



WETRAX: WEather Patterns, Cyclone TRACKs and related precipitation EXtremes

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Excessive large scale (LS) precipitation entails high risk of related flooding and is therefore of particular significance for subsequent infrastructural damage, financial loss or the direct threat of human life. The potential and importance of certain atmospheric cyclone tracks or circulation types for such precipitation events, is well known in the hydro-meteorological community, not least because of the flood events in August 2005 and August 2002 for example. However many important questions remain unanswered in this issue.

For example, not enough findings are on hand assessing the relevance of certain circulation types or cyclone track types for large scale precipitation characteristics in Central Europe. In particular changes in the risk of LS extreme precipitation under future climate change conditions due to an altered atmospheric circulation, remain unknown in fact.

In this collaborative study repetitive atmospheric patterns as large-scale circulation types and cyclone track types are investigated in terms of their relevance for non-convective extreme precipitation over Southern Germany and Austria. Two different Global Climate Models will be evaluated in their ability to simulate the important atmospheric characteristics under current climate conditions, in order to assess the changing probability of occurrence of extreme precipitation events under future climate conditions.

The results of this study will give new insights in the nature of atmospheric cyclones and circulation types as the trigger of large scale precipitation in the study region, hence improving hydro-meteorological knowledge and providing basic essentials for the trans-national water resource management under the aspect of ongoing climate change.