

Probable maximum precipitation (PMP) in the Jajroud basin of Iran using a synoptic model

MAHMOUD AHMADI¹, E. FATTAHI² & A. NOORMOHMMADI³

*1 Physical Geography Department, Shahid Beheshti University, Tehran, Iran
44ahmadi@gmail.com*

2 Meteorological Research Center, Tehran, Iran

3 MS student of Climatology, Islamic Azad University, Tehran, Iran

Abstract The probable maximum precipitation (PMP) is the maximum amount of precipitation that may occur in a basin. The Jajroud Basin north of Tehran is important for the agricultural activities of the area and the urban planning of Tehran city. Therefore, the main objective of this research is to determine the PMP in this basin using a synoptic model. In this model, most of the attention is paid to the moisture and thermal characteristics of rainstorms in the region. In order to achieve the objective of the study, eight intensive and widespread storms that lasted one to four days were selected. The results showed that the intensive rainstorms of the basin are intensified by the merging of Mediterranean cyclones with Sudan lows. Through the largest rainstorms, the PMP of the basin was computed as 102 mm. The results from the study are the main input for the calculation of the probable maximum flooding (PMF) of the basin.

Key words Jajroud basin, Iran; Mediterranean cyclones; PMP; rainstorm; synoptic model