

**A fluvial facies in the Mesoproterozoic Dala sandstone. Preliminary results from the Moberget quarry, west-central Sweden.**

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The Mesoproterozoic Dala sandstone is an approximately 1300 m thick clastic unit of red continental deposits ranging from conglomerates to shale (Ripa et al. 2012). In Norway this unit is referred to Trysil sandstone. Despite its wide distribution in Sweden (>6000 km<sup>2</sup>), there are few vertical outcrops restricting the possibility to describe and interpret existing depositional environments. The lack of fossils disables correlation throughout the sequence.

The Dala sandstone has previously been interpreted as a primarily aeolian deposit with ephemeral lakes (e.g. Pulvertaft 1985). Evidence is based on a combination of large cross-bedded sand-dunes and periodically wet interdune areas illustrated by ripples, and desiccation cracks. A wave-dominated delta facies has been interpreted from Fulufjället (Ripa et al. 2012) and a supposedly fluvial facies from Fjätafallen was mentioned by Pulvertaft (1985), however, it was not described in detail. The study presented herein provides the best evidence, so far, that the Dala sandstone partially was deposited in a fluvial environment.

The Stora Moberget quarry, close to the Norwegian border represents a 9 m fluvial sequence with sediments ranging from gravel to mudstone. The following facies have been observed; (1) high to low angle trough cross bedding interpreted as channel fills, 3D dunes, scour fills and antidunes; (2) planar crossbeds interpreted as 2D dunes; (3) horizontal lamination interpreted as planar beds; (4) flaser, lenticular and wavy lamination and desiccation cracks interpreted as being deposited in overbank areas, abandoned channels or as waning flood deposits. These facies can be grouped into a fluvial facies association and the most suitable depositional environment is a braided river environment.

**References:**

- Pulvertaft, T.C.R., 1985: Aeolian dune and wet interdune sedimentation in the Middle Proterozoic Dala sandstone, Sweden. *Sedimentary Geology* 44, 93-111.
- Ripa, M, Mellqvist, C., Ahl, M., Andersson, D., Bastani, M., Delin, H., Kübler, L., Nysten, P., Persson, L. and Thelander, T., 2012: Beskrivning till berggrundskartan Västra delen av Dalarnas län. Sveriges geologiska undersökning K382. 106 pp.