new directory, change the run.card file and set the following parameters to:

```
OldPrefix= v3.historicalAnt1_19631231
PeriodDateBegin= 1964-01-01
PeriodDateEnd= 1964-01-31
CumulPeriod= xxx # Specify the proper "cad" value, i.e. the same month in the run.card cookie (ARGENT)
PeriodState= OnQueue
```

- change the config.card file to one pack period (1 year), do not do any post processing, start rebuild month by month (only for ORCHIDEE_OL) and specify PackFrequency.

```
JobName=v3.historicalAnt1
...
SpaceName=REDO
...
DateEnd= 1964-12-31
...
RebuildFrequency=1M # only for ORCHIDEE_OL
PackFrequency=1Y
...
TimeSeriesFrequency=NONE
...
SeasonalFrequency=NONE
```

- you don't need to change the name of the simulation
- restart the simulation :

```
vi run.card # check one more time
vi Job_v3.historicalAnt1 # check the time parameters and names of the output scripts
ccc_msub Job_v3.historicalAnt1
```

- once the job is finished, if you are running a coupled mode : check that the solver.stat files are identical. The solver.stat files are stored in DEBUG :

```
sdiff OCE/Debug/v3.historicalAnt1REDO_19640901_19640930_solver.stat /dmnfs11/cont003/p86maf/IGCM_OUT/IPSLCM5A/PROD/histo
```

2.7. How can I change the atmosphere horizontal resolutions using the same LMDZOR libIGCM configuration ?

To do this you have to make some changes in your files.

- in the modips/config/LMDZOR directory, modify your Makefile to add the resolutions you need. Here is an example for 48x48x79 resolution:

```
LMD4848-L79 : libioips1 liborchidee lmdz48x48x79 verif
    echo "noORCAxLMD4848" >.resol_48x48x79
    echo "RESOL_ATM_3D=48x48x79" >>.resol_48x48x79

lmdz48x48x79:
    $(M_K) lmdz RESOL_LMDZ=48x48x79
```

- Also add the resolution "\$(RESOL_LMDZ)" in the name of executables :

```
(cd ../../modeles/LMDZ; ./make_lmdz_fcm -cpp ORCHIDEE_NOOPENMP -d $(RESOL_LMDZ) -cosp true -v true -parallel mpi -arch $(FC)
(cd ../../modeles/LMDZ; ./make_lmdz_fcm -cpp ORCHIDEE_NOOPENMP -d $(RESOL_LMDZ) -cosp true -v true -mem -parallel mpi -arch
```

- in modips/libIGCM/AA_job replace .resol by .resol_myresolution like this :

```
[ -f ${SUBMIT_DIR}/../.resol ] && RESOL=$(head -1 ${SUBMIT_DIR}/../.resol)

become
```

```
[ -f ${SUBMIT_DIR}/../.resol_myresolution ] && RESOL=$(head -1 ${SUBMIT_DIR}/../.resol_myresolution)
```

- modify the modipsl/config/LMDZOR/GENERAL/DRIVER/lmdz.driver by replacing

```
[ -f ${SUBMIT_DIR}/../.resol ] && eval $(grep RESOL_ATM_3D ${SUBMIT_DIR}/../.resol) || RESOL_ATM_3D=96x95x19
```

by

```
[ -f ${SUBMIT_DIR}/../.resol_myresolution ] && eval $(grep RESOL_ATM_3D ${SUBMIT_DIR}/../.resol_myresolution) || RESOL_ATM_3D=96x95x19
```

Now you can create as many experiment as you have compiled your model.

```
cd modipsl/config/LMDZOR/
cp EXPERIMENT/LMDZOR/clim/config.card .
etc...
```

Warning: you'll need to get parameter files and maybe some forcing ones corresponding to the resolution.

3. FAQ : Special configurations

3.1. How do I create the initial conditions for LMDZOR?

For a few configurations such as LMDZOR and LMDZREPR, you must create initial and boundary conditions in advance. This is not necessary for coupled configurations such as IPSLCM6.

