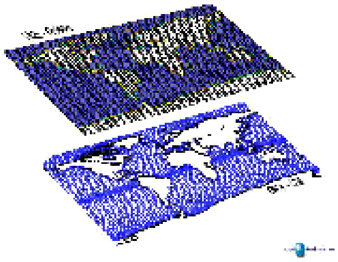

IPSL Coupled Model - IPSLCM4 : Source Access and first validation test

Welcome to this installation page.

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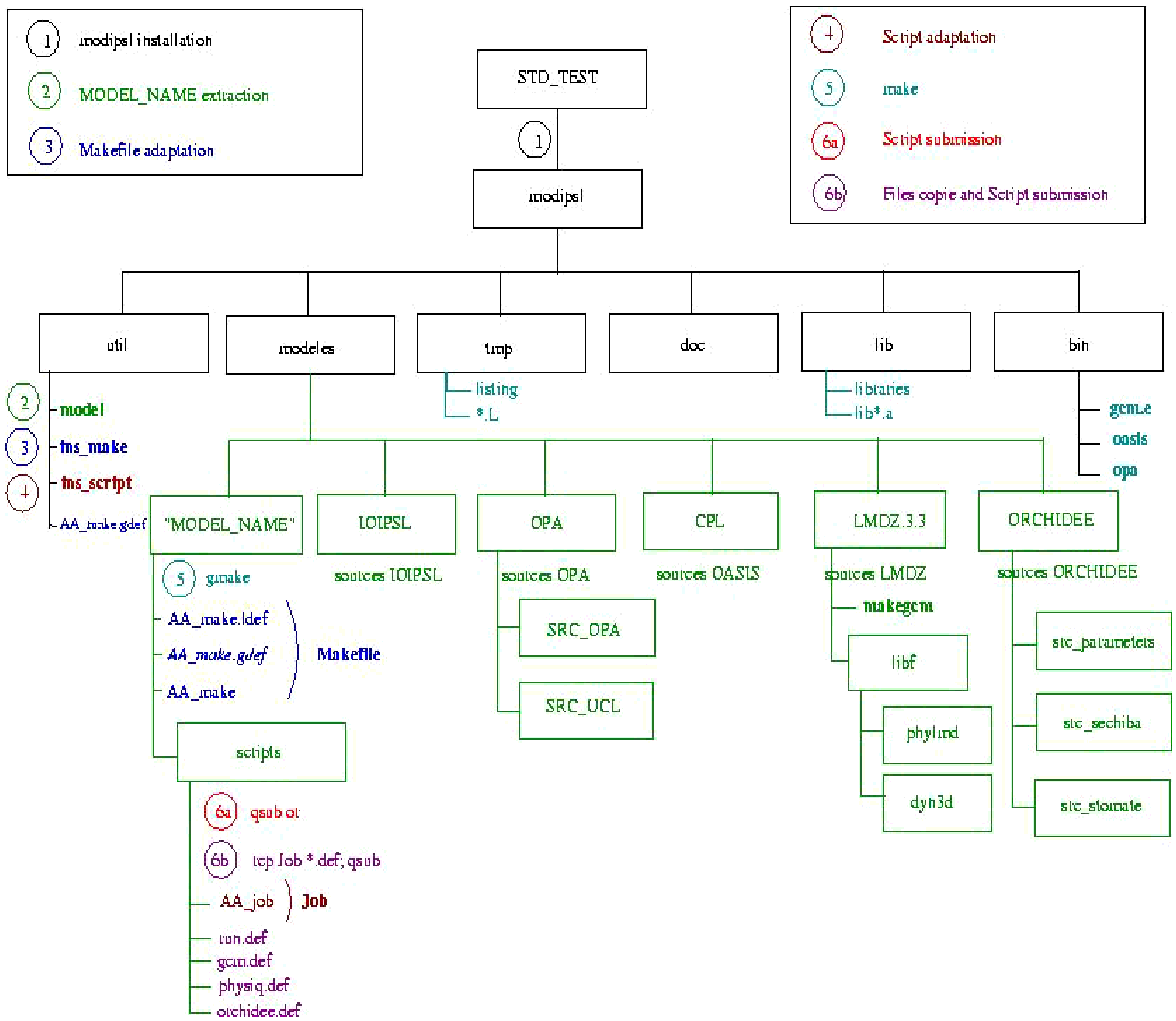
Read me first: General information

