706304 “Intra-Al Bashair Boundary” (Late Cambrian, Oman): is it a Maximum Flooding Surface or a Sequence Boundary?
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The Late Cambrian age Al Bashair Member of the Andam Formation (Haima Supergroup) of the north-central part of Oman consists mainly of thin (< 0.5m) layers of sandstone, siltstone and mudstone that are occasionally interbedded with various types of thin (<1m) carbonate layers. Carbonate rocks are absent in the upper half of the succession of the Al Bashair Member and the interval becomes much muddier than the underlying unit. These features allow the division of the Al Bashair Member stratigraphically into two units, the Lower Unit and the Upper Unit. Previously it has been thought the mudstone intervals in the Al Bashair succession were deposited in a deeper water setting than the carbonate and sandstone strata. Consequently, the increased proportion of this mudstone in the Upper Unit of the Al Bashair Member was interpreted as representing a significant relative sea level rise. Thus the contact between the Lower and Upper Units, the “Intra-Al Bashair Boundary”, was thought to represent a maximum flooding surface.

However, recent detailed study of the succession at outcrop shows that these mudstone intervals are always associated with terrestrial sedimentary structures including pedogenic slickensides, blocky ped structure and occasionally desiccation mudcracks, indicating they were subaerially exposed for sufficient time for soils to form soon after their deposition. This indicates that the succession of the Upper Unit of the Al Bashair Member generally was deposited in an overall shallower water setting than the underlying unit, and the “Intra-Al Bashair Boundary” cannot be interpreted as a maximum flooding surface. Alternative interpretations of the nature of this boundary are considered, including the possibility that it represents a sequence boundary. What is certain is that the “Intra-Al Bashair Boundary” should not be correlated regionally with other maximum flooding surfaces across the Arabian Plate.
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