

Model parameters

- ★ run.def as served us well over the last 20 years :
 - ◆ *Ensured unicity of parameter values in the model*
 - ◆ *Gave module level access to the values*
- ★ But it has lived its time as it cannot :
 - ◆ *Ensure consistency in the dependence of parameters,*
 - ◆ *Manage complex parameters (time dependent, environment dependent, ...),*
 - ◆ *Combine other information with the parameter (units, range, ...)*
- ★ We have compensated for this with code in ORCHIDEE and pre-processing of the run.def with simple sed commands.



And an XML based solution ?

- ★ We would follow the lead of XIOS
- ★ Parameter in an XML file can be complex as attributes to can be added :
 - ◆ `<parameter id="cte_grav" units="m.s-1" min="9.8" max="9.9">9.80665</parameter>`
 - ◆ `<configuration id="STOMATE_OK_CO2" description="..." > True </configuration>`
 - ◆ *Sections can be introduced for each module*
- ★ Parameters can describe the scope or conditions of application of each parameter.
- ★ Time evolving parameters can be described.
- ★ XML is a standard document format which has a wide support.



Extensible Stylesheet Language (XSL)

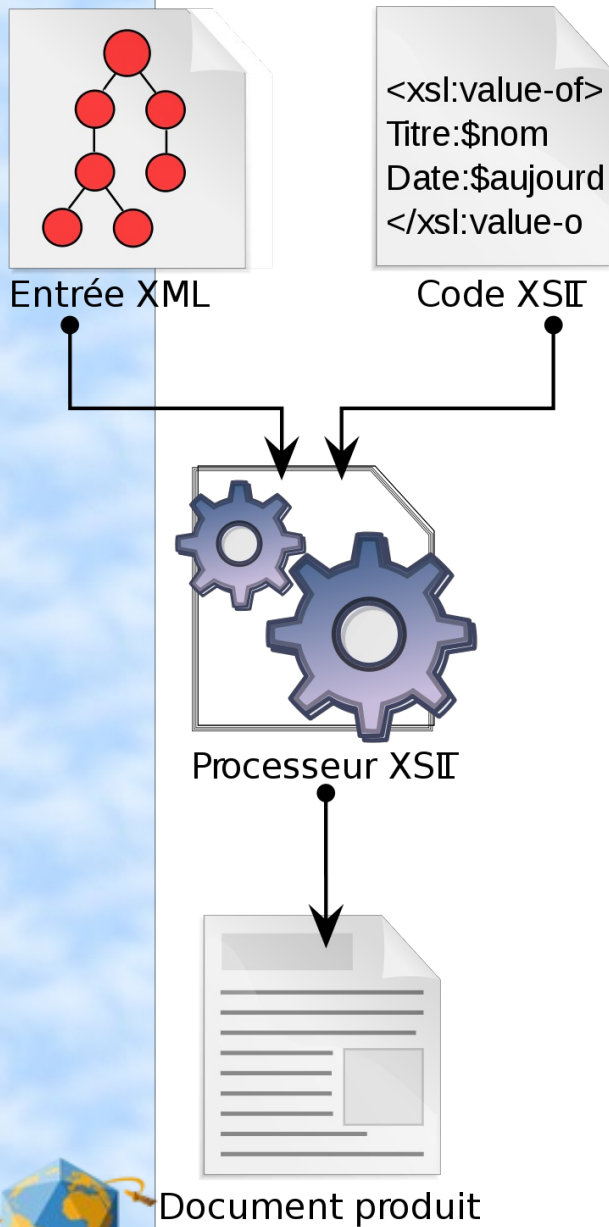
XSL is a configurable interpreter which will process the XML file and ensure that a certain number of rules are followed :

- XSL provides the grammar for the XML file (interpretation of attributes).
- Allows to replace parameters by updated values
- Implements dependencies and conditions to ensure consistency.
- The standard UNIX tool xsltproc will do the processing and generate a correct XML file for your configuration, model version and computer.

XSL ensures that the configuration file produced can be correctly interpreted by ORCHIDEE



What would we gain ?



- ★ Would facilitate optimisation of the parameters :
 - ◆ *An optimisation method could use the extra information in the XML*
 - ◆ *Additional information on the parameter can be added : First guess, ...*
 - ◆ *The XSL could merge the new estimations of the parameters.*
- ★ Tools exist to handle the format in plenty of ways : edit, display, diff, ...
- ★ The “run.def” used by ORCHIDEE would have been verified and validated even before ORCHIDEE is started.