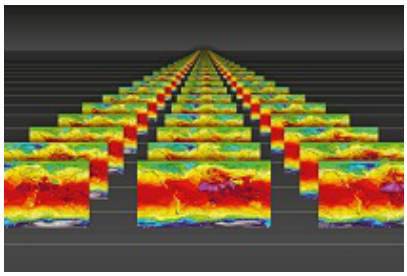

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Representation of synoptic-scale Rossby wave packets and blocking in the S2S prediction project database

Rossby wave packets (RWPs) are one of the dominating atmospheric phenomena which shape the midlatitude weather. A realistic representation of RWPs is essential for a skillful prediction of the day-to-day weather and weather extremes. Using an objective RWP tracking technique, this study verifies the representation of RWPs for all models in the Subseasonal to Seasonal Prediction Project database. Consistent with reanalyses, the reforecasts show one RWP every four days. The three models with the coarsest horizontal grid spacing tend to overestimate the mean propagation distance due to a negative RWP decay frequency bias over the Atlantic-European sector. A verification of atmospheric blocking suggests that this bias is related to a negative blocking frequency bias in the same region. The biases in blocking and RWP decay frequency are reduced in models with finer horizontal grid spacing. However, this bias reduction does not only depend on the grid spacing, highlighting the effect of the different representation of key-physical processes on the representation of RWPs and blocking.

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