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***Geophysical Issues and Challenges in Southeast Asia
With Emphasis on Malay Basin***

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The Malay Basin is a pull-apart Tertiary basin about 500-km long and 200-km wide with sediment thicknesses up to 14 km. The basin is both mature and prolific but the easy oil has been found and new exploration targets are smaller and deeper in high temperature and pressure regimes. Production now focuses on improving reserves through EOR, monitoring use as 4D seismic, and cluster development to improve the economics of small discoveries.

Geophysical challenges include improving velocity analysis to yield better images and interpreting amplitudes for lithology and fluid content in an area that also has anomalies due to coals, shales, clean sands, and low gas saturation. This area needs better ways to image within and below gas chimneys, locate channel sands, image below carbonates, and improve resolution within thin, stacked sands. Amplitude interpretation encompasses thin-bed AVO response, recognizing anomalies due to coal and shale, and low gas saturation.

Useful technologies are high-resolution seismic, imaging using anisotropic velocities, elastic inversion, and attribute analysis. Some promising techniques are multiazimuth seismic for imaging below salt and carbonates, low-frequency sources, and other acquisition methods that reduce multiples.

Biography

Deva Ghosh obtained a B.S. in geology and physics and an M. Sc in geophysics from Banaras University India and a Ph.D. (1970) from Delft University, Netherlands. His research solved complex Bessel and Hankel integrals with the help of fast convolution filters and is widely applied in electrical prospecting.

He worked for Shell for a quarter century (1974 – 1999) where he was involved in early research on prestack depth migration and other novel applications of 3D seismic. This includes orthogonal 3D surveys at Bullwinkle in the GOM and converted-wave seismology in the southern U.S. He later shifted his focus to bright spot and AVO applications.

Ghosh joined PETRONAS in 2000 and is responsible for research, development, and application of state-of-the-art geophysical technology worldwide. He is passionate about geophysics, about developing local staff, and transfer of technology.

He is a member of AAPG, SPE, EAGE and SEG, and a former editor of EAGE.