Geophysical Research Abstracts, Vol. 7, 05685, 2005 SRef-ID: 1607-7962/gra/EGU05-A-05685 © European Geosciences Union 2005



A review of focussed pooling groups for frequency analysis of hydrological extremes

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A focussed pooling group is a collection of gauging stations that are used to estimate quantiles for a hydrological extreme at a target location. The target location may be either a gauging station with a short record length in comparison to the return period of interest or may be an ungauged location. Information from the sites within the pooling group is combined (pooled) to estimate the required extreme quantile at the target location. This paper will discuss the motivation behind the development of the focussed pooling group approach and will also review various applications of the approach. An important issue to be addressed in the identification of a focussed pooling group is the measures to be used to define catchment similarity. A variety of approaches have been adopted to define catchment similarity, although some of the measures are not applicable for identifying a pooling group for an ungauged site. The paper reviews the similarity measures that have been adopted and compares and contrasts the focussed pooling group approach with other techniques that have recently been used for estimating hydrological extremes at ungauged sites. Finally, the paper looks at the issue of quantifying the uncertainty associated with pooled estimates of hydrological extremes.