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An Emergent Play in the Deep Water Basin Between Canary Islands and Morocco

In the past three years, the deep-water area located between Canary Islands and Morocco has attracted the interest of many exploration companies: Agip, Energy Africa, Enterprise, Onarep, RepsolYpf, RweDea, Shell, Taurus, Vanco and Woodside. The aim of this paper is to show the exploratory concepts that the authors consider more relevant in this frontier basin: (i)Source rock: The main source rock was deposited during the anoxic event established at Albian-Cenomanian-Turonian (ACT) time. Secondary sources may be present in Domerian, Oxfordian and Barremian sections. (ii)Reservoirs: Highstand turbidites related to the bottomset of the Lower Cretaceous deltaic system and three Palaeogene deep-sea fans of lowstand systems: a basal tabular system eroded by bottom currents, an intermediate chaotic and mounded system and, finally, a regional apron system. (iii)Seals: Hemipelagic shale. (iv)Traps: Structural traps associated with the halokinesis of the deep Triassic-Jurassic salt: domes, flanks of diapirs, subsalt plays and toe thrusts. (v)Migration pathways: Vertically, by extensional faults and different overpressure stress and horizontally by the regional carrier bed defined by the first turbidite sand overlaying the Cretaceous-Tertiary sedimentary discontinuity.

Without well control, the main risk factors are: (1)The extent of the ACT source rock and its maturity level, given that the heat flow history is difficult to infer. (2)The quality of the reservoirs regarding the economic assumptions of the deep-water development scenarios.

Exploratory drilling activities will take place in the next two years. The results will be critical for the future activity and the true economic potential of the basin.