



Extreme hydrological episodes and fluorescent dissolved organic matter in a Mediterranean intermittent stream. A two years study.

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Dissolved organic matter (DOM) plays a key role in many aquatic ecosystem processes. DOM qualitative properties, such as its origin or its bioavailability, can be evaluated using DOM optical properties like fluorescence (fDOM). In the present study fDOM temporal variability has been analysed in a Mediterranean intermittent stream draining a forested catchment (15 km²) in Catalonia (Spain). Mediterranean fluvial systems present a highly variable hydrology ranging from summer flow disrupt to intense storms in autumn and spring. Our aim is to examine the influence of hydrology on the qualitative properties of DOM and its seasonal variability.

Stream water was sampled intensively during two years to capture all extreme hydrological episodes. DOM variability is studied in quantitative — dissolved organic carbon (DOC) — and qualitative —fluorescence index (FI), humification index (HIX), biological index (BIX) and emission-excitation matrices (EEMs) — terms. Finite mixture approach is used to deconvolve EEMs. This approach helps to identify potential peaks in EEMs surfaces and to explore how peak position, intensity and volume change under different hydrological conditions.