

CONTRIBUTION TO THE STUDY OF PLUVIOMETRY DAY LABOURER OF THE NORTH OF ALGERIA

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Abstract:

These last years, the floods are disturbed the economic activities of certain regions of the country. These floods caused considerable damage: habitat, basic infrastructures and agricultural production in certain zones. Damage also recorded in many cities of the South and the North. The flood is an exceptional phenomenon which can occur constantly. The flood is the occasional phenomenon, consequence of the exceptional flood, which can drown vast parts. The control of the predetermination, the quantification and the forecast of the flood allow a preliminary protection of the people's goods and exposed people, in particular by the designation of the zones of risks inside of which the probability of occurrence of the catastrophe is sufficiently important.

In Algeria, the rains are characterized by a very strong interannual and seasonal irregularity. This variability leads to extremely severe low water and strong flood and consequently considerable human and material damage caused par the generated floods.

To give an outline on maximum daily pluviometry, ten stations having a sufficient measurements series were studied.

The appearance of the daily maximum rains varies considerably from one month to another. For the stations of the West and Center, the rains are concentrating in the winter's months then the frequency of appearance of these rains decrease notably in the spring's months. For the stations located at the east of Algeria, the concentration appears either in spring (February), or in winter but with an important frequency of appearance over several months (October, November, December).

The nonparametric test of Pettitt, the statistics of Buishand, the Lee and Heghinian Bayesian method and the nonparametric procedure of hydrometeorological series segmentation of Hubert applied to the the daily maximum pluviometry series and the number of day of rain.

From the founded results, we retained that the East of Algeria, no significant rupture could be detected. For the remainder of the Algerian territory and for the used tests, the rupture occurred during the decade 1970-1980 and during this period the decrease of daily precipitations became a reality.

By comparing daily precipitations (maximal daily rain, the number of rainy days superior to 0.1 mm, 1 mm and 10 mm) before and after 1974, we deduced that daily precipitations, on the level of the West and the Center, recorded a considerable decrease. On the other hand, in the east of Algeria, these rains knew an increase in a number of rainy days higher than a fixed threshold and we noticed that the maximum rainy day passed from 1086 mm before 1974 to 1160 mm after 1974 on the level of the station of Annaba.

Bellow we will give some floods and their consequences. In the region of Annaba, the rain recorded in 1982 has 110 years return period, 35 mm in the 40 minutes space. April 04, 1996, in the same area, intense rains generated 5 died and 10 wounded. In Guelma, February 3, 1984, an abundant rain produced 03 disappeared and 157 disaster victims' families with considerable property damages. In Jijel, for the same rain, one noted 20 died. July 5, 1987, in Batna, a rain of 57 mm (period of 14 years return and half) caused 2 died and of the hundreds of disaster victims families. During the days of January the 26, and 27 1992, a generalized rain touched the centre of Algeria and caused deaths and many casualties. Rains of November 2002 on Algeria, and Algiers in particular, gave place to hundreds of dead and disappeared with considerable property damages. For a better risk management, it is important to control the knowledge of pluviometry finer scale to make it possible to develop models likely to be used in the alarm systems.