Geophysical Research Abstracts
Vol. 12, EGU2010-8429, 2010
EGU General Assembly 2010

Midlatitude Cyclones and Hydrological Extremes in Central Asia

Hartmut Borth, Andrea Schneidereit, Xiuhua Zhu, Richard Blender, and Klaus Fraedrich
KlimaCampus, University of Hamburg, Germany (hartmut.borth@zmaw.de)

Precipitation in central Asia is due to monsoonal systems and, to a lesser degree, to westerlies. The precipitation statistics over the last 50 years shows that periods of extreme wetness and drought in this area especially in winter are strongly correlated to geopotential height anomalies along the polar front. Using the ERA-40 data set together with daily precipitation data from stations in the Tarim Basin it is shown that the statistical correlations found can be explained by midlatitude cyclones and their frontal systems. Cyclones tracked in a near surface geopotential height field over the Eurasian continent are connected to individual precipitation events in the area under consideration. It is interesting that midlatitude cyclones still play a crucial role for the hydrological cycle in the center of large continents with topography. Furthermore our study indicates that midlatitude cyclones may play a role in the summer by transporting moisture supplied by the monsoon systems further to the North.