



## **Sedimentary and morphologic characterization of channel flats in gravel-bed dryland rivers**

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Flats have low longitudinal slope, are comprised of fine-grained and well-sorted sediment, and are common repeating macroforms, alternating with coarser bars in upland, ephemeral, gravel-bed rivers. Typically, the sediment lacks grading. Vertical inspection of these patches assists in estimating the quantity of fine-grained bed material available for entrainment. Also it allows characterization of the cross sectional and longitudinal shape of the substrate layer.

This research has been conducted in Nahal Yatir and Nahal Krayot, two ephemeral streams in the northern Negev, Israel. Ten flats situated in straight reaches were chosen to represent these macroforms. Trenching has allowed observation of the microstratigraphy and sampling of flat sediments: in each flat, several cross sections and one longitudinal section. Images of vertical trench faces have been analysed using Digital Gravelometry and GIS tools to determine the subsurface grain-size distributions (GSD) of the macroform. The GSD of surface sediments of the flats have been sampled using conventional methods. Flat shape and slope have been measured using a total station.

Preliminary results show that the flats occupy the entire channel width in this narrow channel. Grain size distribution of the flat indicates good sorting (average inclusive standard deviation for the patches is  $-1.313 \phi$ ), with an average  $D_{50}$  of 1.06 mm. flat vertical thickness ranges between 8 and 20 cm, with an average of 10.5 cm and a standard deviation of 5 cm. The cross-section shape is upwardly concave towards the channel banks. The shape of the sub-flat longitudinal cross-section appears to be planar.