

RT2B-RT3-RT5 workshop on evaluation of RCMs and SDS
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Albert Klein Tank (KNMI)

The theme for this Monday afternoon workshop was “evaluation of RCMs and statistical downscaling”. Three presentations (by Malcolm Haylock, Martin Hanel and Philip Lorenz) were followed by an open discussion.

Malcolm Haylock (UEA) introduced the daily gridded observational datasets for precipitation and temperature in Europe. These new datasets have been developed in ENSEMBLES for climate analyses, climate model validation, downscaling and for driving and validating impact models. He referred to his presentation in the plenary on Wednesday for further details. In follow-up work, UEA will compare the representation of certain types of extremes in the gridded datasets with the underlying station data. The gridded datasets, which are strictly for use in non-commercial research and non-commercial education projects only, are available from:

<http://eca.knmi.nl/download/ensembles/ensembles.php>

Martin Hanel (KNMI) presented preliminary results obtained with a flexible GEV model for precipitation extremes in transient RCM simulations. In this model all three GEV parameters may change over time (not necessarily linearly). Pooling of maxima from different grid boxes is considered to reduce the standard errors of the estimated changes in extreme-value characteristics. For a transient simulation of the RACMO RCM driven by ECHAM5, it is shown that the change of the 50-year quantile of daily summer rainfall strongly differed from that of the 2-year quantile in a region in Germany. Martin just started this work in WP5.4 (Evaluation of extremes) together with Adri Buishand (KNMI). The presentation gave a good impression of their plans for the final years of the project. They intend to apply the methodology to available RCM simulations and observational data for chosen sub regions.

Philip Lorenz (MPIMET) presented the automated tool developed at MPI for the evaluation of climate model simulations in ENSEMBLES. This elegant tool makes it easy to evaluate many different multi model ensemble members at one time.

Many participants joined in the open discussion that followed the presentations. The discussion dealt with topics such as evaluation of available reanalysis runs against observations, extreme events, and uncertainty. At some point, very fundamental issues have been discussed, including whether or not RCMs can be evaluated in a meaningful way and whether probabilistic predictions are feasible. Clare Goodess (RT2B), Jens Hesselbjerg Christensen (RT3) and Albert Klein Tank (RT5) commented on the evaluation work ongoing and planned within their RTs.

Clare Goodess noted that a list and brief description of the statistical downscaling methods being used in RT2B is provided in Table 1 in deliverable D2B.14 (including predictands/predictors, regions/datasets and how uncertainties/probabilities will be addressed). Apart from the quick-look analysis presented by Philip Lorenz, there is no specific commitment in the RT2B DIP on evaluation – although clearly both calibration and validation are essential steps in statistical downscaling. There is an interest from some RT2B groups (e.g., FIC) in using the new RT5 observed gridded

data set as predictands for statistical downscaling – this would allow a direct comparison with dynamical downscaling – and potentially an approach to model emulation. For this, and more general work on statistical downscaling evaluation, it would be good to have some consistency in terms of the extreme event indices used, e.g., in RT5 and RT2B. In the discussion it was noted that ENSEMBLES was producing information relevant to recent ‘experienced’ extremes such as the 2003 heat wave and recent flooding events – it would be good to pull this information together for dissemination purposes (e.g., in information sheets). On the issue of weighting, it was noted that we don’t have single metrics for the ENSEMBLES GCMs and the question was asked: are we right to develop separate metrics for GCMs and RCMs or should they be combined? It was also suggested that ERA-40 could be included in the quick-look analysis.

The results of the workshop will serve as input to future deliverables in several RTs, in particular RT2B, RT3, RT5 and RT6. The workshop has contributed to strengthen the links between these RTs of ENSEMBLES. Evaluation results will also feed into the model weighting discussion. Therefore, this Monday afternoon workshop had clear links with the workshop on model weighting, credibility and reliability held on Thursday afternoon. The related RT4-RT5 workshop on GCM uncertainties and biases was also scheduled for Thursday.