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ABSTRACT BOOK

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The channel-levée transition: insights from the Tachrift Turbidite System (Complex T6, Taza-Guercif Basin, NE Morocco)

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Turbidite channel-levée complexes have been the focus of research over more than forty years. Although high-resolution 3D seismic yielded detailed imaging of these deposits, facies transition from channel to correlative levée remains elusive. To fill this gap, extensive and well-exposed outcrops are important, as they provide information on fine-scale facies heterogeneity. Despite this, documented outcrops where accordant channel fills and overbank sediments can be observed with continuity are relatively few/small. We present the Tachrift Project aimed at the field-based reconstruction of the Tachrift Turbidite System (Tortonian-Early Messinian) in the Taza-Guercif Basin (Rifian Corridor, NE Morocco). Among the 9 superimposed, spectacularly exposed channel-levée complexes (T1 to T9) filling the basin for a total 600 m thickness, here we focus on the T6 complex. Detailed geological mapping was integrated with measurements and facies analysis on 46 logs, and physical stratigraphic correlations. T6 (12 m thick) is bounded above and below by 3 to 10 m-thick mudstone units. It consists of three stacked sandstone-rich units that are separated by erosional surfaces. Each unit comprises peculiar, physically traced facies associations showing different channel-levée transitions. They reveal an eastward channel belt migration and a progressive flow energy/density increase. Benefitting from 3D great exposures, the ongoing project provides i) characterization and correlation of channels and accordant overbank sediments, ii) insights on evolution of a channel-levée complex from inception to its deactivation, iii) sub-seismic scale lithological and architectural calibration for analogue subsurface deposits.