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UERRA SMHI HARMONIE-ALADIN high resolution Regional Reanalysis over Europe for 1961-2015

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SMHI is coordinating the FP7 Project UERRA (Uncertainties in Ensembles of Regional ReAnalyses) which has developed three full upper air Regional European Reanalysis systems and two 2-dimensional ones. They are now in their final production phase and archived in an openly available UERRA archive with common parameters within MARS at ECMWF.
SMHI is using the HARMONIE control system for the historical data assimilation and forecast cycles in the reanalysis. The modelling system is ALADIN run at 11 km resolution with conventional observations but using a large scale constraint that adapts large scales to the global driving ERA reanalyses. The system is very efficient and parallel 10 year streams were run with 4 months spin up period. The output data including observation statistics are stored on ecfs at ECMWF but the fields have been archived in the common UERRA MARS archive.
The normal extensive range of model and diagnostic parameters are stored on a quite high vertically resolved pressure levels as well as very dense height levels in the lowest 500 m. Surface and soil level parameters are also available as well as all model levels for the analyses.
The reanalysis cover the period from 1961 until 2015 for which the global ERA40 and ERA-Interim reanalyses exist and which provide boundary forcing. UERRA has much higher horizontal grid resolution, about 11 km than the global ERA analyses at 125 or 78 km respectively or even the current ERA5 at about 30 km. This gives much more detail in precipitation, temperature and wind near the surface.
The reanalysis will be presented and compared to the ERA reanalyses together with the the different data types stored, as well as observation usage and diagnostics using a partly newly developed observation monitoring system. In addition to the long reanalysis SMHI has run 2006-2010 with a different model version (ALARO-0 physics in ALADIN), providing a limited estimation of uncertainty. Météo-France has run downscaling from these in different ways producing ensembles of precipitation and near surface temperature reanalyses on a 5.5 km grid using all available SYNOP and CLIMATE stations. The downscaling reanalyses are also run for the rest of the 55 year period and both will be shown in a separate presentation.