Classification of Precipitation Events by Use of a Locality Index

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A locality index Ild is used to classify meteorological situations and investigate their relation to the amount of precipitation. Ild is calculated as a function of characteristic time scales for turbulent diffusion and for horizontal advection. 6-hourly one-dimensional numerical model results of the mesoscale model METRAS are used to calculate the locality index. The model is initialized with 6-hourly sounding data and corresponding observational data for Lindenberg (Germany). The relation of locality index and amount of precipitation is established for time integrated 10 minutes precipitation data available for the LITFASS measuring campaign in summer 2003. The robustness of the relation is tested for the years 2002 and 2003 in comparison with routine data. The locality number shall later on be applied in a three-dimensional model to use the most suitable parameterization for sub-grid scale surface fluxes.