IPSLCM4 means IPSL Coupled Model. The code and its environnement are available via a general structure called *modipsl*. Please click here to have more information on modipsl's internal structure. The procedure follows 2 steps:
·Extraction of modipsl : installs a general structure of sub-directories in order to follow a standard location for sources, Makefiles, scripts, executables, data...
·Extraction of the specific configuration : sources files, configuration files and scripts. This extraction is controlled by the "MODEL_NAME" which identifies the chosen configuration. Concerning the IPSL Coupled Model modelling system, the available "MODEL_NAME"s are:

- **IPSLCM4 :** global ORCA 4 degrees ocean model and IPSL LIM ice model coupled with LMDZ 72x45x19 atmosphere model and ORCHIDEE (SECHIBA only) for continental process through Oasis coupler. **NOT READY YET**
    - OPA is the Ocean General Circulation Model developped by the ECUME team at LODYC

  - LMDZ is the General Circulation Model developped by LMD
  - ORCHIDEE is the land-surface scheme of the IPSL.
  - Oasis (Ocean-atmosphere general circulation model coupler) is developped by *Global Change Team* from CERFACS
  - IOIPSL is the IPSL I/O library.
- **LMDZOR :** LMDZ in any resolution (96x71x19 by default) atmosphere model and ORCHIDEE for continental process. **NOT READY YET**
  - LMDZ is the General Circulation Model developped by LMD
  - ORCHIDEE is the land-surface scheme of the IPSL.
  - IOIPSL is the IPSL I/O library.
- **IPSLCM4b :** global ORCA 2 degrees ocean model and IPSL LIM ice model coupled with LMDZ 96x71x19 atmosphere model and ORCHIDEE (SECHIBA only) for continental process through Oasis coupler. **NOT READY YET**

For each configuration, you must do one complete extraction of the package. Each extraction will create its own directory tree, looking like this (STD_TEST is a user chosen name, this means you will have this directory tree with different root directory names (e.g. CONFIG1, CONFIG2,...):



Browsing the IPSL Coupled Model source code

If you only want to browse some of the routines or scripts of IPSL Coupled Model, you can do so through

- CVS source Access for OPA
- CVS source Access for LMDZ
- CVS source Access for ORCHIDEE (private access)
- CVS source Access for OASIS
- CVS source Access for IOIPSL

1- Installing and updating with CVS software

Getting the IPSL Coupled Model code and configuration tools

You have to install the CVS software on your local network, so you can use it to access and update the IPSL Coupled Model system software.

To be done **only once** for each computer where you install the package (it creates a *.$HOME/.cvspass* file allowing cvs login to access files):

```
cvs -d :pserver:anonymous@cvs.ipsl.jussieu.fr:/home/ioipsl/CVSROOT login
        (passwd=anonymous)
cvs -d :pserver:opa@cvs.ipsl.jussieu.fr:/home/opalod/CVSROOT login
              (passwd=opa2000)
cvs -d :pserver:lmdzbrowse@piaf.lmd.jussieu.fr:/users/lmdz/cvsroot
login         (passwd=lmdzb2000)
cvs -d :pserver:sechiba@cvs.ipsl.jussieu.fr:/home/ssipsl/CVSREP
login            (passwd to be asked here)
```

Define the following alias:

```
alias cvs_ano='cvs -d
:pserver:anonymous@cvs.ipsl.jussieu.fr:/home/ioipsl/CVSROOT'
```

To create the entry point and extract the chosen configuration (see directory tree in figure above):

```
mkdir STD_TEST               directory for all sources and scripts
cd STD_TEST
cvs_ano co modipsl           extract modipsl (cf 1 in figure)
cd modipsl/util              directory for install scripts
model -h                     get the list of available MODEL_NAME (see list
above)
model "MODEL_NAME"           extract model "MODEL_NAME", "MODEL_NAME"
configuration tools and all its components (cf 2 in figure)
```

