

Subsurface facies analysis using Electrologs - A case study on Krishna Godavari Basin Rajahmundry

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The present study gives insight knowledge about the facies variation across the Krishna-Godavari basin. The basin is located at the centre of the divergent Eastern margin of the Indian Plate. The two rivers Krishna and Godavari supplied copious amounts of sediments which resulted in the development of the basin. The basin evolution had close relation to plate tectonics and the basin architecture shows several Horsts and Grabens. The sedimentation in the basin is restricted to paleo lows and Grabens until early cretaceous. The tectonics and seal level fluctuations had resulted in the development of present stratigraphy in the basin. The electrologs are the good indicators of physical parameters of the formations penetrated by the bore hole. The spontaneous potential and gamma ray along with resistivity and caliper are excellent source for lithology determination. The resistivity logs Latterolog Deep, Latterolog Shallow, Microspherically Focussed logs along with Neutron porosity and formation density logs are useful for Hydrocarbon zone identification. The dip meter along with above logs is an excellent source of correlation studies. The micro correlation explains lateral and vertical facies variation across the Krishna Godavari basin. The micro correlation within a field had revealed the heterogeneity of the field and also helps in identifying hydrocarbon bearing horizons. On the basis of electrolog studies the comprehensive subsurface variations of various litho units are studied and shifting depositional centers are identified in macro correlations. The environments of their depositions are derived from the log signatures. Various favorable locations for hydrocarbons accumulations were also identified.