



Limits of predictability in a limited area model

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In the late 50ies and the 60ies the limit of predictability of weather has been shown to be 10 to 14 days by theoretical and numerical studies. During the last years the 15 to 30 year climatologies have been shown to be well predictable for various regional climate models. However, this allows not the quantification of the bias of the simulation, as very well known for the weather prediction but it gives a limit of predictability.

It is a question of interest which space scales have which predictability on seasonal to interannual time scales for which model types. Such predictability maps may be derived from appropriate numerical disturbance simulations. An important theoretical question is, to which extent the predictability map may be explained by the physics of the system and to which extent by the model type.

A series of long time disturbance simulations with no bias have been conducted using the nonhydrostatic limited area model LM over Europe with spatial resolution of up to 18 km. The term „disturbance simulations“ will be explained, the space-time predictability maps derived from the simulations will be shown for different dynamical and diagnostic variables and the model type dependence of the results will be discussed.