



## **Seasonal and annual variability of interception for *Pinus pinea* and *Cistus ladanifer* in a watershed with Mediterranean climate**

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Interception in forests depends on the characteristics of the rains, the weather, vegetation type and interactions between these factors. Its study is very important, especially in Mediterranean region where rainfall has a high variability and water balance is negative for much in the year.

The aim of this work is to study the seasonal and annual variability of the interception of the predominant vegetation in the watershed of "The Cabril" (Córdoba, Southern Spain). To obtain data of the interception process two experimental setups were installed. These setups are in *Pinus pinea* plot and in *Cistus ladanifer* plot, where canopy interception is measured in a traditional way by subtracting throughfall and stemflow from the incident precipitation.

Data was collected during the years of 2010/11; 2011/12; 2012/13 and 2013/14, two of which were rainy (rainfall of about 750 mm) and two quite dry (rainfall of about 400 mm) obtaining an average interception losses of 29.6% for *P. pinea* and of 17.1% for *C. ladanifer*. However, a large variability between dry and wet years is shown. The values of interception for *P. pinea* vary between 23% in wet years to 40% in dry years. A similar behavior occurs in *C. ladanifer* where interception has a value of 12% in wet years and 21% in dry years. This is because the canopy storage capacity is exceeded more easily in rainy years.

Furthermore, the results are analyzed at different time scales, comparing different hydrological years to study behaviour interception losses in the basin. Results show that the canopy interception not only differs with vegetation type and annual precipitation, but also within seasons. During the fall, interception losses are lower than in other stations, which can be explained not only because the vegetation has lost its leaves, but this season has concentrated most of the volume of precipitation (almost 50%). In winter interception losses are higher than autumn because decreasing precipitation and rainfall intensities are lower (only 8% of rainfall events have intensity higher than 3 mm/h, and also there is not event with a intensity higher than 5 mm/h), while in spring interception is more important because together with the growth of vegetation, amount of rainfall is lower than autumn, despite rain events have a higher intensity (25% of events with an intensity higher than 3 mm/h). During the summer remarkable rainfall does not occur in our study area.