Geophysical Research Abstracts
Vol. 14, EGU2012-4683, 2012
EGU General Assembly 2012

A lithological segmentation from sonic logs using wavelet transform

S. Gaci (1,2), N. Zaourar (2), S. Ouadfeul (2,3)

(1) Sonatrach- Division Exploration, IAP Bâtiment C, Avenue 1er Novembre, Boumerdes (35000), Algeria (said_gaci@yahoo.com), (2) Department of Geophysics— FSTGAT, University of Sciences and Technology Houari Boumediene (USTHB), BP 32 El Alia, 16111, Algiers, Algeria. (naimazaourar@yahoo.fr), (3) Algerian Petroleum Institute, IAP, Algeria.

The analysis of well logs allows to extract worthy information about the sub-surface. Here, the logs are used to perform a lithological segmentation using the wavelet transform. The basic idea consists of estimating the local regularity strength, measured by the Hölder exponent (H), using the wavelet transform. The change in the H value allows to identify the lithological discontinuities within the strata crossed by the well.
This method is first implemented on synthetic logs, then applied to real sonic logs data recorded in Algerian boreholes. The results reveal that efficiency of the proposed technique in the lithological segmentation.

Keywords: well log, wavelet transform, Hölder exponent, regularity