
From Ice to Salt: Stratigraphic Synopsis of the Huqf Supergroup of Oman

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The Huqf Supergroup is the oldest sedimentary sequence overlying crystalline basement in the Sultanate of Oman, and spans approximately 200 My of Earth History from the Late Neoproterozoic (Cryogenian and Ediacaran) to the earliest Cambrian. It crops out in the core of the Jabal Akhdar and in the Saih Hataat mountain regions of north Oman, in the Huqf area of east-central Oman and near Mirbat in the south of Oman. Refinement of the Huqf Supergroup stratigraphy has mostly been triggered by the continued drilling by Petroleum Development Oman (PDO) of exploration wells targeting this sequence. To-date more than 300 wells penetrate Huqf Supergroup strata. In support of these exploration activities, PDO has sponsored and supported a number of research projects that have addressed the Huqf Supergroup in outcrops and in the subsurface.

In addition to commercial interests, the Huqf Supergroup has become the focus of the worldwide scientific debate on the "Snowball Earth hypothesis". Oman has now emerged as one of the localities in the world that provides direct constraints on both the Sturtian (740-700Ma) and Marinoan (665-635Ma) glacial episodes. This is underpinned by a combination of precise radiometric ages and detailed carbon isotopic data covering the full terminal Neoproterozoic of Oman and providing an important component of the global composite carbon isotopic record.

This paper summarizes the efforts and advances made over the last six years in both the subsurface and surface rocks. The available stratigraphic, isotopic and radiometric data of the Neoproterozoic of Oman are reviewed, and a composite Oman reference section is proposed as an important update for the Arabian Plate Sequence Stratigraphy.
