SURFEX SC6 – GMAP contribution (23 March 2016)

Atmospheric cycles with SURFEX

- Operational systems in March 2016 : CY41T1_op1 with SURFEX 7.3+
  <u>Main features regarding the surface :</u> use of ECOCLIMAP-1 and GMTED2010 at 250m (AROME 1.3km), screen-level variables estimated without CANOPY, inclusion of slope effects on the surface energy balance (ORORAD), except sky view factor which induces a too large warming in the Alpine valleys (collaboration with HIRLAM and Clemens Wastl – ZAMG). This activity has been undertaken within SURFEX V7.3. New parameters are required within the PGD files. These developments will be included in SURFEX V8.1.
- Next operational system (beginning 2017) : CY42_op1 always with SURFEX V7.3+
- Plans for 2017 : CY43T1 with SURFEX V8

<u>Remaining issues :</u>

- Convergence of ORORAD developments with CEN approach

Development on PREP/PGD

- The software "PREP/FULLPOS" has been developed by Philippe Marguinaud. It's an efficient geometry change software of SURFEX surface fields where the horizontal interpolations are done by "FULLPOS". It is used in the experimental PEAROME (Ensemble Prediction with AROME)
- However, there is difficulties when the physiographic databases are different between the native and the target grid. The recent improvements in computational efficiency of "PREP" are such that the gains brought by "PREP/FULLPOS" are not large, and this interpolation tool is more general. Therefore it is likely that "PREP/FULLPOS will be abandoned.

Ongoing and planned activities

- 4D-VAR with SURFEX is being validated. It is expected to use SURFEX (V7.3+) in ARPEGE (CY42_op1) in the next e-suite (summer 2016, operational at the beginning of 2017)
- To couple "ALADIN/ISBA" LAMs with a global model "ARPEGE/SURFEX", "Isba-like" files will be always produced in addition with SURFEX surface files.
- These "Isba-like" files could be used to avoid backward compatibility problems with LAM/SURFEX (ALADIN or AROME) using ARPEGE for initial state or boundary conditions.

<u>Remaining issues :</u>

- How to produce a surface file for a LAM using a SURFEX v(n-1) or older from a global surface file produced by ARPEGE/SURFEX v(n) ?