



## **Development of a bed-load measuring system for large Alpine rivers**

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The aim of the work is to figure out the bed load transport processes for the free flow-reach of the river Drau and his most important tributary Isel, both large Alpine gravel bed rivers, situated in Austria, using a system of bed load measurement devices. The measurement sites are all representative for their part of the study reach. Former measurements in the study reach were performed using mobile bed load samplers, fixed bed load traps and since 2002 also hydrophones (Falkensteiner Steg, Lienz). Used all together they are adequate bed load measurement instruments, but each applied separately leads to specific deficits. At the beginning of 2006 the measurement equipment will be enlarged to a measurement system, the mentioned measuring instruments then will be each concentrated at one location and complementing one another. The measurement system then will be consisting of three locations distributed over both rivers (distance 40 kilometres), each supplied with hydrophone installations, different types of bed load traps (except Falkensteiner Steg), mobile bed load sampling and other related measurement devices (e.g.: suspended load measurements, flow velocity measurements, water gauges, ...) together with hydrological, geological meteorological and other related data (e.g.: information about sediment sources, sediment dredging, ...). This will allow observing the transport processes in detail for the study reach. Within the study especially the initiation of motion, the bed load transport rate and bed load transport processes (cross sectional variation, periodicity in bed load movement) are analysed. In comparison to transport formulae, in nature the initiation of motion is of central importance, starting at low water levels. In this work we want to introduce the new measurement system with its possibilities and present results of investigations already made with the applied devices.