



## **Distribution of incident rainfall through vegetation in a watershed located in southern Spain**

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The rainfall interception by vegetation canopy is one of the main factors involved in soil moisture and runoff because a large proportion returns to the atmosphere as evaporation. This may assume evaporation loss between 20 and 40% of the rain, so it should be taken into account in basin water balances, especially in arid and semi-arid regions with scanty rainfall.

The purpose of this study was to determine the distribution of rainwater through the canopy of trees and shrub present in the watershed of "The Cabril" (Cordoba, Spain). The incident precipitation, throughfall and cortical flow were quantified for 2 agricultural years, 2010/11 and 2011/12, in the predominant vegetation, rockrose (*Cistus ladanifer*) and tree pines (*Pinus pinea*), in order to determine the volume of precipitation intercepted, and the influence of the rainfall intensity and duration on interception.

1134.4 mm of rain were collected on 102 storms. 31.4% was intercepted and evaporated into the atmosphere in the pines, and 19% in the rockrose. Cortical flow represented 0.3% in pine and 17.7% in rockrose, and throughfall represented 68.3% in pine and 63.3% in rockrose. Despite numerical differences exist between vegetation cover, the results indicate that there are significant correlations between throughfall, cortical flow and interception with precipitation in both pine and rockrose.

The amount of water needed to saturate the tops of the pines showed variations between 1.6 and 9.5 mm. Variation in rockrose is 1.8 to 3.9 mm depending on the intensity of rainfall. The interception reached their highest values with less intense rainfall, decreasing considerably when rainfall duration and intensity increase.

It can be seen that precipitation events exceeding 20 mm cause an increase of moisture beneath the surface of pine greater than outside. The opposite is produced when events are less than 20 mm. This can be explained because the interception in the small events is very high.