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Sampling bed material and bedload in a bend of the Ebro River

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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 describe an experimental campaign to sample bedload and bed material, at different moments during six years, 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 the six years of study, hydrographs with different characteristics passed through the river. We present some preliminary results of the analysis of the data, showing some features of the response of the channel, bedload and bed material to this changing flow conditions. Particularly remarkable is that the analysis demonstrates that incipient motion for every grain size fraction of the two studied points in the section occurs at a very narrow range of flow discharges, giving evidence of the dynamic stability of the section.