2- Setting up the configuration for your site - Creating executables of models

Pre-requisites

- a F90 compiler
- the NETCDF package compiled in REAL*8

```
cd STD_TEST/modipsl/util
```

```
ins_make -h                   get the ins_make options
ins_make [-t sxnec]            install and configure Makefiles (cf 3 in figure)
ins_script [-t sxnec]          install and configure the Job to be submitted (cf
4 in figure)
cd ../modeles/"MODEL_NAME"    NOT TO BE FORGOTTEN !!!!!!!!
gmake                         create the libraries and executables (cf 5 in
figure)
cd ../modeles/"MODEL_NAME"/scripts
```

The script *Job* should now be available in this directory for submission on your computer (cf 6a in figure). Check this script, and if you need to make some changes, please follow the developping rules . Don't forget to copy the *Job* file and **.def* files on the host where your job will be executed (*uqbar* for example. cf 6b in figure).

```
uqbar : mkdir $WORKDIR/"MODEL_NAME"
uqbar : cd $WORKDIR/"MODEL_NAME"
uqbar : rcp rhodes:STD_TEST/modipsl/modeles/"MODEL_NAME"/scripts/Job .
uqbar : rcp 'rhodes:STD_TEST/modipsl/modeles/"MODEL_NAME"/scripts/*.def' .
uqbar : qsub Job
```

3 - Get the input data

Binary input data is available from our DODS site where you will find a directory for each *"MODEL_NAME"*:

- Get the Entree_Oce.tar, Entree_Cpl.tar and Entree_Atm.tar using the URL: http://dods.idris.fr/rpsl003/COUPLES_IPSL/*"MODEL_NAME"*
- Store it on your data storage computer in the R_STOCKAGE directory (defined in modeles/*"MODEL_NAME"*/scripts/Job . If you need to modify the R_STOCKAGE path name, please do it in the AA_job file (see paragraph 4 below)

4- Developping Rules for the IPSLCM4 package's Environnement

Generation of the Makefiles

The Makefiles are created using ins_make in each directory containing AA_make[.ldef] files. ins_make uses as input

- modipsl/modeles/*"COMPONENT_NAME"*/AA_make.ldef for library names
- modipsl/util/AA_make.gdef for compiler names

- modipsl/modeles/*"COMPONENT_NAME"*/AA_make for Makefile core

Exceptions :

- LMDZ : ins_make uses modipsl/modeles/LMDZ.3.3 *makegcm* to compile LMDZ model
- OPA : ins_make uses as input
  - modipsl/modeles/*"MODEL_NAME"*/scripts/BB_make for compiler names
  - modipsl/modeles/*"MODEL_NAME"*/scripts/BB_make.ldef for cpp keys

Generation of the experiment's script

The Job is created using ins_script in each directory containing AA_job file.
ins_script uses as input

- modipsl/modeles/*"MODEL_NAME"*/scripts/AA_job

Up to now, these scripts are configured to run on our NEC SX-5 (with the -t sxnec option) or on our Fujitsu VPP. If needed, the simplest way to introduce your changes is to configure them in the AA_job files under another target host which will then be recognized by the ins_script.

5 - Troubleshooting

General:

- The whole package must be compiled and linked **with the REAL*8 option** (REAL*4 will not work). This means that the NETCDF library must also be in REAL*8 (see **FAQ**)

Problems while running the Makefile(s) in OPA :

- if the Makefile seems unable to take properly in account the source files, i.e you get a message like "unable to create...", then:

  ```
  cd modeles/OPA ; ../UTIL/fait_AA_make
  cd ../"MODEL_NAME" ; ../../util/ins_make [-t sxnec]
  ```
  and try gmake again...

