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**Depositional Topography, Facies Tract Length Scales and Natih Reservoir Models (Oman, Middle East): Insights from Outcrop Analogs**

The Natih Fm (Albian-Turonian), is classically subdivided into seven "members", A through G, from wireline log signatures, with further subunits for reservoir layering, at a single scale. However, recent work suggests that at least three scales are present:

Scale 1: High resolution sequence stratigraphy of the carbonate platform and intrashelf basins, based on outcrop and subsurface data, has emphasized the broad lateral extent (hundreds of kilometers) of units measuring only a few metres to tens of metres in thickness (van Buchem et al 2002).

Scale 2: Intrashelf basin margins have been mapped from seismic at successive levels of the Natih, locating sites of major facies variation over much shorter length scales (Droste et al 2002).

Scale 3: High resolution sequence stratigraphy and sedimentology, in outcrops of the Jabal Shams area, show major lateral facies variations of deposits laid down near and around syndepositional highs at scales of hundred metres for units a few metres thick, with the development of highly porous and permeable rudist shoal sediments.

In Natih reservoir models, conventional interpretations link high permeability layers, in these commonly muddy carbonate deposits, to the occurrence of strati-bound fractures. Hence, reservoir models are based on notions of geomechanical flow units linked to the high resolution stratigraphic layering (scale 1). However, many Natih fields are located near paleohighs which, based on outcrop analogues, may control significant lateral facies variations. Hence, the distribution of high permeability should be tested for the possible role of stratigraphically constrained lateral facies changes (scale 3).