



Extreme precipitation over the Ukraine and global climate change

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The aim of presentation is to study the climatology of summer and winter extreme precipitation over the Ukraine, their trends and interannual-decadal variability associated with global processes in the ocean-atmosphere system. Daily data of standard observations in 1951 – 2005 from 29 hydrometeorological stations located in different climatic zones of Ukraine were analysed in the work.

Three different methodological approaches were used for extremes identification, analysis and next comparison. The first approach is based on statistical quantities (percentiles) when upper percentiles 90, 95 and 99 for daily precipitation (gamma distribution). The second one is considered the criteria of specific threshold of daily totals precipitation - above 20 mm (according to recommendation of CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices). The third method is based on application of Ginny Index (CI) estimation for climate study (Martin-Vide, 2004). The total results of study are the following.

Typical space distribution of extreme precipitation for seasons and for year is characterized by their southward intensity increasing from North-East and North-West. Absolute maximum of daily precipitation totals estimated over the Ukraine territory exceeds 215 mm/day. Summer precipitation extremes are characterized by quite homogeneous distribution with typical values about of 23 – 24 mm/day.

Linear trends of extreme precipitation over the Ukraine estimated using each of three methods are negative in winter while positive in summer are associated with low-frequency natural and anthropogenic factors.

Interannual and decadal variability of extreme precipitation associated with global processes in the ocean-atmosphere system was studied in the work. Influence of North Atlantic Oscillation and El-Nino-Southern Oscillation was estimated. Role of Atlantic Multidecadal and Pacific Decadal Oscillations was analysed too.