

NEW DEVELOPMENTS IN SEISMIC ACQUISITION

*Craig J. Beasley**
WesternGeco, cbeasley@slb.com

The economic climate in the energy industry today has created unprecedented investment in exploration and development of hydrocarbon resources. As a result, seismic acquisition is experiencing a renaissance in both technique and equipment that is aimed at producing better seismic information. For example, the seismic challenges posed by the deep water, sub-salt Gulf of Mexico plays are addressed with field efforts unimaginable just a few years ago. To collect wide azimuth surveys efficiently, multiple vessels are employed in a dizzying array of configurations sometimes with several boats recording, but always with several boats shooting. On land, the quest for noise reduction, wider bandwidth and better estimation of reservoir properties has resulted in the use of single sensor recording systems capable of recording more than 30,000 live channels.

Such technologies – breakthroughs in and of themselves – are spurring further developments that promise to revolutionize the way we acquire and process data. In particular, the use of simultaneous marine sources offers the exciting possibility to significantly increase marine acquisition efficiency. Although developed for specific problems in specific regions, it is clear now that such efforts will spread to many different applications around the world.

In this talk, I will review recent developments in acquisition technologies and strategies and examine the ensuing effects that are developing as a result. Much research remains to be done, but early indications are that we are at the start of a paradigm shift in seismic acquisition and processing.

PRESENTER PROFILE

Craig J. Beasley holds a Ph.D. degree in mathematics and since 1981 has served in several capacities in the Computer Sciences, R&D and Data Processing departments of WesternGeco including VP of R&D and VP of Data Processing. He has received 2 Litton Technology Awards, a Performed by Schlumberger Silver Medal and the SEG Award for Best Presentation and served as the Esso Australia Distinguished Lecturer. He is an Honorary Member of the Geophysical Society of Houston and Foreign Member of the Russian Academy of Natural Sciences. He has presented papers and published widely on a variety of topics ranging from prestack imaging, migration, acquisition and the connections between acquisition, processing and imaging. He served as the 2001-2002 SEG 1st Vice President and as the 2004-2005 President of the SEG. Currently, he is Vice President for WesternGeco and a Schlumberger Fellow and is serving as the Chair of the newly formed SEG Committee for Geoscientists Without Borders. cbeasley@slb.com