How to use the package "meteo"

The model "Climate" included in this package was designed to read a climate serie from a text file and to send the data towards the models which require them, at each time step of the simulation. We aimed at developping a package as generic as possible in order to work with different types of files (.csv or .txt), with header or not, independantly of the date format and the columns order.

Example:
AAAA MM JJ Pluie Neige ETP Tmin Tmax "Rayonnement Visible"
1989 01 01 0.0 0.4 0.2 2.5 10.7 87
1989 01 02 0.0 0.0 0.2 2.8 9.5 115

Notes :
- This package can also be used for any kind of files providing a time serie of data (example : daily amount of food given to an animal...).
- This package can also be used if the date isn't present in the file. In this case, the date of the beginning of the simulation (t= begin) will be associated to the first item of the file.

Be careful :
- For *decimal number*, use **.** and not **;**
- **Unicity of the dates** in the file and **no missing dates**

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Step 1 *:* Install the package "meteo" unless it has already been installed, and compile it. *(gvle reminder :* *from gvle, open source package* *Menu : File→Open Project* *install binary package* *Menu : Project→Configure Project* *Menu : Project→Build Project)*	
Step 2 : Create a new project, and a new vpz. *(gvle reminder :* *Launch gvle* *Menu : File→New Project* *Menu File→New Vpz – Validate then save the new vpz and give it a name*	

Step 3 :
Import one of pre-configured model meteo into your own project, in this context we will work with MeteoWithoutHeader.vpz
(gvle reminder :
Menu : File→Import Model – Choose the model MeteoWithoutHeader.vpz which is in meteo/exp A window with green button indicates that there is no conflict between the names of Conditions, Dynamics… and those that might be already in the project. If there are red buttons, you have to change the names of the Conditions before the copy/paste action)
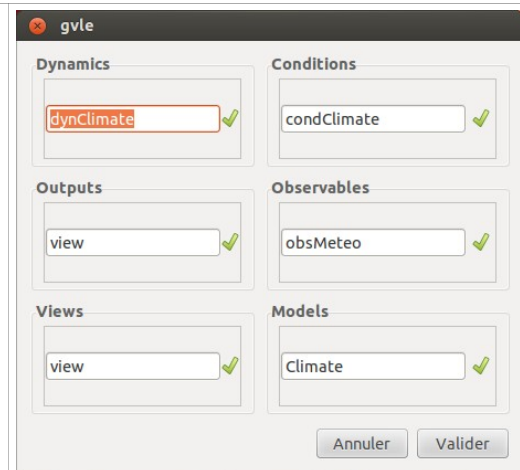
<u>Step 4 :</u>
The copy of an entire model, generates a hierarchical model with 2 "Topmodel" levels . You can change it in order to have only one level "Topmodel" by :
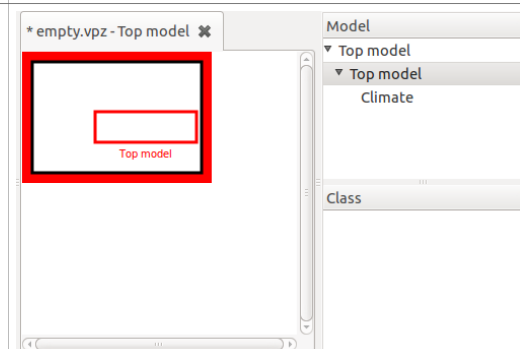- opening the deepest Topmodel
- selecting and copying the model Climate in the uppest Topmodel
(gvle reminder :
Button Select – Click on the box "Climate"
Menu : Edit→Copy – Edit→Paste
Button Destroy – Click on the Topmodel (in black on the picture) to destroy it.)
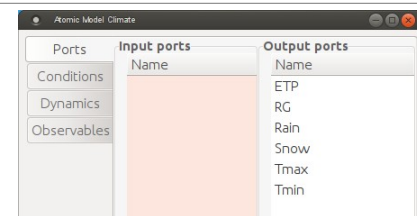

<u>Step 5:</u>
Modify the output ports
(gvle reminder :
Double click on the "Climate" atomic model, then on the "Ports" tab.
*To add or remove ports, click on the right button mouse in the area "Output ports")*

Step 6 :
Modify the parameters of the model's conditions.
Gvle reminder : click on each parameter and then on the right panel, click on the value you want to modify.

begin : line number corresponding to the effective beginning of the data serie

column_separator : separator used: example **;** or **space** (in this latter case, use the **SPACE touch**) or **tabulation** (in this latter case, put **\t**)
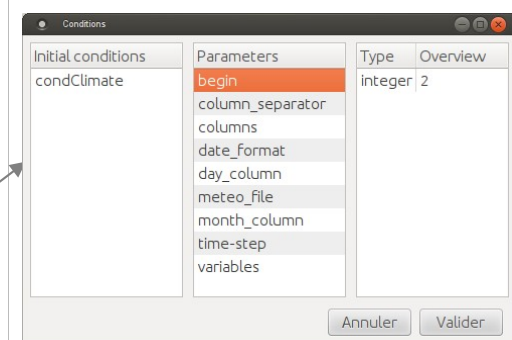
meteo_file : the name of the file to use ; It has to be in the data directory of the project

PkgName : the name of the project containing the data folder to be used

columns : with this parameter, you realize the mapping between the name of climate variables (also the output ports) and the order number of the column.
Gvle reminder : click on the map, and insert or delete variables by a right click on the mouse.
Insert / Integer / name of the variable / number (be careful the numerotation begins at 0)

day_column : number of the day column (dd). (Be careful the numerotation begins at 0)

month_column : number of the month column (mm). (Be careful the numerotation begins at 0)

year_column : number of the column (yyyy). (Be careful the numerotation begins at 0)

date_format : no more used

variables : list of variables and their respective value at time=0 (often necessary to comply the dependances with other atomic models which depends from climate, and have initial values)
Gvle reminder : click on the set, and insert or delete set (variable, initial value) by a right click on the mouse.
"Insert"→set
Double click on the "set()" created
*   Double clik right→"Insert"→"string"→double click to add name of the variable*
*   Double clik right→"Insert"→"double" (or integer …)→double click to add value the variable*