Annonce de conférence

Jeudi 23.06.2011 à 12:15, Salle GC C30 (Génie Civil)

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Within-event spatially distributed bedload: linking fluvial sediment transport to morphological change

Abstract

Maps of apparent bedload velocity are presented along with maps of associated channel change. Apparent bedload velocity is the bias in acoustic Doppler current profiler (aDcp) bottom track (Doppler sonar) due to near-bed particle motion. Apparent bedload velocity is correlated to bedload transport, and thus serves as an indicator of local bedload transport. Spatially distributed aDcp surveys in a river reach can be used to generate maps of channel bathymetry, water velocity, bed shear stress, and apparent bedload velocity. It is possible to relate the observed spatial patterns of bedload and forcing flow. This technique has been used to measure bedload flux pathways in the braided Rees River, New Zealand as part of the ReesScan project.

Most recently, in February 2011 a total of four aDcp spatial surveys were conducted in a Rees River braid bar diffluence-confluence unit. Each aDcp survey was complemented with terrestrial laser scans (TLS) of the bar topography. Linking aDcp bathymetry and TLS topography allows for generation of complete digital elevation models (DEMs) of the reach, from which morphological change between surveys can be determined. The surveys were conducted over a range of flows before and after a major flood event that inundated the entire braid plain. Most intriguingly, the primary bedload pathway observed during the first survey resulted in sufficient deposition during the major flood event to fill and choke off an anabranch. This is perhaps the first direct field measurement of spatially distributed bedload and corresponding morphological change.

Durée de la conférence: env. 45 minutes, suivie d'une discussion

Prof. Dr Anton SCHLEISS