

**Society of Exploration Geophysicists  
Annual Conference and Technical Exhibition  
Denver, October 2004**



*Fugro's 'GeoRanger' airmag drone*

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## Introduction

The 2004 Denver Annual Conference and Exposition was buzzing. Hard to say exactly why – just that there were a lot of folks milling around the exhibition floor – and with oil above \$50/bbl – the mood was of ‘optimistic uncertainty’ as GX Technology president Mick Lambert described. The uncertainty was because, although oils are raking in the cash, little of it is trickling down to the service companies. This, along with a perceived **lack of R&D** spend and ‘**slow take-up**’ of new technologies, brought renewed calls for a ‘new business model.’ The massive amount of new technologies on display suggested that this was the usual geophysical tilting at windmills. There may be overcapacity in seismic acquisition, but there sure is a lot of new computer **hardware** available to process, interpret and visualize just about any geophysical measurement you can imagine.

Speaking of new geophysical techniques, the purchase of **Controlled Source Electro Magnetic (CSEM)** specialists AGO Geomarine by Schlumberger was announced at the show. And ExxonMobil made somewhat veiled references to breakthroughs with its patented ‘R3M’ technique – inviting attendees to ‘read the Wall Street Journal’ for more. Some have suggested that CSEM might even replace seismic exploration. We visited with the EM vendors who generally seemed surprised at all the fuss. To the established players, the technique is not exactly new and none would endorse the ‘could replace seismic’ position.

**IBM** announced its return to the oil and gas business at the Schlumberger Forum earlier this year – and indeed made quite an impression at the SEG. Along with several other hardware vendors, IBM is pushing ‘compute on demand’ from off-site data centers, but what literally caught our eye was the 9 megapixel screen which, although we’ve reported on this before, now has a graphics card capable of driving it at full resolution – a gem! IBM’s offering in bespoke, web and roaming computing was also impressive – with a substantial development for ChevronTexaco leveraging WebSphere.

In the keynote speeches, SEG president **Peter Duncan** contrasted the ‘shell shocked’ situation in US geophysics with ‘energized’ countries like China – where 180 land crews operate, and where there are 1,000 geophysics graduates per year. **Matthew Simmons** (Simmons and Company) gave an excellent talk on the impending peak of global oil production. Peak oil is at hand – but the world is in denial and there is ‘no plan B’. **Bob Peebler** (I/O) thinks 4D seismics is a kind of Plan B. **Peter Carragher** (BP) described how BP is addressing demographics issues. **Ibraheem Assa’adan** (Saudi Aramco) opined that recovery factors are the key to world oil reserves – and that

they are to rise from 40% to a ‘target of 70-80%.’ Landmark’s **Peter Bernard** lamented the ‘slow take-up’ of new technology – especially in the digital oilfield. This because oilfield operations are a ‘factory-like process, focused on optimization and cost reduction’. What is required is a risk-taking mentality and a portfolio management approach to production. PGS’ **Diz MacKewan** ventured that procurement philosophies that mandate multiple suppliers for the same service have to change; companies should be prepared to pay more for new technology and take risks to accelerate adoption.

A big trend is the ability to manage and visualize multiple representations of the same data. Different attributes show different aspects of a dataset – and it is even better to visualize them at the same time. This is achieved by **co-rendering** or **bump mapping**, now offered by most vendors in one form or another. The concomitant data management issues are causing the hardware vendors to rub their hands as the data storage volumes and complexity explode.

**Landmark** showed a massive 400GB dataset using Geoprobe in the Denver planetarium – using an **SGI Onyx** with 11 graphics pipes and a Terabyte of so of RAM. Following the trend of recent years, the SEG has turned into a hardware vendors’ paradise – with a bewildering range of NAS, SAN, switches and clusters on offer. As hardware vendors configure larger and larger cluster farms, they are naturally looking for things to do with them – hence Computing on Demand offerings from **IBM** (as above), **Sun** and **Appro**.

On the curiosity front a weird 3D graphic workstation from **Xerox/Panoram** and the even weirder ‘Perspecta’ 3D crystal ball display from **Actuality Systems**.

### **Highlights**

[Peak oil is ‘at hand’](#)

[Schlumberger acquires AGO Geomarine](#)

[Sarbanes-Oxley compliance](#)

[Interviews – Sun, AMD, SGI, Paradigm, dGB](#)

Compute on demand - [IBM](#), [Sun Appro](#)

[IBM’s return to oil and gas](#)

and ‘hardware, hardware, hardware ....’

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## SEG President's address



*Duncan*

Peter Duncan, SEG President, noted that despite \$50 plus oil prices and gold and copper at all time highs, those on the 'supply side' are still waiting for their piece of the cake. The SEG has had a good year though with \$9 million revenues and \$650k of 'excess revenue'<sup>1</sup>. The SEG owns its own building and has no debt. The Distinguished instructor course (DISC) costs \$100k per year and the SEG has spent \$35k buying PC's for the third world. Each year the SEG turns down 85% of the projects that apply for financial support. Halliburton pays for student dues (90k) and Apache Corp pays fees for 'global' third world members<sup>2</sup>. The SEG is to celebrate its 75<sup>th</sup> anniversary next year and is buying a 10% stake in the [North American Prospect Expo](#) (NAPE<sup>3</sup>). The SEG is teaming with the SPE and EAGE to initiate a Middle East equivalent of the Offshore Technology Conference (OTC) – the [International Petroleum Technology Conference](#) IPTC – to be held next November in Doha, Qatar. A novelty for 2005 will be the DISC on DVD. This will cost \$29 and will be free to students. The SEG is increasingly international: in 1985, 75% of membership was in the US, today only 45%. Another demographic change is the fact that 65% of earth science graduates today go into environment and near surface geophysics. Also more and more are self-employed.

Duncan described the life of the SEG president as consisting of a) the 'minutiae', dealing with 'trivial questions' from individuals, b) legislative – executive committees, conference calls, staff salary and strategy, c) the fun part – as an ambassador around the world – traveling 100k miles. In Mexico, the government has 'energized' geophysics as part of a \$16 billion program to increase production and reserves, in India – the 1,200 strong local society has likewise been energized by the government privatization program<sup>4</sup>. Bahrain is similarly avoiding penny pinching in geophysics – doing 'risky science' and China is producing 1,000 geophysics graduates per year! The three Chinese oil companies have a total of 180 onshore seismic crews operating.

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<sup>1</sup> As a 'not for profit', the SEG doesn't make a 'profit'.

<sup>2</sup> Wouldn't it be better if the SEG gave access to deserving parties for free and Halliburton and Apache gave their money (its equivalent in IT resources) to the third world members?

<sup>3</sup> Despite property deals in the \$50k to \$10 million range, NAPE is also a 'not for profit'.

<sup>4</sup> Hard to square this positive note with the bleak picture of Mexico's outlook painted in the December 13<sup>th</sup> issue of Business Week – [Pemex may be turning from gusher into black hole.](#)