

# **Reservoir Characterization Challenges in Pre-Salt Brazilian Carbonates**

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## **ABSTRACT**

Microbialite and Coquina facies have been reported from the Brazilian Pre-Salt carbonate play. These reservoir types are relatively rare and poorly described in terms of reservoir characterisation. The Microbial analogues in Brazil range from Neoproterozoic to Recent and a range of examples present complex thin and curvilinear to cavity pore systems of varying size. Identifying appropriate Representative Elementary Volumes for measurements is a challenge and micro-CT and CT studies of modern microbial systems help to determine the appropriate measurement volumes. Nested geostatistical models are required for properties at larger-than-core scales and outcrop analogues can be used to guide modelling strategies. Coquinas are transported shelly (and sometimes sandy) hashes which because of various primary and secondary textures resulting from multiple cement and dissolution phases can result in complex pore systems ranging from well connected (where solution seams are present) to isolated and these affect the conductivity of current and produce a wide range on Archie porosity exponents. Outcrop and modern analogues can be used to identify important reservoir characterisation issues in these systems.