Specificity at IDRIS :

- Verify `.rhosts` on *uqbar* to allow **rcp** commands with *rhodes*
  Example of ~rpsl003/.rhosts on *uqbar*:
  ```
  cat ~rpsl003/.rhosts
  ```

```
...
rhodes.idris.fr
...
```

- Verify `.ftuas` on *uqbar* to allow **mfput/mfget** commands between *uqbar* and *gaya*
  You will find more help (in french) on IDRIS server

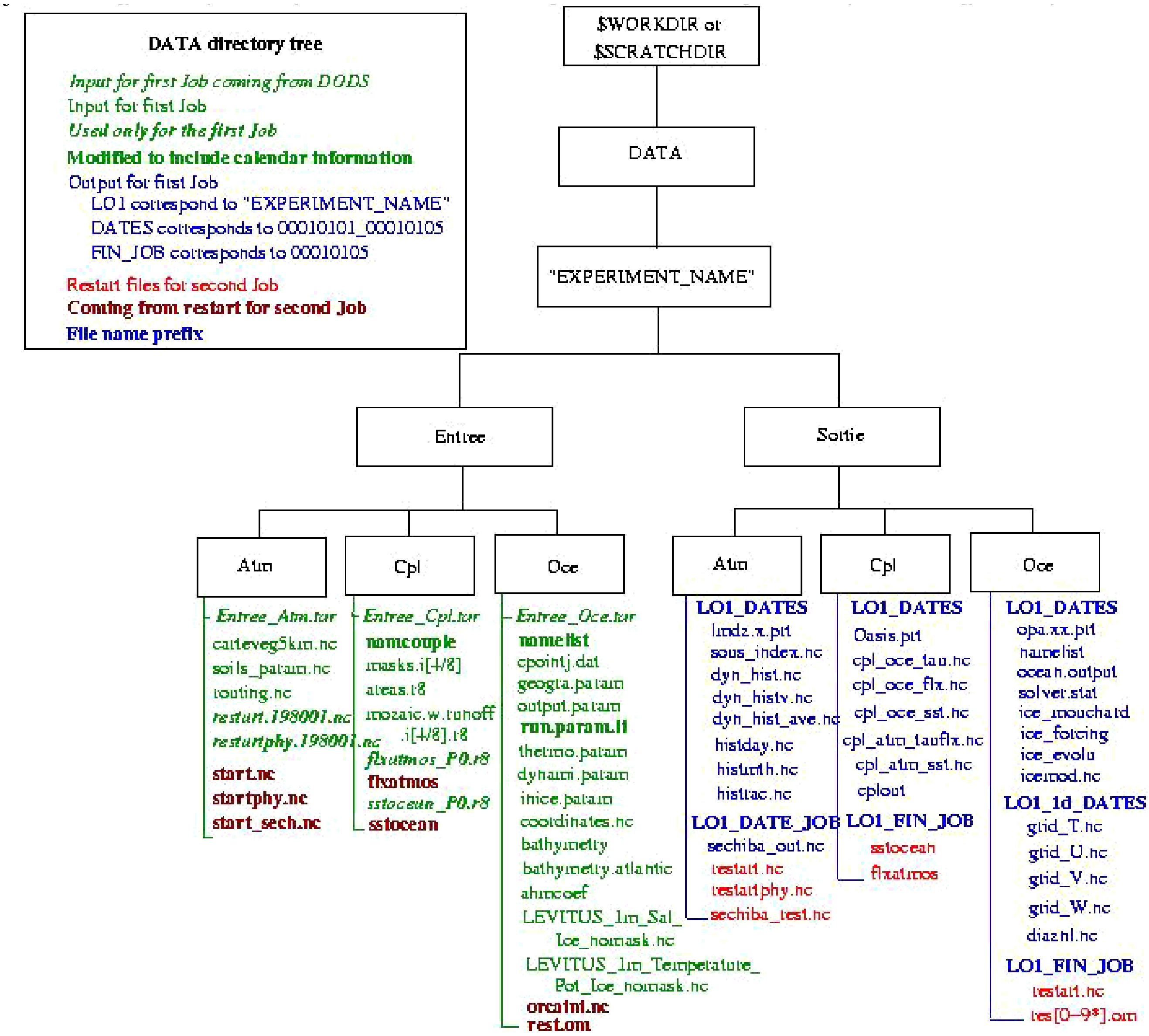
Job submission error :

- if you get this message after submiting your job on *rhodes* :
  `nqs-1044 qsub: CAUTION`
  `Invalid option: <-jo>.`
  Solution : copy and submit the Job on *uqbar*.

