

External tools

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1. Important tools used in the IPSL climate modeling framework

The following tools are used for all steps from setup to post processing. They must be available on the [computing machine](#) (except [forge](#)).

The [common](#) account configuration files allow you to access the proper version of the tools (e.g. `module load`).

1.1. Forge

The `forge.ipsl.fr` machine is a forge [■trac](#)

- Welcome page of the [User guide](#) as [TracWiki](#) and its attached documents
- Source code archives with the [■svn](#) server
- Problem tracker (tickets)

1.2. Remote and secure connections

- `ssh` and associated commands (`scp`, `rsync`, protocol `svn+ssh`)

1.3. Shell

- `bash` : recommended for interactive mode --- You can read 2016 IPSL documentation on Bash [here■](#)
- `ksh` : used in batch scripts
- `awk gnu` (`[g]awk`)
- `make gnu` (`[g]make`)

1.4. Version control

- Official website: [■subversion](#)
- Basic command: [svn](#)
- Online subversion manual: [■http://svnbook.red-bean.com/index.en.html](#)

You can read some 2016 IPSL slides on svn [here■](#)

1.5. C++ compilers

1.6. Fortran compilers

To learn how to use Fortran, IDRIS training: [■http://www.idris.fr/formations/fortran/](#)

Some Fortran compilers :

- [■Intel](#)
- [■GNU fortran](#)
- [■g95](#)
- [■NAG](#)
- [■Portland](#)

1.7. FORTRAN libraries

- [■NetCDF4 parallel](#)
- [■HDF5 parallel](#)
- MPI/OpenMP

1.8. Generating executables

Default for [compiling](#) the models: [■FCM](#).

1.9. Batch manager

- slurm and slurm ccc_*
- torque-maui
- LoadLeveler

1.10. Mail program

- mail[x]

1.11. NetCDF tools

- [nco](#)
- [cdo](#)

You can read 2016 IPSL documentation on nco / cdo / netcdf [here](#)

2. Tools for analyze and visualization of NetCDF files

- [Ferret](#)
- [NCL](#)
- [ncview](#)
- [IDL](#)
- [SAXO](#)

You can read 2016 IPSL documentation on ferret [here](#)

3. A few tips for further reading

3.1. Unix

Google "Unix Tutorial" is a good starting point.

- Unix introduction -- You can read 2016 IPSL documentation on Unix [here](#)
Linux Documentation: <http://www.tldp.org/guides.html>
 - Advanced Bash-Scripting guide. Mendel Cooper : <http://tldp.org/LDP/abs/html/>
 - Bash guide for beginners.Machtelt Garrels <http://tille.garrels.be/training/bash/>
- Portable shell programming : <http://www.gnu.org/software/autoconf/manual/autoconf.html#Portable-Shell>

3.2. Text editors

3.2.1. Emacs

- Official website: <http://www.gnu.org/software/emacs/> -- You can find a list of emacs commands [here](#)

3.2.2. vi and vim

- vim documentation : <http://www.vim.org/docs.php> -- You can read 2016 IPSL documentation on vi / vim [here](#)

3.3. Programming and scripting languages

3.3.1. Python

- Python and CDAT tips: http://www.johnny-lin.com/cdat_tips/
- Python and memory management:
 - problem <http://www.evanjones.ca/python-memory.html>
 - mailing list archive: <http://mail.python.org/pipermail/python-list/>

You can read 2016 IPSL documentation on Python [here](#)

4. BootCamp IPSL presentations - documentations - hands on sessions

{24 of march 2016}

- Unix [20160324_unix.pdf](#)
- vi [20160324_vi.pdf](#)
- emacs [20160324_emacs_commands.pdf](#)
- shell bash [20160324_bash.pdf](#) TP [test.bash](#)
- netcdf [20160324_netcdf.pdf](#)
- cdo - nco [20160324_cdo_nco.pdf](#)
- Ferret [20160324_ferret.pdf](#)
- python [20160324_python.pdf](#) TP [fibonacci.py](#) [plotting_topo.py](#) [reading_nc.py](#)
- svn [20160324_svn.pdf](#)

All the HandsOn (TP and netcdf files) were available on IDRIS (Ergon) and TGCC (Curie) : `$(ccc_home --cccwork -u igcmg)/TRAINING/MODIPSL_HandsOn_20181127/` -- **there were not update to new computers centers.**