



Transport of soil organic matter to the event-dominated Rhône prodelta (NW Mediterranean) by flood events

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With a warmer climate, the possibility of increased precipitation intensity and variability is projected to increase the risks of extreme events such as floods. In this perspective, many countries located in temperate and tropical zones are highly vulnerable to such extreme events, exposing their coastal areas and their dense population to dramatic human and economic consequences. Continuous records of paleofloods (floods in the past) beyond the instrumental period are rare or too short to assess variations in natural flood occurrences related to climate changes. We tested the applicability of the BIT (Branched and Isoprenoid Tetraether) index, which has been introduced as an indicator of soil organic carbon input from land into the ocean (Hopmans et al., 2004), as a proxy of paleoflood events in the river-dominated continental margins of the Gulf of Lions (NW Mediterranean). We investigated a variety of soils and suspended particulate matter in rivers collected in the Têt and Rhône Basins (France) and marine surface sediments and a series of sediment cores collated in different non-flood and flood periods in the Gulf of Lions. Our results show that the BIT index has a potential for tracing flood events that occurred in the past and thus for providing mega-paleoflood records on longer geological time scales beyond the instrumental period.

Hopmans, E.C., Weijers, J.W.H., Schefuß, E., Herfort, L., Sinninghe Damsté, J.S., Schouten, S., 2004. A novel proxy for terrestrial organic matter in sediments based on branched and isoprenoidtetraether lipids. *Earth and Planetary Science Letters* 224, 107-116.