



On quantifying the uncertainty associated with statistical bias correction of hydrological cycle components in GCMs.

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Simulations of the future components of the hydrological cycle, for a given carbon loading scenario, are associated with uncertainties from a number of sources. An adequate analysis of the sources of uncertainty is essential for the effective management of future water resources. As part of the effort to couple climate models with hydrological models within the EU project “Water and Global Change” (WATCH), a statistical bias correction methodology for precipitation, and other variables, was developed. The aim of the methodology is to transform model output into internally consistent fields with the observational intensity statistic for the relevant comparison period. If a long enough observational period is available, variations of the correction over time can be used as a measure of the associated uncertainty.

The methodology has been applied to a 40-years period from three IPCC AR4 simulations of the GCM ECHAM5/MPIOM. We will consider the years 1960-1999 to evaluate the associated uncertainty. Correction functions calculated over 4 non overlapping decades will be compared along with the corrections for the entire period. The spread over the four decades of the correction functions will be compared for different ensemble members. Finally a methodology is suggested to take the spread of correction functions into account when evaluating the spread of the resulting simulations of future components of the hydrological cycle.