Geophysical Research Abstracts,
Vol. 11, EGU2009-743, 2009
EGU General Assembly 2009

Comparison of physical and statistical methods for estimating probable maximum precipitation in outhwest basins of Iran

e. fattahi, A.M, Noorian, and K. Noohi

Faculty member of Atmospheric Science and Meteorological Research Center (ASMERC) Iran, ebfat2002@yahoo.com

Abstract

The probable maximum precipitation (PMP) is the greatest depth of precipitation for a given duration that is physically possible over a given size storm area at a particular geographical location at a certain time of the year. In this study the physical or maximization of storm method has been compared with statistical method for calculating PMP in southwest regions of Iran. In order to estimate PMP meteorological data including precipitation, dew point temperature, and wind speed were collected. In this connection synoptic maps at appropriate time scales at meteorological stations in southwest catchments and neighboring basins were study. Then major storms (extreme) including last year storms of various durations were selected and Depth-Area-Duration (DAD) curves for all selected storms were extracted. By using physical Method, PMP estimations were obtained at different locations and the values applied to 1000, 5000 and 10,000 km2 areas. In this study also PMP estimations were obtained by statistical analysis (Hershfilds Method) of the series of annual maximum 24h precipitation amounts. We found that PMP estimates by statistical method are well comparable with values of obtained by the physical method for different durations. Results shows that limited transposition of statistical methods gives higher estimates, in comparisons with physical method.

Keywords: Probable Maximum Precipitation, (pmp), Hirschfield's method, Depth-Area-Duration (DAD), Dew point Temperature.