For more information, see [this chapter](#).

3.2. How do I deactivate STOMATE in IPSLCM5 or in LMDZOR?

[Here is how to do it.](#)

3.3. How do I perform a nudged run?

Atmospherical nudging

This paragraph describes how to perform a nudged run for configurations that include LMDZ. To do so, you have to:

- activate option `ok_guide` in the `lmdz.card` file (this option enables you to activate the corresponding `flag_` in `PARAM/guide.def`)
- check that the wind fields specified are contained in `BoundaryFiles`. ([Several forcing](#) are available on Irene)

For example:

```
[BoundaryFiles]
List= ....\
      (/ccc/work/cont003/subips1/subips1/ECMWF96x95/AN${year}/u_ecmwf_${year}${month}.nc, u.nc)\
      (/ccc/work/cont003/subips1/subips1/ECMWF96x95/AN${year}/v_ecmwf_${year}${month}.nc, v.nc)\
```

- choose the proper dates in `config.card` (pay attention to leap years)

Oceanic nudging

To force the oceanic model in salinity or SST you could find the procedure in [NEMO official documentation](#) (section 7.12.3: *Surface restoring to observed SST and/or SSS*)

Notice that NEMO uses the salinity nudging, by default, when it's used in oceanic forced configurations.

3.4. How do I run simulations with specific versions of compiler and/or libraries on Irene at the TGCC ? (modules)

For various reasons you may want to run simulations with different versions of compiler or libraries (mainly netCDF).

The first thing is to keep a dedicated installation of modipsl for this specific setup since you will have to modify the libIGCM associated with the simulations.

Keep in mind that you need the modules of the libraries you want to use to be properly loaded at both:

- compile time
- run time

Compile time

You can create a script shell that unloads the modules of the default configuration and loads the modules you want to use. Here is an example of the file `modules.sh` to use intel/12 and netCDF3.6.3: (the order in which you unload and load the modules is important)

```
#!/bin/bash

#set -vx

# unload modules
module unload nco      #/4.1.0
module unload netcdf  #/4.2_hdf5_parallel
module unload hdf5    #/1.8.9_parallel
module unload intel

# load modules
module load intel/12.1.9.293
module load netcdf/3.6.3
module load hdf5/1.8.8
module load nco/4.1.0
```

You have to make sure the modules you want to be used by your code are loaded before each compilation of your configuration. Use `module list` to view the currently loaded modules. If necessary source `module.sh` before compiling.

Runtime

The proper modules have to be loaded for the dynamic linking to your libraries to succeed.

You can source `modules.sh` before submitting (`ccc_msub`), however this is not very convenient.

A better way is to modify `libIGCM_sys_irene.ksh` in your libIGCM installation (`(...)/modipsl/libIGCM/libIGCM_sys/` directory).

Locate the part where the environment tools are set in this file and add module unload and load commands:

```
#####
# Set environment tools (ferret, nco, cdo)
#####
if [ X${TaskType} = Xcomputing ] ; then
  . /ccc/cont003/home/dsm/p86ips1/.atlas_env_netcdf4_irene_ksh > /dev/null 2>&1
# to run with netcdf 3.6.3 ie compilation done before 17/2/2014
# uncomment 2 lines :
# module unload netcdf
# module load netcdf/3.6.3
# set the proper modules
module unload nco
module unload netcdf
module unload hdf5
module unload intel
module load intel/12.1.9.293
module load netcdf/3.6.3_p1
module load hdf5/1.8.8
module load nco/4.1.0
```



```
#set the proper modules end
export PATH=${PATH}:/ccc/cont003/home/dsm/p86ips1/AddNoise/src_X64_IRENE/bin
export PATH=${PATH}:/ccc/cont003/home/dsm/p86ips1/AddPerturbation/src_X64_IRENE/bin
else
. /ccc/cont003/home/dsm/p86ips1/.atlas_env_netcdf4_irene_ksh > /dev/null 2>&1
PCMDI_MP=/ccc/work/cont003/dsm/p86ips1/PCMDI-MP
fi
```

This way you can launch experiments on IRENE without having to source your `module.sh` file.

