



## **Connectivity estimation between turbiditic channels and overbank deposits from the modelling of an outcrop analogue (Pab Formation, Maastrichtian, Pakistan).**

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Conceptual models showing the sedimentary architecture of the turbidite depositional systems and their evolution through time, such as those published by E. Mutti and his school, were first established in the outcrop. At the reservoir scale, the field development of turbidite reservoirs now requires detailed reservoir models finely describing the distribution of the heterogeneity which may influence the reservoir dynamic behaviour during production. Information derived from quantified outcrop models can then be used to better constrain the reservoir models in the subsurface.

Outcrops models first focused on the heterogeneity distribution within the channel conduits, emphasizing the diversity of the channel architecture regarding to the complexity of the depositional processes. The facies architecture of turbiditic overbank deposits laterally to the channels are even less understood than within the channels. If the general geometry of levees can be easily seen on seismic, their facies, and the sand/shale ratio close to the channel border, are poorly known as overflow deposits are rarely drilled in the subsurface, and crevasse lobes are below seismic resolution. The conceptual models of the overbank distribution at the reservoir scale must then rely on outcrops models.

The questions on which we would like to focus are the followings: 1) What kind of facies model can we expect in the overbank deposits laterally to the channel conduits? 2) Do these facies constitute reservoir bodies with a significant volume? 3) Is there any heterogeneity between the channel conduits and the levees which may reduce their connectivity? 4) Can overbank deposits, such as crevasses or spill over lobes, insure connectivity between two channel conduits and homogenise the pressure regime during the reservoir production?

The relationship between channels and overbank are well exposed in the Pab mountain range outcrops, in Pakistan. In this paper, we propose to characterize the relationships between the channel conduits and their overbank deposits from a sedimentological, seismic and dynamic point of view using a geocellular model compiled in the Pab outcrops. The consequences on the reservoir development in the subsurface will be emphasized.