



How much climate change is unavoidable in Europe?

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It is evident from observations that the world's climate is changing and many climate change scenarios show possible future projections of ongoing changes (IPCC, 2007). Global climate scenarios have been analysed for global changes, but also for possible changes in regions. In addition, regional climate models were used to interpret the impact of global change in the region. Using RCMs as dynamical downscaling tools adds many details in the horizontal pattern of possible changes. Commonly IPCC SRES scenarios, like A2, A1B and B1 were investigated. They all assume further increase in GHG emissions.

In this study three members of commitment runs performed by the MPI-M global climate modeling system ECHAM5-MPIOM have been used to drive the MPI-M regional climate model REMO with 0.44° horizontal resolution for Europe (using the ENSEMBLES domain). In these simulations GHG concentrations have been fixed to year 2000 values. This means: no further increase is assumed. Unfortunately the concentrations already increased further during the last years and are higher today than the fixed values. This also means that simulated climatic changes as they are visible in the commitment runs are very likely unavoidable.

Results from the commitment runs and from A2, A1B and B1 scenarios will be presented with focus on changes in the hydrological cycle and extremes. The results will define a minimum range of possible changes which can be expected during this century.