Geophysical Research Abstracts,
Vol. 10, EGU2008-A-06423, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-06423
EGU General Assembly 2008
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Hydrological flood forecasts for the Kamp catchment - experiences from the 2006 and 2007 events

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The flood forecasting system for the Kamp in northern Austria is presented that combines a river routing model and a rainfall-runoff model based on observed and forecasted precipitation. The model development was completed in early 2006 and since then the model has been in operational use. Three flood events occurred during 2006 and 2007. These include a snow melt event in March/April 2006, an advective event in August 2006 and an advective event in September 2007. The hydrological situations can be considered as exceptional for two of the three events. In March/April 2006 very large snow depths and snow densities occurred. In September 2007 soils were very dry due to a long antecedent dry period. The hydrological model is tested for these three events in this paper. For all three events the model simulations using observed precipitation input are good both in terms of runoff dynamics and runoff peak. During the event in March/April 2006 runoff volume is slightly underestimated. The forecasts made several hours before the beginning of the events slightly underestimate the rising limb of the observed hydrograph in August 2006 and overestimate the rising limb of the observed hydrograph in September 2007. The forecasts made during the rise of the hydrograph predict the peaks well for these two events. The ensemble forecasts made several hours before the events indicate the possibility of a flood in August 2006 and in September 2007.