



Alternate bar migration in multiple channel river systems: scour/fill processes and associated sedimentary record from the modern example of the Loire River (France).

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A field study was carried on the initiation, migration and decay of modern alternate/unit bars present in a multiple-channel river: the Loire (France). The approach is based on the coupling of high frequency bathymetry, scour chains and stratigraphical analysis of deposits associated to flood events in a secondary channel of the Loire River characterized by non-erodible banks. It is shown that bar initiation can be due to chutes associated to changes of bank direction but also to instability resulting from interactions between existing bars. The migration of the bars downstream and laterally depends on the dynamics of dunes which vary in height and length according to their location on the macroform and to discharge value. During the fall in water level, a significant sediment reworking occurs leading to a smooth morphology of the surface of the bars. The abovementioned processes and the location of bars before floods are key parameters of the morphological evolution of the channel.