The ORCHIDEE_OL configurations

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1. Description

ORCHIDEE_OL is the generic name of the forced ORCHIDEE configurations. They are also called offline configurations. In this context the ORCHIDEE model is forced with climatic variables based on observations or on existing climatic simulations. Each ORCHIDEE model version contains a version of offline configurations ORCHIDEE_OL. There are 3 forced ORCHIDEE executables:

- orchidee_ol : the complete ORCHIDEE model
- teststomate : to allow the vegetation to reach equilibrium
- forcesoil : to allow the carbon in the soil to reach equilibrium

2. Retrieval possibilities according to the sources' version

2.1. Retrieval with ./model of a predefined configuration

You can retrieve several predefined configurations with the command ./model *nom_config* and with the following nom_config :

- ORCHIDEE_trunk : the latest trunk version (HEAD). **Be careful: if you use this version the trunk results have not been evaluated!** This is often the version that is advised.
- ORCHIDEE_TAG : the latest ORCHIDEE tag (currently 1.9.6)
- ORCHIDEE_SVN_AR5 : the CMIP5 version

2.2. Retrieving another configuration version with ./model

If you want to use a branch or a personal version on the SVN file depository of ORCHIDEE and **if this version contains the ORCHIDEE/src_driver directory**, we recommend to change the ORCHIDEE_trunk configuration in mod.def and to retrieve this version with ./model ORCHIDEE_trunk. Go here to learn more about how to change mod.def. In general we recommend you to change the version ORCHIDEE sources but to keep the version of available ORCHIDEE_OL configurations in the trunk.

3. Resolution

The compiled executable can be used at all spatial resolutions (from local to global scales). The forcing file or the options in the parameter file determine the domain (LIMIT_WEST, LIMIT_EAST, LIMIT_NORTH and LIMIT_SOUTH) and the spatial resolution (MERID_RES and ZONAL_RES).

4. Special compiling cases

The compilation of ORCHIDEE drivers (the executables needed to run ORCHIDEE in forced/offline mode) is not made in the modipsl/config/ORCHIDEE_OL directory. It is made in:

- modipsl/modeles/ORCHIDEE_OL for ORCHIDEE_TAG and ORCHIDEE_SVN_AR5 :

```
gmake orchidee_ol; gmake teststomate; gmake forcesoil
```

- modipsl/config/ORCHIDEE_OL for the trunk version:

```
gmake
```

Read more about compile methods in Chapter ORCHIDEE.

The *.resol* file does not exist for ORCHIDEE_OL because the executables can be used for all resolutions.

5. The experiments

In the ORCHIDEE_OL configuration, there are 4 directories containing experiments following the *classical logic* of configurations (as described in this manual) :

- OOL_SEC_STO : experiment with the orchidee_ol executable for a complete ORCHIDEE simulation.
- OOL_SEC: experiment with the orchidee_ol executable for a simulation with sechiba only (without stomate).You can also perform such an experiment in OOL_SEC_STO by deactivating stomate.
- TESTSTOMATE : experiment with the teststomate executable (for the carbon in the vegetation to reach equilibrium).
- FORCESOIL : experiment with the forcesoil executable (for the carbon in the soil to reach equilibrium).

There are 2 or 3 other directories(depending on the version) containing experiments which have a different structure. These experiments are looping over several sub-jobs. This documentation do not describe the usage of these specific experiments.

- SPINUP : this experiment loops on the various sub-experiments of OOL_SEC_STO, OOL_SEC, TESTSTOMATE and FORCESOIL.
- FLUXNET/ENSEMBLE : a chain of SPINUP on the FLUXNET site to validate ORCHIDEE