

SALT STRUCTURES IN THE PRICASPIAN BASIN (RUSSIA AND KAZAKHSTAN)

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Salt in c.1800 structures now comprises a conspicuously large proportion of shallow levels of the Pricaspian basin compared to most other oil and salt-rich basins. This is because the initial salt was unusually thick (up to 4.5 km) in a basin that maintained much the same shape as it sank very slowly for an unusually long time (Devonian to Paleogene) with relatively few brief spurts driven by lateral forces. Inclined salt walls of pure Kungurian salt (260 Ma) were already being downbuilt along the eastern margin by Kazanian (255 Ma) clastic sediments prograding from the rising Urals while salt continued to accumulate in the centre of the basin. The first salt walls along the eastern margin were squeezed by E-W lateral shortening in the Urals while down-to-the-basin growth faults tilted salt blocks beneath primary slopes around the other margins. Progradation of terrigenous redbeds toward the basin centre mainly from the south and east was continuous from Triassic to end-Jurassic. Large downbuilt asymmetric salt overhangs were extruding in a wide zone migrating basinward in front of similar structures that stagnated as they were isolated by primary welds. A long history of slow, almost continuous, downbuilding around huge salt massifs developed atop subsalt Permian reefs and deep water fans across the centre of the basin until interrupted or ended by uplift as Pangea dispersed in the Early Jurassic. Isotropic regional extension resulted in a remarkable pattern of polygonal grabens developed over salt structures everywhere except the eastern margin. This extension reactivated many salt bodies which upbuilt spines through thin non-halokinetic covers and then downbuilt until the Cenozoic. Slow deposition of a thin Cretaceous to Paleogene shelf sequence was accompanied by deep downbuilding localising around decreasing numbers of still-active salt structures.