Keep in mind that the code has to be compiled with the same modules that the ones that are loaded by `libIGCM` at runtime.

In case of module mismatch you will have a runtime error stating a library was not found.

3.5. How to have min and max value exchanged through OASIS?

To add min max sum values of one field exchanged through OASIS, one has to add verbose mode (`LOGPRT 1`), to add 2 operations (4 instead of 2 operations, `CHECKIN CHECKOUT`) and to describe them (`INT=1` added for `CHECKIN` and for `CHECKOUT`). Then you will find information in output text file.

Example :

- Modification in `namcouple` :

- Before :

```
$NLOGPRT
0
...
O_SSTSST SISUTESW 1 5400 2 sstoc.nc EXPORTED
362 332 144 143 torc tlmd LAG=2700
P 2 P 0
LOCTRANS MAPPING
# LOCTRANS CHECKIN MAPPING CHECKOUT
# LOCTRANS: AVERAGE to average value over coupling period
AVERAGE
# CHECKIN: calculates the global minimum, the maximum and the sum of the field
# INT=1
# Mozaic: 1) mapping filename 2) connected unit 3) dataset rank 4) Maximum
# number of overlapped neighbors
rmp_torc_to_tlmd_MOSAIC.nc src
# CHECKOUT: calculates the global minimum, the maximum and the sum of the field
# INT=1
#
```

- After :

```
$NLOGPRT
1
...
O_SSTSST SISUTESW 1 5400 4 sstoc.nc EXPORTED
362 332 144 143 torc tlmd LAG=2700
P 2 P 0
# LOCTRANS MAPPING
LOCTRANS CHECKIN MAPPING CHECKOUT
# LOCTRANS: AVERAGE to average value over coupling period
AVERAGE
# CHECKIN: calculates the global minimum, the maximum and the sum of the field
INT=1
# Mozaic: 1) mapping filename 2) connected unit 3) dataset rank 4) Maximum
# number of overlapped neighbors
rmp_torc_to_tlmd_MOSAIC.nc src
```

```
# CHECKOUT: calculates the global minimum, the maximum and the sum of the field
INT=1
#
```

- Informations :

- min, max and sum for received field in component 1 : atmosphere in debug.root.01 file.

```
> egrep 'oasis_advance_run at .*RECV|diags:' debug.root.01|more
oasis_advance_run at          0          0 RECV: SISUTESW
diags:          SISUTESW  0.000000000000          304.540452041          3548934.08936
oasis_advance_run at          0          0 RECV: SIICECOV
oasis_advance_run at          0          0 RECV: SIICEALW
oasis_advance_run at          0          0 RECV: SIICTEMW
oasis_advance_run at          0          0 RECV: CURRENTX
oasis_advance_run at          0          0 RECV: CURRENTY
oasis_advance_run at          0          0 RECV: CURRENTZ
oasis_advance_run at          5400        5400 RECV: SISUTESW
diags:          SISUTESW  0.000000000000          304.569482446          3549053.65992
...
```

- min, max and sum for sent field from component 2 : ocean in debug.root.02

```
> egrep 'oasis_advance_run at .*SEND|diags:' debug.root.02|more
oasis_advance_run at         -2700          0 SEND: O_SSTSST
diags:          O_SSTSST  0.271306415433          304.835436600          31678793.3366
oasis_advance_run at         -2700          0 SEND: OIceFrc
oasis_advance_run at         -2700          0 SEND: O_TepIce
oasis_advance_run at         -2700          0 SEND: O_AlIce
oasis_advance_run at         -2700          0 SEND: O_OCurl
oasis_advance_run at         -2700          0 SEND: O_OCurl
oasis_advance_run at         -2700          0 SEND: O_OCurl
oasis_advance_run at          2700        5400 SEND: O_SSTSST
diags:          O_SSTSST  0.271306391122          304.852847163          31680753.5627
...
```

