# Worldwide Compilation of the Formative Properties of Giant and Supergiant Carbonate Fields Sealed by Bedded Evaporites

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Without exception, the largest of the various oil and gas fields sealed by bedded evaporites are hosted in partially dolomitized marine platform carbonates. The evaporites not only hold back the hydrocarbon column, but also helped create and maintain reservoir quality. The most impressive examples are the various Arab D reservoirs in the Middle East, with smaller but still volumetrically significant accumulations in oil pools in San Andres Formation of west Texas and the Smackover Formation in the Gulf of Mexico. Variations in subevaporite reservoir quality is the end product of a combination of depositional facies and varying intensities of evaporite plugging, dissolution, reflux dolomitisation and burial stage leaching, dolomitization and cementation. Lateral and vertical variations in all but the latter stages of diagenesis are indicated by facies variations in the seal itself. Yet, for much of the oil industry, evaporite plugging and reflux dolomitization are associations that geological and geophysical staff do not quantitatively integrate into a reservoir model (The usual question asked is; Is it thick enough?). Once the integrity of an evaporite seal is established, further study of the seal properties or textures is not considered relevant, other than hoping for, or establishing, its lateral persistence. But porosity/permeability in an evaporite-sealed system continues to evolve to varying degrees, long after the reservoir has subsided into the mesogenetic realm and early evaporite plugging (via brine reflux) of the subsalt interval has ceased. In some fields the burial (fault-related) overprints are significant and can control reservoir quality, in others they do not.