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Forecasting the weather
- ensemble techniques
in probabilistic weather prediction

The 2D-downscaling analysis within EURO4M

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Under the framework of the EURO4M project, an analysis of surface and near-surface atmospheric parameters at high-resolution corresponding to a grid size of 3km is to be performed at the scale of Europe. This is done in order to demonstrate the positive contribution with respect to the 3D reanalysis at 22km grid-mesh carried out in the same project by the Swedish Meteorological and Hydrological Institute (SMHI).
The quality and the benefit of such a system depends much on its ability to describe the local effect but also on the optimum use of a dense surface observation network, especially on mountainous regions (Alps, Scandinavia) where the spatial and temporal representativeness of the data are more complex.

The surface module (SURFEX), employing a sophisticated snow scheme, will be forced by the analyzed fields at high-resolution to demonstrate the possibility of producing a climatology of snow at 3km over Europe.

Firstly, the issues of the downscaling the first guess fields particularly the adaptation to the high-resolution topography for temperature taking into account the vertical structure of the atmosphere will be pointed out, then the analysis system will be described and preliminary results will be discussed.