

Activate XIOS in configuration ORCHIDEE_trunk using libIGCM

See how to:

<https://forge.ipsl.jussieu.fr/orchidee/wiki/Documentation/UserGuide/XIOSinConfig>

1) Compile

```
cd modipsl/config/ORCHIDEE_OL
```

```
gmake with_xios
```

2) Activate XIOS

```
Set XIOS=y in orchidee_ol.card
```

3) Optimize

Change to run in server mode by activating the IOS component in config.card. Use the config.card.xios_server as example.

XIOS is activated by default in LMDZOR_v6 configuration

xml parameter files

To run ORCHIDEE with XIOS all diagnostic output files are configured through xml files. Following 4 files need to be present at each execution :

- **iodef.xml** Main input file for XIOS
- **context_orchidee.xml** Axis and domain information, include field and file def

- **field_def_orchidee.xml** => **Definition for each variable send in ORCHIDEE**
=> Only change if added new variable in ORCHIDEE

- **file_def_orchidee.xml** => **Specify all output files and there variables**
=> **Change to set your output level**
=> **Remove variables, change levels, change freq...**

And in run.def : XIOS_ORCHIDEE_OK=y

The above xml file are stored in ORCHIDEE/src_xml directory.

Add a new variable in ORCHIDEE

See how to:

<https://forge.ipsl.jussieu.fr/orchidee/wiki/Documentation/UserGuide/XIOSaddVar>

Modifications in the source code

1) Add in the ORCHIDEE module where the variable is calculated:

```
CALL xios_orchidee_send_field("var_id",new_var)
```

=> Convention : choose the same id as the variable name if possible:

```
CALL xios_orchidee_send_field("new_var",new_var)
```

2) (optional) If the variable is only calculated for a specific option, add in xios_orchidee_init:

```
IF (.NOT. ok_newvar ) &
```

```
CALL xios_set_field_attr("var_id",enabled=.FALSE.)
```

Add a new variable in ORCHIDEE

Modifications in the xml files

1) In [field_def_orchidee.xml](#), add declaration of the variable, add `axis_ref` for fields having one vertical axis and add operation (min,max,once,accumulate) for other operations than average (default):

```
<field id="varid1" name="varname" long_name="..."  
unit="..." [axis_ref=".."]/>
```

You can create new variables using the reference from the first one without changing the source code:

```
<field id="varid_max" field_ref="varid1" name="varmax"  
long_name="..." unit="..." operation="max"/>
```

```
<field id="varid_C" name="temp_sol" field_ref="varid1"  
long_name="..." unit="C"> varid1 - 273.15 </field>
```

Add a new variable in ORCHIDEE

Modifications in the xml files

2) In `file_def_orchidee.xml` specify in which files the variable should be written. A variable can be set in one or several sections (one section corresponding to one file):

```
<field field_ref="varid1" level="1"/>
```

The key word ***level*** is related to ***output_level*** set in the beginning of the file section in the same file. To write the file, level must be smaller or equal to output_level.