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## Extreme precipitation events in NW Greece

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**Abstract.** In this work, the extreme precipitation events in NW Greece are studied. The data used are daily precipitation totals recorded at the meteorological station of Ioannina University for the period 1970–2002. 156 days with precipitation totals above 35 mm (5% upper limit) are only considered. It is seen that, a minimum frequency of extreme precipitation events appears in the period 1986–1991, which is characterized by a high positive NAO index. For each of the 156 extreme precipitation days, at first, the mean sea level pressure pattern over Europe is constructed by using 273 grid point values. Using Factor Analysis, the dimensionality of the 156×273 data matrix is reduced to 156×5 (84% of the total variance) and then, Cluster Analysis is applied on the results of Factor Analysis. Thus, the 156 cases are grouped objectively to 11 clusters, revealing the main pressure patterns, which favour extreme precipitation in NW Greece. Seven of the patterns are encountered in winter and autumn, while three of them cover a period from autumn to spring and one appears mainly in summer. In all of them the cause of the extreme precipitation event is a low pressure system centred west of Greece or a low pressure trough extended eastwards or southwards up to Greece. In some cases the depression is so strong and extended that it covers the whole Europe and the Mediterranean. In the single summer pattern, rainfall is caused by an extension of the SW Asia thermal low up to the central Mediterranean.

Full Article in PDF (PDF, 3102 KB)

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