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## Potential And Pitfalls of Outcrop Analogue Studies: A Comparative Analysis of Permian Carbonates from The Arabian Peninsula

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Published paleogeographic reconstructions agree that the Middle to Late Permian shelf of the Arabian platform was an area with a hot and arid climate. Evaporite-rich deposits with a composition similar to modern Sabkhas of the Arabian Gulf as well as Permian carbonates locally enriched in calcareous algae provide unequivocal evidence that the sediments of the Khuff Formation indicate the presence of a vast tropical sea, covering large areas of the Middle East. With this concept in mind, one might come with the hypothesis that all Middle to Late Permian outcrops of central Saudi Arabia, the Oman Mountains and the interior of Oman are suitable analogues for the interpretation of the Khuff Formation in the subsurface. One might further speculate that sea level change was the main control factor of carbonate production and platform development. By comparison of own and published data, I will show that the eastern part of the Arabian plate was dominated by non-tropical carbonates to a certain extent, indicating upwelling of nutrient-rich or probably temperate sea-water. Especially outcrops of the Khuff Formation in the Haushi and Huqf area significantly differ with respect to sediment structures, sediment composition and diagenesis from contemporaneous sediments of the Arabian plate. This example does not deny that outcrop analogue studies provide useful informations below the seismic scale. However, existing paleoceanographic data should be considered prior to the start of a study in order to avoid inadequate models.

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