

Paper Number: 1883

Sea level reconstructions at the Triassic-Jurassic boundary: southwestern margin of the Neotethys in the Salt Range, Pakistan

Iqbal, S.^{1,2} and Wagreich, M.¹

¹Department for Geodynamics and Sedimentology, University of Vienna, Austria, Corresponding author's E-mail: siqbal_geol@yahoo.com

²Department of Earth Sciences Quaid-i-Azam University Islamabad, Pakistan.

The Triassic-Jurassic boundary interval reveals a change from warm and dry to a warm and humid climate in the Tethyan domain. Sea-level reconstruction records across the European basins during this interval reveal an end-Triassic global regression event and is linked to the Central Atlantic Magmatic Province (CAMP) activity and Pangaea breakup. The existing literature provides very little information about the abrupt facies dislocation, from the Triassic dolomites (Kingriali Formation) to Lower Jurassic fluvial/continental conglomerates/pebbly sandstones (Datta Formation) in the Tethyan Salt Range of Pakistan. Sedimentological analyses in the region indicate marine regression and emergence under tropical-subtropical conditions (Greenhouse conditions) and negates the possibility of glacial influence in this region. Field evidences reveal an undulatory surface at the base of the Jurassic siliciclastics especially in the northeastern part of the area while thin evaporites occur at this level in the southwestern part. Seismic reflection data of the region displays normal faults (horst and graben geometries) in the basement. The Lower Jurassic Datta Formation is comprised of fluvial/continental-deltaic strata deposited in an overall graben fill setting on the southwestern margin of the Neotethys (Salt Range, Pakistan) thereby providing sedimentological evidences for an abrupt sea-level fall comparable with the European basins, Iran and Afghanistan. Furthermore, the normal faults in the region are the evidences for the Pangaea breakup indicating a tectonic control on the sea-level fall at the Triassic-Jurassic boundary. Similar normal faults and graben fill geometries are observed on seismic sections in different regions on the southeastern margin of the African Plate and are related to the Karoo rift system that triggered regional sea-level fall and separation of the Indian plate from the African and Arabian plates.

