YMC 2015

M.S.YALIN MEMORIAL COLLOQUIUM 2015:

Fundamental river processes and
Connection between fluvial and coastal systems in a changing climate

19-20 November, 2015 Palermo, Italy

Bedload sediment transport and incipient motion in a bend of the Ebro River

Rovira Albert[1] and Núñez-González Francisco[2]

[1]Aquatic Ecosystems-IRTA, Spain, argeomorphology@gmail.com
[2]Leichtweiß-Institut für Wasserbau, Technische Universität Braunschweig, Braunschweig, Germany, f.nunez-gonzalez@tu-braunschweig.de

Flow in curves in gravel bed rivers is strongly efficient in classifying grain sizes of the supplied material, along and across the stream channel. Theoretical studies have contributed to understand the processes that lead to grain size sorting in curves, and a number of field data sets have provided with empirical evidence of the characteristics of such sorting trends in natural streams. This notwithstanding, understanding of the bed and bedload texture adjustments in curves, in response to changing flow conditions, has received little attention. In this work we present bed load and bed material data collected in two points of a cross section at the end of a curve of the Ebro river, a large gravel bed river in the Iberic Peninsula. During six years of study, hydrographs with different characteristics passed through the river. We present results of the analysis of the bed load samples, which give evidence of an important change in the character of the bed load texture along time. Besides, we present a comparison between reference shear stresses obtained from the bed load and bed material samples, for the two measured points. We found that incipient motion for every grain size fraction of the two studied points in the cross section occurs at a very narrow range of flow discharges. This occurs in spite of being the ratio between mean grain size diameters of the two points almost equal to two.