

the wireline log data. A sub-set of these samples was then taken for quantitative palynofacies. Aspects that were of particular interest were the exact character of the D3B transgression and the speed and symmetry of its development. Does its presence reflect a transgression or is it, in fact, a response to the regression that created the sands of the Jauf Reservoir? In addition to palynofacies a number of analyses were also carried out including atomic H/C ratio of the kerogen and a limited programme of stable isotope determinations in the organic matter. These results will help determine the magnitude of this transgression and whether it can be related to a named 'global' Devonian event.

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Late Devonian and early Carboniferous miospore assemblages from Saudi Arabia

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Famennian (Late Devonian) and Tournaisian (Early Carboniferous) miospore assemblages are described from two exploration wells in Saudi Arabia; one located offshore in the Arabian Gulf, the other drilled east of the Ghawar Oilfield, c. 300 km east of Riyadh. The latter section includes assemblages dominated by *Retispora lepidophyta*, the disappearance of which coincides with the Devonian / Carboniferous boundary. However, overlying strata spanning the system boundary have been removed by erosion. Diverse assemblages from the Arabian Gulf well include typical Famennian and Tournaisian miospore taxa. However, *R. lepidophyta* has only been recorded from this well section as recycled specimens in assemblages that are clearly Carboniferous in age, so it appears that latest Devonian rocks have not been preserved. Extensive reworking has led to difficulty in interpreting the age of some of the lower intervals in this section.

Vallatisporites and related Cingulizonate genera from the Late Carboniferous–Early Permian of Saudi Arabia and South America

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Knowledge of Late Carboniferous and Early Permian Gondwanan microfloras has expanded significantly during the past five years as a result of detailed investigations in Saudi Arabia, Oman, Argentina and Brazil (STEPHENSON & FILATOFF, 2000; STEPHENSON et al., 2003; DI PASQUO, 2003; DI PASQUO et al., 2003 a, b). Correlation of the Early Permian sequences between the two regions is presently afforded by a small number of well illustrated spore taxa such as *Converrucosisporites confluens* (Archangelsky & Gamarro) Playford & Dino but many other morphotypes are similar in the two regions, particularly within the cingulizonate group. These spores are, however, complex and poorly illustrated so that comparative taxonomy is difficult. This contribution attempts to present a comparison between species of the genus *Vallatisporites* and other related cingulizonate genera including *Cristatisporites crassilabratus* Archangelsky & Gamarro, which are extensively recorded in the Late Carboniferous – Early Permian assemblages in Saudi Arabia, Oman and Argentina in order to reassess the outline correlations recently proposed by STEPHENSON & FILATOFF (2000).

Data from Saudi Arabia and Oman are derived from the subsurface glaciene Jawb (Unayzah B) and Al Khlata formations or the surface equivalent Juwayl Formation whilst those from South America were mainly recorded from the Machareti and Mandiyuti Groups in the Tarija Basin as well as from the Paganzo Basin in Argentina and from the Itarare Subgroup in the Paraná Basin of Brazil. The assemblages typically contain variable frequencies of spores and pollen grains (monosaccate, bisaccate and taeniate) from both the Late Carboniferous and Early Permian intervals and represent a predominantly gymnospermous (cordaitalean and coniferalean) vegetation but with significant contributions from lower vascular plants, notably pteridophytes, sphenophylls and lycopods. Taeniate pollen grains which become increasingly prominent in the Early Permian are derived from a glossopterid source.

Species such as *Vallatisporites arcuatus* (Marques Toigo) Archangelsky & Gamarro, *Cristatisporites menendezii* (Menéndez & Azcuy) Playford, *C. inordinatus* (Menéndez & Azcuy) Playford, and *C. crassilabatus* Archangelsky & Gamarro were recorded in both regions and are here critically re-examined in order to confirm both specific and stratigraphic assignments. Other species appear to remain endemic to both regions.

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MESOZOIC PALYNOLOGY

Palynology and paleoenvironment of the Gulailah and Hamlah formations (Triassic) in Qatar, Arabian Gulf

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Palynological and total organic carbon (TOC) analyses have been conducted on core samples recovered from the Gulailah and Hamlah formations of two wells drilled in the Dukhan oil field, western Qatar. Analysis of $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of the studied succession give a chronostratigraphic range of Middle to Late Triassic (Ladinian-Carnian) for the Gulailah and Hamlah formations respectively. Palynological analysis has yielded a rich and fairly well preserved assemblage. Sixty-one palynomorph species have been identified. The assemblages are dominated by monosaccate, bisaccate and Circumpolles pollen. Three palynomorph assemblage zones have been established in the following ascending order: Zone I (Microcachrydites doubingeri - M. fastidiosus - Enzonalasporites vigens - Duplicisporites granulatus Assemblage Zone) dated as late Ladinian, Zone II (Patinasporites densus-Partitisporites maljawkinae Assemblage Zone) of Carnian age and Zone III (Corollina meyeriana-Eucommiidites major-