Identification of Minerals and Rock Types from Well Log Data

Arpita Roy and Rima Chatterjee

Dept. of Applied Geophysics, Indian School of Mines, Dhanbad, India, rima_c_99@yahoo.com

It is now a relatively established procedure, with recent advances in logging technology, to be able to generate a comprehensive, continuous measurement of major element chemistry in the subsurface. Concurrent with these advances, strategies have been developed which transform elemental data, derived from nuclear logging measurements, into a set of mineral modes that accurately represent the mineralogy of a rock. Resulting mineralogy logs are potentially valuable on their own, especially for creating a geological model in the absence of (or to enhance) core measurements. Mineralogy logs can also be used for the determination of other petrophysically useful formation descriptors, such that in wells where core recovery is poor they can help to extend evaluation across poorly defined zones. With good acquisition, derived mineralogy may be used effectively for inter-well correlation and for the determination of enhanced estimates of matrix density and porosity.