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Enabling the use of climate model data in the Dutch climate effect community

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Within the climate effect community the usage of climate model data is emerging. Where mostly climate time series and weather generators were used, there is a shift to incorporate climate model data into climate effect models. The use of climate model data within the climate effect models is difficult, due to missing metadata, resolution and projection issues, data formats and availability of the parameters of interest. Often the climate effect modelers are not aware of available climate model data or are not aware of how they can use it.

Together with seven other partners (CERFACS, CNR-IPSL, SMHI, INHGA, CMCC, WUR, MF-CNRM), KNMI is involved in the FP7 IS ENES (http://www.enes.org) project work package 10/JRA5 'Bridging Climate Research Data and the Needs of the Impact Community. The aims of this work package are to enhance the use of Climate Research Data and to enhance the interaction with climate effect/impact communities.

Phase one is to define use cases together with the Dutch climate effect community, which describe the intended use of climate model data in climate effect models. We defined four use cases: 1) FEWS hydrological Framework (Deltares) 2) METAPHOR, a plants and species dispersion model (Wageningen University) 3) Natuurplanner, an Ecological model suite (Wageningen University) 4) Land use models (Free University/JRC).

Also the other partners in JRA5 have defined use cases, which are representative for the climate effect and impact communities in their country.

Goal is to find commonalities between all defined use cases. The common functionality will be implemented as e-tools and incorporated in the IS-ENES data portal. Common issues relate to e.g., need for high resolution: downscaling from GCM to local scale (also involves interpolation); parameter selection; finding extremes; averaging methods.

At the conference we will describe the FEWS case in more detail: Delft FEWS is an open shell system (in development since 1995) for performing hydrological predictions and the handling of time series data. The most important capabilities of FEWS are importing of meteorological and hydrological data and organizing the workflows of the different models which can be used within FEWS, like the Netherlands Hydrological Instrumentarium (NHI). Besides predictions, the system is currently being used for hydrological climate effects studies. Currently regionally downscaled data are used, but using model data will be the next step. This coupling of climate model data to FEWS will open a wider rage of climate impact and effect research, but it is a difficult task to accomplish. Issues to be dealt with are: regridding, downscaling, format conversion, extraction of required data and addition of descriptive metadata, including quality and uncertainty parameters. Finding an appropriate solution involves several iterations: first, the use case was defined, then we just provided a single data file containing some data of interest provided via FTP, next this data was offered through OGC services. Currently we are working on providing larger datasets and improving on the parameters and metadata.

We will present the results (e-tools/data) and experiences gained on implementing the described use cases. Note that we are currently using experimental data, as the official climate model runs are not available yet.