



A novel framework to characterize solute and sediment export regime and optimize their monitoring

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The quantification of solute and sediment exports from drainage basins is challenging because a large proportion of the annual or decadal flux of most elements are exported during a relatively short period of the time, which varies between element and catchments. Moreover, most monitoring frameworks favor low sampling frequency in large rivers, while solutes and sediments mostly originate from headwater catchments which require higher frequency sampling. To decipher processes behind catchment patterns, recent attention has been brought to the importance of concentration-discharge relationships analysis (Meybeck & Moatar, 2012; Moatar et al, 2017) and to export regime indicators using variability characteristics such as the ratio of the coefficient of variation of concentration to the coefficient of variation of discharge (Musolff et al, 2015, 2017).

In this presentation we propose a new framework to characterize the flashiness of solute and sediment export regime, using two indicators that can be both determined from high frequency and infrequent sampling. Tested on 480 French catchments and 130 USA catchments, this framework can be used to classify solute and sediment exports and optimize sampling frequency based on these two indicators and catchment characteristics.

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