



Variability of interception canopy parameters with the event weather conditions and its effect on rainfall interception modelling.

A. Muzylo (1), P. Llorens (1), F. Domingo (2)

(1) Institute of Earth Sciences "Jaume Almera", CSIC, Barcelona, Spain, (2) Arid Zones Research Station, Almería, CSIC, Spain (amuzylo@ija.csic.es / phone: +34 93 409 54 10)

The amount of intercepted water that is evaporated has been found strongly depending on both meteorological conditions and vegetation type. However, less information is available on how the meteorology and rainfall dynamics, combined with the structural canopy characteristics, influence the determination of parameters required for interception modelling. Several current methods of rainfall interception parameters determination were analysed using data from a *Pinus sylvestris* plot at Vallcebre research catchments (Eastern Pyrenees, Spain). Firstly, the effect of rainfall intensity and wind speed on a free throughfall coefficient (p) was evaluated. Results indicated a stronger influence of wind velocity than of rainfall intensity, and different values of p were obtained supposing different weather conditions. The influence of parameter p on modelled interception loss variability was tested. Secondly, three methods for canopy storage capacity (S) determination were compared: the Leyton et al. (1967) classic analysis based on empirical regression at event basis, the empirical method (Llorens and Gallart 2000) that combines the determination of specific saturation of tree elements with up-wards canopy photographs, and the Link et al. method (2004) that optimizes the parameter S for each individual event. The optimization method indicated that S varied for each event, with rainfall and evaporation dynamics, whereas the other two methods provided unique values of S . This result may be an object of discussion, whether tree canopy could be characterized by a fixed value of S parameter, or if S changes depending on the evaporative demand and the type of rainfall. As a consequence, the consideration of a unique parameter set will lead to a significant

uncertainty in rainfall interception modelling.