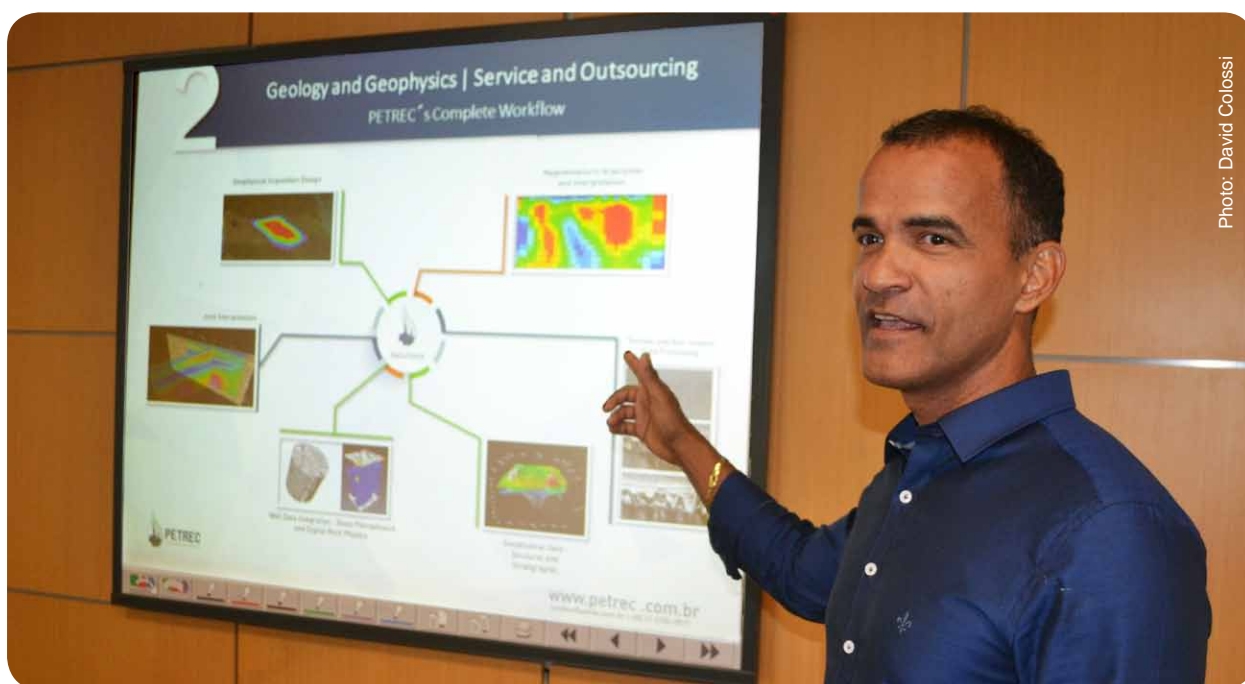


Petrec, opportunities breed seismic developments

Petrec, a spin-off of the Alberto Luiz Coimbra Institute of Post-Graduation and Research in Engineering at the Federal University of Rio de Janeiro (COPPE-UFRJ) is continuing its development of an offshore, shallow water, 3D seismic acquisition system that collects data through the use of an unmanned vehicle that operates on the ocean surface, which pairs robotics to geophysics. The project has been selected by the Carlos Chagas Filho Research Support Foundation of the State of Rio de Janeiro (FAPERJ) as one of the finalists in a notice that has been issued regarding Technological Development Support for Micro and Small Enterprises [providing] Subsea Sector Goods and Services for the Oil and Gas Industry in the State of Rio de Janeiro (Rio Subsea 2016), whose total budget is R\$ 8 million.



Josias Silva, founding partner of Petrec, in seminar on geology and geophysics at COPPE/UFRJ.

The hydrocarbon exploration stage involves the acquisition, processing and interpretation of a large volume of geophysical (primarily seismic) data as a means of better understanding geophysical and geological attributes of the subsurface. To this end, the Petrec system is able to carry out mappings in water depths up to 500 m, with penetration of up to 300m. The conceptual and computer simulation components of the project are already underway, and the development of a prototype will be financed with the FAPERJ funding.

Josias Silva, a founding partner of Petrec, asserts, “The aquatic robot will substantially change the way that shallow water seismic acquisition is carried out in the sea; [it will] lower costs, [producing] savings in logistics, human resource allocations and acquisition times; make the geometry of acquisition more flexible; and deliver better results for clients.”

Mapping risks and strategies

Petrec develops technologies aimed at improving oil and gas exploration processes. With a team of academicians with master’s and PhDs in geosciences, mostly hailing from the COPPE’s Computational Methods Laboratory (LAMCE), the company’s output is such that it’s offering the market solutions for different stages of field exploration, development and production processes. Generally, during the exploratory process, information (seismic volumes, elastic and petrophysical parameters, well data, etc.) are used in an integrated manner to reduce exploration risks. This subsurface information is essential for oilfield operators in their decision-making regarding well drilling and production strategies. “In this context, seismic data processing and the inversion of elastic parameters play a key

role in the identification of potential reservoirs and their characterization,” said Josias. Petrec offers an integrated geophysical data processing (non-seismic and seismic) portfolio and appropriate tools for imaging. In addition to high-performance seismic processing software, the company has a number of post-processing tools that enhance geological structures in the subsurface. For example, there are seismic attributes tools – Envelope Signal Rotation (ESR) and Complex Analytical Signal (CAS) – that produce high resolution results, which facilitates data interpretation. In partnership with COPPE, this startup firm is working on two projects that it is carrying out for one particular operator, Sinochem do Brasil, which is allowing Sinochem to satisfy investment requirements of the mandatory research and development (R&D) contained in the operator agreement it signed with Brazil’s National Petroleum, Gas and Biofuels Agency (ANP). These projects seek to characterize carbonate reservoirs in the Santos Basin and unconventional reservoirs in the Recôncavo Basin. In addition to these services, Petrec is in discussions with two other oilfield operators regarding implementation of its RockLab Digital library, which is a service that can be performed for both of these oil firms, as well as for the mining marketplace, in general.

About RockLab Digital

The Digital RockLab facilitates easy storage of and access to computational petrophysical data through a portal that integrates scans of rock samples extracted from wells drilled during oil exploration, with the main database being georeferenced to data from the ANP’s Exploration and Production Database (BDEP), available at www.bedp.gov.br, which thereby comprises the digital rock library, known as RockLab Digital.