3.6. How to output exchanged fields by OASIS?

To have output of exchanged fields by OASIS, one have to set 3 parameters :

- OutputMode=y in COMP/oasis.card
- WriteFrequency="1M 1D" : Add 1D write frequency in config.card for CPL section
- RebuildFrequency=1D : Add a post rebuild step ie frequency for rebuild in config.card for Post section

Then you will obtain 2 types of files :

- DA/..._1M_cpl_oce.nc and ..._1M_cpl_atm.nc variables in ocean (resp. atmosphere) received or sent to the other component, for each exchange. (17, 16, 3 or 2 values per day., 0, 1, 14 or 15 extra values forced to 0)
- MO/..._1M_cpl_oce.nc and ..._1M_cpl_atm.nc variables in ocean (resp. atmosphere) received or sent to the other component, averaged per month. result of cdo monavg and ncatted -a axis,time,c,c,T -a long_name,time,c,c,Time axis -a title,time,c,c,Time -a calendar,time,c,c,noleap -a units,time,c,c,seconds since ... -a time_origin,time,c,c,...

On last improvement still to be done to have the calendar of the simulation and the right number of values.

4. FAQ : Post processing

4.1. Where are post processing jobs run?

libGCM allows you to perform post processing jobs on the same machine as the main job. You can also start post processing jobs on other machines dedicated particularly to post processing. It is not done anymore.

Currently used machines:

Center	Computing machine	Post processing
TGCC	Irene	xlarge node, -q standard
IDRIS	JeanZay?	(ongoing)

4.2. How do I check that the post processing jobs were successful?

See [here](#).

4.3. How do I read/retrieve/use files on esgf/thredds?

- At IDRIS, visit the following website (will change soon):
 - <http://prodn.idris.fr/thredds> and select ipsl_public, your login, your configuration, your simulation and the ATM component (then the Analyse subdirectory) as well as ATLAS or MONITORING.
- At TGCC, visit the following website:
 - <https://vesg.ipsl.upmc.fr/thredds/catalog/catalog.html> and select:
 - work, your login, your configuration, your simulation, etc. for ATLAS and MONITORING
 - project (such as CORDEX), your login, your configuration, your simulation, etc. and ATM or other component to access Analyse files (TS or SE)

Once you found a netcdf file (suffix .nc), you can download it by clicking on it or you can analyze it with openDAP functions. To do so add thredds/dodsC to the address right after the server address. For example:

```
ciclad : ferret ...
> use "https://esgf.extra.cea.fr/thredds/dodsC/store/yourlogin/.../file.nc"
> use "https://prodn.idris.fr/thredds/dodsC/ipsl_public/yourlogin/.../file.nc"
```

More information on Monitoring can be found here: [Doc/Running](#)

4.4. How do I add a variable to the Time Series?

See this [section](#).

4.5. How do I superimpose monitoring plots (intermonitoring)?

The general tool to check simulations and monitor them is ■ [Hermes](#) (only accessible from IPSL network).

You could use it to monitor a simulation by clicking on the M button on the right and select several simulations using checkboxes and selectionning the intermonitoring tool to see all of them into the same graphs.

Another way to do it, is to use directly the intermonitoring webservice:

■ [Audio](#)

Short link :

- for esgf type : <http://webservices2017.ipsl.fr/interMonitoring/>

To select simulations from two centers or for two different logins, you must go back to step 1 and click on **append directories** to add new simulations.

4.6. What is the Monitoring?

See chapter **Simulation and post-processing**, section *Postprocessing with libGCM* [here](#)

4.7. How do I add a plot to the monitoring?

The answer to this question is [here](#).

