

CRITERION FOR RECOGNITION OF BEDDING STRUCTURES UTILIZING IMAGING DEVICES

Tom Fett

Abstract

Wireline logs, especially dipmeter imaging devices, can bridge the gap between the wealth of outcrop and recent information about bedding structures and the immense database available from mineral industry boreholes.

The recognition of bedding structures as observed in ancient and recent exposures is not always straightforward with wireline measurements. A major strength of outcrop studies is their two, and sometimes three, dimensional aspect and the availability of very fine details. A strength of wireline measurements is their great abundance.

Wireline logs provide a variety of petrophysical information, including lithology. The dipmeter provides much finer detail (down to 1 cm or less in the case of imaging devices) and the information is three dimensional.

With remarkable detail, the microresistivity imaging devices can delineate and precisely orient bedding surfaces and hence bedding structures. The nature of contacts (abrupt, tangential) and of surfaces (planar, wavy), as well as the size and shape of objects are routinely available. Lithology, texture, and other sedimentary features such as cross-bedding (trough and planar), slumping, bioturbation, graded beds, erosional contacts, lag, etc. are seen.

Image workstations are greatly facilitating the recognition of bedding structures from wireline microresistivity images. The synergistic merging of the wealth of information available from field studies with this type of quantitative detail, available from boreholes, offers great opportunity for defining sedimentary structures and depositional environments and hence for delineating reservoirs.