



Dissolved Organic Carbon dynamics in a Mediterranean mountain catchment

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The dynamics of water solutes in Mediterranean mountain areas is complex and difficult to predict as Mediterranean regions are characterized by a strong intra- and inter-annual precipitation variability and a strong climatic seasonality that lead to a very contrasted hydrological response along the year. Nonetheless, an improved understanding of the catchment hydrological functioning can be obtained from the analysis of solute dynamics in rainfall, stream water, soil water and groundwater.

Dissolved organic carbon (DOC) dynamics at the catchment scale has been studied in many environments, but there are relatively few studies in Mediterranean mountain regions. With the objective of improving the knowledge of DOC dynamics in seasonal Mediterranean environments, rainfall, soil water, groundwater and stream water samples were taken on a regular basis, as well as during rainfall-runoff events along a 26 month period in the Can Vila research catchment (NE Spain, 42° 12'N, 1° 49'E). Detailed distributed hydrometric measurements (precipitation, discharge, soil moisture and water table level) were obtained during the same period. Using these data we characterized the DOC dynamics in the different hydrological compartments and analyzed the factors which affect them. We also analyzed the DOC dynamics during rainfall-runoff events to assess possible differences in the hydrological functioning of the catchment between dry and wet conditions. Preliminary results suggest that at seasonal scale DOC dynamics of stream water and groundwater are affected by discharge and water table dynamics, respectively, as DOC dynamics follow the hydrological trends. During rainfall-runoff events, an increase of DOC concentration was observed in the stream. However the DOC dynamics during floods showed some differences between events suggesting some changes in the dominant runoff processes.