Seismic matters

**Oil & Gas Technology** talks to Andrew Sutherland, Paradigm executive VP for IMENA, EA and CIS

*Oil & Gas Technology*: Firstly, could you give me a brief overview of your company and the seismic products and services you offer?

Andrew Sutherland: Paradigm offers a full range of software solutions and integrated services for seismic processing and imaging, interpretation and modelling, reservoir characterisation and engineering, well planning and drilling, in both 2D and 3D domains. We are one of the leaders in advanced depth imaging of rich azimuth survey data and regional interpretation solutions. Paradigm also provides geosciences consulting services to enhance customer workflows and assist in realising greater returns on exploration and production activities.

Paradigm released its advanced technology platform, Paradigm Rock & Fluid Canvas on Epos 4.0 in July this year. The software suite includes a comprehensive set of applications covering the continuum of E&P processes. The Epos 4.0 infrastructure offers open architecture with rich data access to conduct multi-site, multi-survey, and multi-user projects. The platform also includes infrastructure changes specifically designed to enhance seismic processing to seismic imaging workflows, regional-to-prospect scale interpretations activities, and interpretation with modelling workflows. With Rock & Fluid Canvas on Epos 4.0, our seismic technologies are seamlessly linked to log analysis, petrophysics, 3D modelling and uncertainty analysis applications.

Our technology is supported by multi-capability service centres in Moscow, London, Kazakhstan and India, where we have more than 100 geoscientists working on different projects.

*Oil & Gas Technology*: Are you noticing any trends in the oil and gas industry at present, especially in the seismic sector?

Andrew Sutherland: Clients are increasing their investment in rich azimuth 3D acquisition and also looking for ways to extract more information from existing data that has been gathered over the past few years. We also see clients looking to extract more value from seismic data to help characterise the reservoir and help with exploration well placement.

*Oil & Gas Technology*: How have these trends affected your company?

Andrew Sutherland: There is great interest in our new depth imaging technologies – CRAM and Paradigm EarthStudy 360. These technologies will greatly enhance image quality in complex fractured reservoirs and depositional environments, which historically proved difficult to image. In addition, the Paradigm advanced inversion and seismic characterisation workflows are proving to be very popular across the Middle East and India.

We ask our clients if we can help them extract more from their existing data, before they decide to proceed with costly acquisition. Our technical experts are available to advise on acquisition design parameters to optimise the data-gathering process.

*Oil & Gas Technology*: How has the need for oil and gas companies to make the most out of existing projects affected Paradigm?

Andrew Sutherland: We have many examples where Paradigm™ Higher Order Workflows™ have added value through imaging and re-interpreting existing projects. The Higher Order Workflow is a Paradigm pathway to solving a complex...
The main challenge is finding geoscientists with knowledge of the regional geology

We have been successful in modelling complex faulted reservoirs in different regions. We recently completed a geological model containing more than 600 faults for a client in the Middle East.

Oil & Gas Technology: What are the main obstacles facing Paradigm in the industry today, both globally and in the Indian and MENA regions?
Andrew Sutherland: In general, global clients need help with their cost-saving initiatives. In the MENA and Indian regions, clients are still gathering data at a fast pace and need help to reduce bottlenecks with their prospect generation and field development plans.

Oil & Gas Technology: How have you overcome these obstacles?
Andrew Sutherland: By offering more efficient software platforms, we can help

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with cost-saving initiatives. In the MENA and Indian regions, we are aligning with our clients’ long-term strategies and helping them increase throughput on their exploration prospects. With national oil companies, we are focused on building long-term relationships and knowledge transfer to the local staff.

Oil & Gas Technology: How far has seismic technology developed in recent years?
Andrew Sutherland: The greatest advances are in depth imaging, seismic reservoir characterisation and building structural frameworks in complex environments. With the rapid advances in computer processing power and storage, we are able to undertake projects that were inconceivable only three to five years ago. This is helping drive the innovation in software applications.

Oil & Gas Technology: What opportunities have these advances offered Paradigm?
Andrew Sutherland: I see clients taking more notice of Paradigm, especially when we demonstrate the value of our integrated workflows on their datasets. We succeed because we employ committed, highly qualified geoscientists.

Oil & Gas Technology: Can you tell me of some of the projects you are working on in India and the challenges you have faced in achieving your goals?
Andrew Sutherland: We are working closely with our clients in India on advanced depth imaging, seismic inversion studies and integrated field studies. The main challenge is finding geoscientists with knowledge of the regional geology and getting the projects underway. The quality of technical people in India is very high, and their enthusiasm to learn innovative techniques makes our job a lot easier.

Oil & Gas Technology: What kind of potential does Paradigm see in under-explored areas such as the deep west coast of India?
Andrew Sutherland: This is an area where we can really help. The cost of exploiting deepwater plays and the associated risks are high. Our job is to help our clients better understand the subsurface and make better-informed decisions.