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SPECIAL FEATURES IN EXPLORATION AND INTERPRETATION OF SALT STRUCTURES

Stefan Folle

STORCONSULT, Hannover, Germany, folle@storconsult.de

Abstract

The structural variety of salt structures is immense. The range is from even stratified bedding to extremely complicated diapirs with steep and folded strata. The salt may be massive or intercalated by clay. Quite often broken strata of anhydrite or carbonate “float” within the salt like rafts.

Specifically the irregular shape of structures makes them hard to be detected by geophysical methods. Differences in physical properties of rocks are favourable for their determination. On the other hand, if they are relatively similar - like the acoustic attenuation of claystone and of salt - they may not be distinguished from each other.

Often the internal structure of salt can only be differentiated on the base of drilling results by logging, coring and cuttings. The effect of ongoing drilling or mining on the structural interpretation is mostly associated with a significant increase in complexity. Diapirs get more slim or even rid of their basis. Internal folding becomes as irregular as it never seriously would have been interpreted before.

Selected structural examples show how interpretation changes during exploration respectively field development. Extreme cases are mud diapirs, gas chimneys and salt glaciers. Sources of misinterpretation are being discussed.

Key words

Allochthonous Salt, Bromine, Canopy, Coring, EMR, Exploration, Gas Chimney, Seismic Migration, Mud Diapir, Multiple Reflections, Raft Tectonics, Salt Structure, Salt Glacier, Seismics, VSP