

Revision of Early to Middle Cambrian Rock Units In Outcrop in Northwestern Saudi Arabia

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ABSTRACT

Recent regional lithostratigraphic field investigations and interpretations of the Early to Middle Cambrian rock units by SGS on the southern rim of the Tabuk basin (Northwest Saudi Arabia), have led to revise the lithostratigraphic nomenclature adopted so far within this area.

This work is based on reconnaissance of the marine influence of the Mid Cambrian transgression up to the present outcrop in Saudi Arabia. In subsurface, this transgression is marked by the Burj Dolomite which forms a regional and highly contrasted seismic reflector used as marker horizon. In outcrop, south of lat.30°N, the tidal clastics of the Abu Khusheiba Sandstone Formation reflect the same transgression. They are broadly coeval with the middle and upper Burj Formation in the north, and of the upper part of the Salib Formation in the south, where a marine ichnofauna was described. In Saudi Arabia, the Early Cambrian Siq Formation of the lower part of the Tayma Group and coeval with the Salib Formation, crops out in a curved belt along the Arabian shield from the Saudi-Jordan border to the southeastern corner of the Jibal Al Misma quadrangle, west of Hail. The contact with the underlying Proterozoic of the shield is a major unconformity. A such marine influence, in the upper part of the Siq sandstone, and under the Saq Sandstone, was already described in the BRGM/DMMR geological map of Jibal al Misma, near Jibal al 'Ama'ir.

This event, which can be identified through characteristic sedimentary structures and trace fossils such as vertical Skolithos burrows, can also be recognized in different places in Saudi Arabia between the Saudi-Jordan border, where the Abu Khusheiba sandstone is well defined, and Jibal al Misma. Therefore, based on a type section measured in the Al Bada quadrangle, we proposed a new formation name in the Saudi nomenclature: the Ash Shiqri Formation, from the name of the type locality, as an equivalent to the Abu Khusheiba Sandstone Formation. It will be inserted into the Tayma Group between the Siq Formation and the underlying Quweyrah Formation.