



Contribution of largest events to sediment transport across USA

J.C. González-Hidalgo (1) (*), R. Batalla (2), A. Cerdà (3), M. de Luis (1)

(1) Department of Geography, University of Zaragoza, 50009, Spain, (2) Department of Environment and Soil Sciences, University of Lleida, 25198 Spain, (3) Department of Geography, University of Valencia, Spain, (*) Author contact jcgh@posta.unizar.es

This work analyses the contribution of the largest events on sediment transport at the continental scale. Analysis is based on the USGS Ancillary database (<http://co.water.usgs.gov/sediment/ancillary.cfm>). Data was obtained in 1483 catchments, comprising more than 2,500,000 daily events and representing a total of 10,000 years of record. Catchments are of different size and belong to distinct climatic environments; they are distributed according to the USA Hydrological Division i.e. HD. The main objective of the research is to analyze the effect of n-largest event on the total suspended sediment load over periods of record, and to discuss the different behaviour between HD. To accomplish that, daily events at each catchment are ranked by magnitude; then the percentage that given n-largest event (e.g. 3th, 5th, . . . , 25th) represent on the total accumulated load is calculated

Results indicate that suspended sediment transported by the 25th largest events represents more than 50% of the total load. The California HD, mostly under Mediterranean climatic conditions, accounts for the highest percentage of sediment transport across USA, whatever n-largest daily events are selected. There, the three largest events contribute, on average, 38% of the total sediment load, the 10th largest events represent 61%, and the 25th largest events produce more than 76% of the total sediment transport. Overall, the contribution of largest daily events seems to be independent of the climatic conditions in small catchment (< 100 km²) and the percentage of suspended sediment increase in all Hydrological Division. Finally, we discuss differences between catchments across conterminous USA, according to climatic and historical (i.e.

land use) factors.