
Correlation of the Lower Permian Surface Saiwan Formation and Subsurface Haushi Limestone, Central Oman

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The palaeontology of the Saiwan Formation (Lower Permian) of the Huqf outcrop, central Oman has been the subject of significant study, but that of approximately equivalent beds in the subsurface (the Haushi limestone and 'basal sandstones' of the lower Gharif member) has, until now, received less attention, preventing precise surface-subsurface comparison. Recent brachiopod study of cored Petroleum Development Oman wells has allowed a fourfold biozonation correlating the Haushi limestone and the Saiwan Formation, implying that previous direct correlation of the Saiwan Formation with the lower Gharif member is not correct. The occurrence of the fusulinid *Pseudofusulina* ex gr. *karapetovi* karapetovi Leven, suggests a Sakmarian age for the Haushi limestone, and brachiopod data supports this determination. Subsurface Haushi limestone palynology, though diverse, is poorly preserved, and no palynomorphs have been recovered from equivalent surface outcrops. However, the distribution of autochthonous algal spores in three subsurface Haushi limestone sections suggest a local biozonation that is consistent with that indicated by brachiopods. The terrestrially-sourced palynomorphs in these sections suggest an OSPZ3c age and correlation of the carbonates of the Haushi limestone with the highest part of the clastic lower Gharif member in south Oman, above the *Ulanisphaeridium omanensis* Biozone or Maximum Flooding Shale in that area. Facies evolution reveals an increase in carbonate deposition during the Sakmarian due to distancing of the terrigenous source, coupled with climatic warming, culminating with a regressive trend at the end of the cycle. Petroleum Development Oman is acknowledged for arranging access to cored well sections.