6- Files directories during Experiment

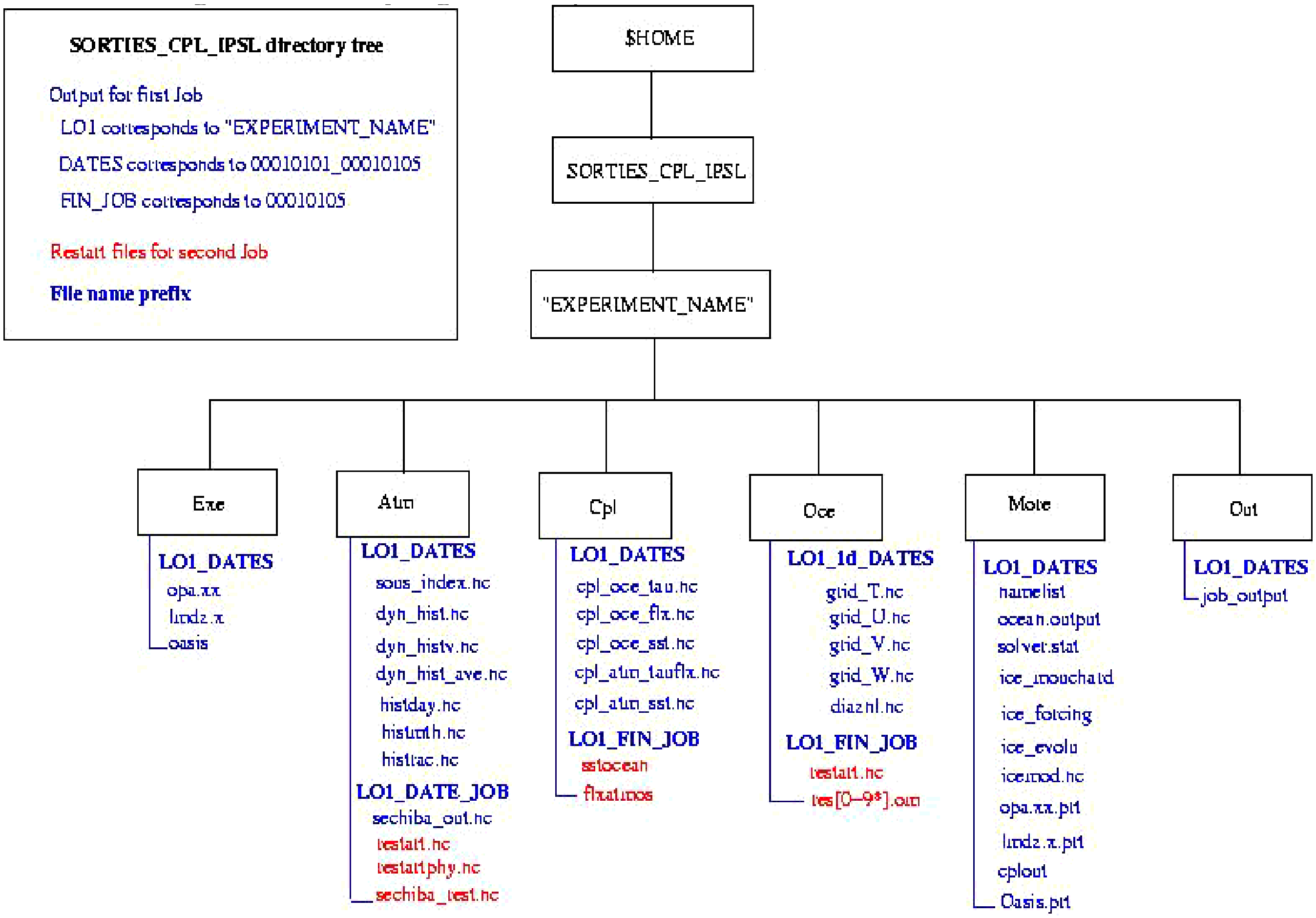
6-1- DATA directory on computer

This is a full description of directory DATA used during simulation for keeping files between differents jobs during a complete experiment. This directory is stored directly on computer doing the experiment.



6-2- SORTIES_CPL_IPSL directory on file server

This is a description of directory SORTIES_CPL_IPSL used during simulation to store files on a file server for a long time, for analysing for example.



7- Validation

Last update: 01.03.2002 by Marie-Alice Foujols

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