4.8. How do I calculate seasonal means over 100 years?

In order to compute a seasonal mean over 100 years, check that all decades are on the file server (SE_checker). Then run the job create_multi_se on the post processing machine.

Note that an atlas for these 100 years will also be created. See the example for the 10-year ATM atlas for CM61-LR-pi-03 here : [SE ATM 2000-2009](#)

1. If not done yet, create a specific post processing directory. See the chapter on how to [run or restart post processing jobs](#) for details.
2. Copy create_se.job, SE_checker.job and create_multi_se.job

Check/change the following variables in create_se.job:

```
libIGCM=${libIGCM:=.../POST_CMIP5/libIGCM_v1_10/modips1/libIGCM}
```

4. Check that all decades exist.
5. Check/change the variables in SE_checker.job:

```
libIGCM=${libIGCM:=.../POST_CMIP5/libIGCM_v1_10/modips1/libIGCM}
SpaceName=${SpaceName:=PROD}
ExperimentName=${ExperimentName:=piControl}
JobName=${JobName:=piControlMR1}
CARD_DIR=${CARD_DIR:=${CURRENT_DIR}}
```

Start the ./SE_checker.job in interactive mode. All needed jobs create_se.job will be started. For example:

```
./SE_checker.job

=====
Where do we run ? cesium21
Linux cesium21 2.6.18-194.11.4.el5 #1 SMP Tue Sep 21 05:04:09 EDT 2010 x86_64
=====

sys source cesium Intel X-64 lib.

--Debug1--> DefineVariableFromOption : config_UserChoices
-----Debug3--> config_UserChoices_JobName=piControlMR1
-----Debug3--> config_UserChoices_CalendarType=noleap
-----Debug3--> config_UserChoices_DateBegin=1800-01-01
-----Debug3--> config_UserChoices_DateEnd=2099-12-31

--Debug1--> DateBegin/End for SE : 1800_1809
--Debug1--> ATM
--Debug1--> SRF
--Debug1--> SBG
--Debug1--> OCE
--Debug1--> ICE
--Debug1--> MBG
--Debug1--> CPL
...
--Debug1--> DateBegin/End for SE : 2030_2039
--Debug1--> ATM
--Debug1--> 2 file(s) missing for ATM :
--Debug1--> piControlMR1_SE_2030_2039_1M_histmth.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_histmthNMC.nc
--Debug1--> SRF
--Debug1--> 1 file(s) missing for SRF :
--Debug1--> piControlMR1_SE_2030_2039_1M_sechiba_history.nc
--Debug1--> SBG
--Debug1--> 2 file(s) missing for SBG :
--Debug1--> piControlMR1_SE_2030_2039_1M_stomate_history.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_stomate_ipcc_history.nc
--Debug1--> OCE
--Debug1--> 4 file(s) missing for OCE :
```

```

--Debug1--> piControlMR1_SE_2030_2039_1M_grid_T.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_grid_U.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_grid_V.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_grid_W.nc
--Debug1--> ICE
--Debug1--> 1 file(s) missing for ICE :
--Debug1--> piControlMR1_SE_2030_2039_1M_icemod.nc
--Debug1--> MBG
--Debug1--> 3 file(s) missing for MBG :
--Debug1--> piControlMR1_SE_2030_2039_1M_ptrc_T.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_diad_T.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_dbio_T.nc
--Debug1--> CPL
--Debug1--> 2 file(s) missing for CPL :
--Debug1--> piControlMR1_SE_2030_2039_1M_cpl_atm.nc
--Debug1--> piControlMR1_SE_2030_2039_1M_cpl_oce.nc
-----Debug2--> Submit create_se for period 2030-2039
IGCM_sys_MkdirWork : ../POST_CMIP5/piControl/piControlMR1/OutScript
IGCM_sys_QsubPost : create_se
Submitted Batch Session 179472
...

