

Wikiprint Book

Title: 1. Important tools used in the IPSL climate modeling framework

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External tools

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.jussieu.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 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 IPSL slides on svn [■here](#)

1.5. C++ compilers

1.6. Fortran compilers

To learn how to use Fortran, see e.g.

- Michel Olagnon's Fortran 90 List: [■http://www.ifremer.fr/ditigo/molagnon/fortran90/engfaq.html](#)
- IDRIS training (the latest is available in English only): [■http://www.idris.fr/data/cours/lang/fortran/choix_doc.html](#)

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 IPSL documentation on nco / cdo / netcdf [here](#)

2. Tools for analyze and visualization of NetCDF files

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

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

3. A few tips for further reading

3.1. Unix

Google "Unix Tutorial" is a good starting point.

- Unix introduction -- You can read an 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 an 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/>
 - model validation tool: <http://motherlode.ucar.edu:8080/thredds/cdmValidate.html>

You can read an 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) are available on IDRIS (Ergon) and TGCC (Curie) : `$(ccc_home --cccwork -u igcmg)/TRAINING/MODIPSL_HandsOn_20181127/`