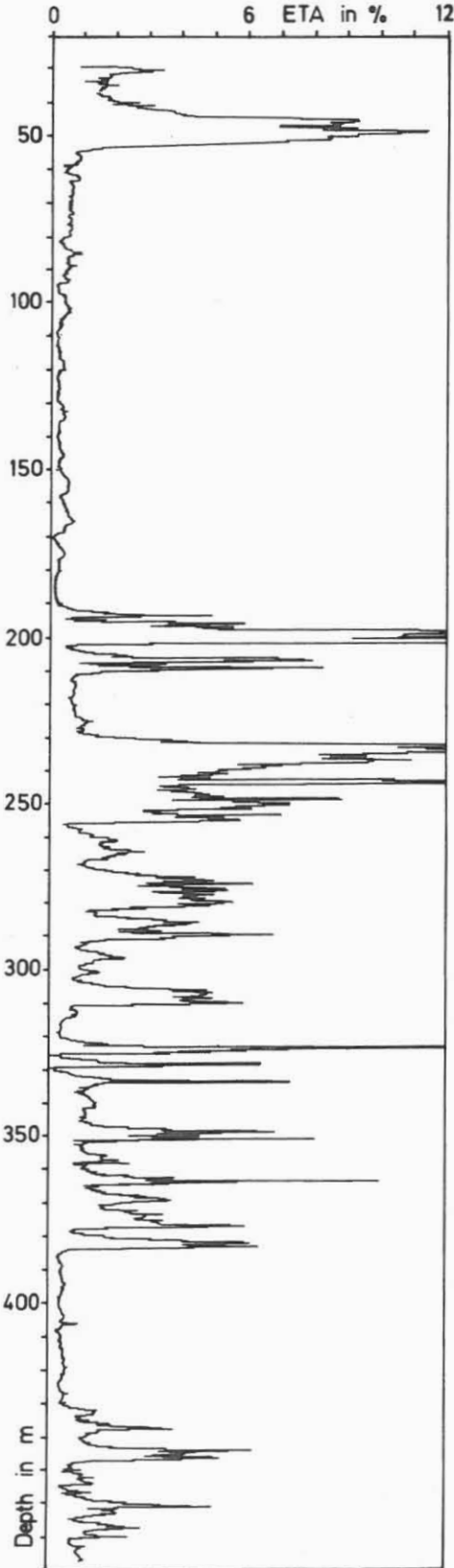


Kontinentales Tiefbohrprogramm der Bundesrepublik Deutschland

IP Logging in the KTB Pilot Well

Vogelsang, Grinat (Hannover)



A continuous log of time-domain chargeability was run by Messrs. ELGI/Budapest in the depths 28-478 m. Time-integrals were recorded between 10 and 90 ms (see left side). Numerous strong IP anomalies were measured which pertain mostly to minerals of high lustre (sulphides and graphite). Some weaker maxima of IP chargeability seem to represent zones of weakness with high contents of fluids.

This log was supplemented by stationary recordings of the IP decay curve in the depth interval 194.5-474.2 m in 3-D manner. The casing of the hole was used as one current electrode. The other was well earthed in a distance of 265 m. One potential electrode was grounded in the mudpit, the other was the IP tool of the IP logging unit belonging to the NLEB/ Hanover. By averaging 54 registrations of decay curves a standard decay curve was obtained which is characteristic of the IP effects of the crystalline rocks from the surface to a depth of about 500 m (see right side).

The medium deviations from this standard decay curve are shown below. In general they are relatively small, i. e. the chargeabilities of the near-surface rocks do not vary much, in spite of numerous, but small inclusions of sulphides and graphite with strong metallic polarization effects. This is supported by a relatively constant decay-ratio of the first

and last two time-integrals (see below). This provides a firm base to discriminate the IP effects of ionized fluids from those of minerals with metallic polarization.