```

7. Wait for the create_se jobs to be completed
8. Copy create_multi_se.job
9. Check/change the variables :

```
libIGCM=${libIGCM:=../POST_CMIP5/libIGCM_v1_10/modips1/libIGCM}
```

If needed, adjust the number of decades in config.card: default=50Y (i.e. 50 years). Add the following line to the POST section, i.e. at the end after the keyword [POST]

```
MultiSeasonalFrequency=100Y
```

11. Run the create_multi_se.job job:ccc_msub create_multi_se.job
12. The years used for the calculations are those between DateEnd (set in config.card in the local directory) and DateEnd - MultiSeasonalFrequency.

The mean values are stored in the "Analyse" directories of each model component in the subdirectory SE_100Y (e.g. ATM/Analyse/SE_100Y).

5. FAQ : Unix tricks

5.1. How to delete a group of files using the find command?

We recommend to also read the find manual.

Examples :

- command recursively deleting all files in a directory containing DEMO in their name:

```
find . -name '*DEMO*' -exec rm -f {} \;
```

- command recursively deleting all files in a directory containing DEMO, TEST or ENCORE in their name:

```
find . \( -name "*DEMO*" -o -name "*TEST*" -o -name "*ENCORE*" \) -print -exec rm -f {} \;
```

- command recursively computing the number of files in the current directory:

```
find . -type f | wc -l
```

5.2. Allowing read-access to everybody

The `chmod -R ugo+rX *` command gives access to everybody to all files and subdirectories in the current directory.

6. FAQ : Miscellaneous

6.1. How do I use `TimeSeries_Checker.job` to create files on `$STORE` when the output files are on `DMNFS`?

- You need `libIGCM v1_12` to use `DMNFS` as input
- Change `TimeSeries_Checker.job` to use `STORE`
- Change `create_ts.job` to use `STORE`

6.1.1. Example for the `rcp45` simulation

```
cd modipsl
mv libIGCM libIGCM.old
svn checkout http://forge.ipsl.jussieu.fr/libigcm/svn/tags/libIGCM_v1_12 libIGCM
modipsl/ins_job
```

```
TimeSeries_Checker.job révision 658
```

```
line 169
```

```
#R_SAVE=${R_OUT}/${config_UserChoices_TagName}/${config_UserChoices_SpaceName}/${config_UserChoices_ExperimentName}/${conf
R_SAVE=${CCCSTOREDIR}/IGCM_OUT/${config_UserChoices_TagName}/${config_UserChoices_SpaceName}/${config_UserChoices_Experime
```

```
create_ts.job révision 316
```

```
line 300
```

```
#DIRECTORY=${R_SAVE}/${comp}/Analyse/${TS_Dir}
```

```
DIRECTORY=${CCCSTOREDIR}/IGCM_OUT/IPSLCM5A/PROD/rcp45/v3.rcp45.strat/${comp}/Analyse/${TS_Dir}
```

```
line 768
```

```
#eval IGCM_sys_Put_Out ${file_out} \${R_OUT_${comp}}/Analyse/${TS_Dir}/${file_out}
```

```
IGCM_sys_Put_Out ${file_out} ${CCCSTOREDIR}/IGCM_OUT/IPSLCM5A/PROD/rcp45/v3.rcp45.strat/${comp}/Analyse/${TS_Dir}/${file_o
```

```
line 780
```

```
#eval IGCM_sys_Put_Out ${file_out_YE} \${R_OUT_${comp}}/Analyse/TS_MO_YE/${file_out_YE}
```

```
IGCM_sys_Put_Out ${file_out_YE} ${CCCSTOREDIR}/IGCM_OUT/IPSLCM5A/PROD/rcp45/v3.rcp45.strat/${comp}/Analyse/TS_MO_YE/${file
```

