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European regional reanalyses efforts in the UERRA project and uncertainty estimates

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UERRA (Uncertainties in Ensembles of Regional ReAnalyses) is a FP7 4 year collaborative project between 12 partners in Europe. The main purpose is to develop pre-operational climate change services for the EU Copernicus programme through employing more historical observations and enhance and extend ensembles of European reanalyses over the past 30-50 years.
UERRA builds on the previous EURO4M project where observations were also recovered, digitized and homogenized and gridded observational data sets as well as 2 and 3-dimensional model based regional reanalyses were carried out. The data sets were evaluated against independent in situ or remote sensing observation based products. User interaction was undertaken and climate information provided.
UERRA extends the efforts in several dimensions, into new areas and will provide many products that have never been available before. The observation rescue will concentrate on the latter part of the 20th century and on sub-daily time scales in order to use them in the reanalyses, while still contributing to adding observations also for earlier decades. Uncertainties will be estimated both from the observations themselves, from the gridding methods and very much from the ensemble reanalyses. They will be of higher resolution and longer time periods than before. The ensemble spread will provide one measure of uncertainty as well as the differences between the constituent reanalyses and gridded data sets. Validation will also be made against independent data sets and against sub-regional very high resolution gridded data sets that have used more observations of precipitation or temperature that were not used or available for the ensemble NWP based reanalyses. Another independent way is to employ hydrological models forced by reanalyses and validate against river discharge.
The uncertainties will be estimated in a coordinated and consistent fashion over all data sets produced in the project and emphasis will be put on user requirements. It is important to find useful products and find out how useable they are in the end. Errors will be modeled statistically and as a function of space and time scales. The reanalyses should not only capture the extremes relatively well but the long term climate trends will be validated in the data.
Extensive and user friendly data services will be provided from all the data sets and common tools and a portal will be provided in collaboration with the sister projects in the Copernicus Programme (like CLIPC). Plans and examples of the methods and products will be shown as well as preliminary considerations from the setting up phase of UERRA.