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On the Validation of ENSEMBLES Regional Climate Simulations in Terms of Reproducing Annual Cycle

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There are many aspects of the validation of climate models. In addition to standard statistical characteristics a more in-depth analysis of annual cycle performance can provide more information on ability of the models to reproduce properly the physical processes which strongly affect the behavior of climate parameters during the year. Global Circulation Models (GCMs) can reproduce climate features on large scales, but their accuracy decreases when proceeding from continental to regional and local scales because of the lack of resolution and thus on the regional scale they are very often rather poor in reproducing the annual cycle. The more detail analysis of 15 RCMs used in EC FP6 IP ENSEMBLES in ERA 40 driven experiment on 25 km resolution for the period of 1961-2000 in different PRUDENCE regions presents the comparison of the models and their validation in terms of annual cycle reproduction. While for the temperature the performance of the models is mostly very good and quite consistent, there are some models with rather significant problems in some regions in reproducing annual cycle of precipitation.