6.2. How do I restart one simulation month which ran on `$DMFDIR` when the outputs are stored on `$STORE`?

Example: the `past1000` simulation

```
login on titane: ssh titane.ccc.cea.fr
```

```
1455-12 to be reran on STORE, original on dmnfs
```

```
1477-12 to be reran on STORE, original on dmnfs
```

```
1517-11 to be reran on STORE, original on dmnfs
```

```
cd $DMFDIR/IGCM_OUT/IPSLCM5A/TEST/PD_TEST
```

```
dmget LMCMP5/???.Restart/*14551130* LMCMP5/???.Restart/*14771130* LMCMP5/???.Restart/*15171030* LMCMP5/OCE/Output/LMCMP5_m
```

```
tar cvf $SCRATCHDIR/IGCM_OUT/IPSLCM5A/TEST/PD_TEST/RESTART.REDO.past1000.tar LMCMP5/???.Restart/*14551130* LMCMP5/???.Rest
```

```

cd $SCRATCHDIR/IGCM_OUT/IPSLCM5A/TEST/PD_TEST

tar xvf RESTART.REDO.past1000.tar

cd /work/cont003/p25khod/IPSLCM5A/modipsl/config/IPSLCM5A/LMCMP5_newlibIGCM.REDO

==> edit run.card

==> PackFrequency=NONE in config.card

==> qsub

#=====
#D-- Post -
[Post]
#D- Do we rebuild parallel output, this flag determines
#D- frequency of rebuild submission (use NONE for DRYRUN=3)
RebuildFrequency=1Y
#D- Do we rebuild parallel output from archive (use NONE to use SCRATCHDIR as buffer)
RebuildFromArchive=NONE
# Pas de PACK
PackFrequency=NONE
#D- If you want to produce time series, this flag determines
#D- frequency of post-processing submission (NONE if you don't want)
TimeSeriesFrequency=NONE
#D- If you want to produce seasonal average, this flag determines
#D- the period of this average (NONE if you don't want)
SeasonalFrequency=NONE
#D- Offset for seasonal average first start dates ; same unit as SeasonalFrequency
#D- Useful if you do not want to consider the first X simulation's years
SeasonalFrequencyOffset=0

```

6.3. How do I copy a model installation directory instead of downloading from the forge (or move a directory)?

Copy or move the target installation:

```

cp -r OldInstall NewInstall
or
mv OldInstall NewInstall

```

Regenerate the makefiles to account for the new path:

```

cd NewInstall/modipsl/util
./ins_make

```

Recompile if you've done modifications in the source code:

```

cd NewInstall/modipsl/config/[YourConfig]
gmake clean
gmake [target]

```

Update your libIGCM installation:

- install the latest version of libIGCM by following these [explanations](#)
- or remove and regenerate the .job files in your libIGCM directory as follows:

```

rm NewInstall/modipsl/libIGCM/*.job

```

Prepare a new experiment as usual and launch `ins_job` to generate the `.job` files in your `libIGCM` directory and your experiment directory. Depending on your `libIGCM` version you will have to launch `NewInstall/modips1/libIGCM/ins_job` or `NewInstall/modips1/util/ins_job` for older versions.

Check that the `.job` files are properly generated in `NewInstall/modips1/libIGCM/` and you are set.

6.4. I need to compile IPSL model in debug mode. How to do that?

You have to modify `Makefile` to add debug option for each component :

```
(cd ../../modeles/ORCHIDEE/ ; ./makeorchidee_fcm -debug -parallel mpi_omp -arch $(FCM_ARCH) -j 8 -xios2)
```

```
(cd ../../modeles/LMDZ ; ./makelmdz_fcm -d $(RESOL_LMDZ) -mem -debug ...
```

```
cd ../../modeles/XIOS ; ./make_xios --arch $(FCM_ARCH) --debug
```

and in `SOURCES/NEMO/arch-X64_IRENE.fcm` add `traceback` :

```
%FCFLAGS -i4 -r8 -O3 -traceback -fp-model precise
```

```
gmake clean
gmake
```