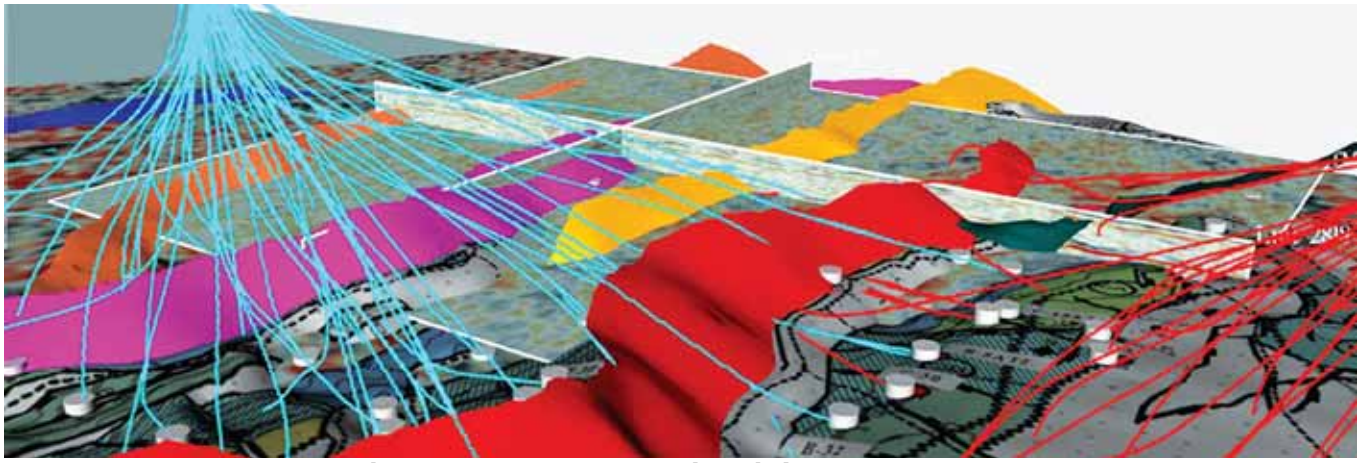
European Association of Geoscientists and Engineers (EAGE) Conference 2007 – London



Kongsberg's VISPO3D reservoir knowledge management system.

The 2007 EAGE/SPE-Eupropec conference and exhibition in London's Docklands saw growth in oil companies' recruitment efforts to the extent that the geography of the trade show floor has changed. The Schlumbergers and Halliburtons have been displaced from the center of the exhibition floor by the majors' plush stands. The trend for more specialized computer hardware continues. One estimate has around 70 petabytes of oil and gas data stored on disk. Despite a 64bit address space, workstations with over 16GB of memory remain very expensive and anyway, project data volumes are so high that just loading data to memory at project startup takes far too long. One answer is to store data across a disk cluster and avoid the RAM bottleneck (see for instance Paradigm's High Performance Volume Interpretation). IBM was showing a prolific hardware and web software offering including its Blue Gene TOP500 winner. Sun Microsystems has returned to the oil and gas vertical after a short interruption in service. RIM now has an oil and gas sales drive for Blackberry users to be able to connect to SCADA systems while on the road, or fill out their SAP expense forms.

On the seismic interpretation front, modeling while interpreting is a hot topic with offerings from a rapidly expanding Ikon Science and a newly commercial NORSAR. Landmark has announced a new OpenWorks data model for later this year. The issue of managing the results of interpretation was the subject of a Schlumberger-Statoil presentation that, while centered on Schlumberger's DecisionPoint, rolled in a range of third party software tools. New packages include the TGS Aceca Facies Map Browser and Zeh/Horizon's Geological Information Management System (GIMS).

The web is everywhere, with a range of WITSML and web-services offerings including Kongsberg's Discovery Portal and a new well data service announced by Kadme and Digital Earth (backed by a former IHS Energy president). Looking to the future, the semantic web is visible on the R&D horizon with the IFP 'Archeo-Modeling' JIP proposal and a semantic web study on knowledge management of shared earth models.

While information and data management papers were rather thin on the ground, one presentation by Total described solving the data management puzzle and offered an interesting critique of vendors' 'non-imbricated' solutions. A paper by Midland Valley described 'concept uncertainty' in seismic interpretation to conclude that much of today's 'uncertainty management' may hide the real problem of misidentification of tectonic settings. A survey showed that only one in five interpreters correctly identified a seismic test line.

The EAGE held a meeting of the SEG-D Rev 3 committee. But on the standards front, a newcomer has appeared in the form of the Hungarian Eotvos Institute which has been working of geophysical metadata – targeting a new ISO standard.

Highlights

Paradigm/Scalable Graphics – Disk cluster-based visualization

Kongsberg – Drilling Operations Portal

Blackberry applications in oil and gas

Geophysical metadata – Eotvos Institute

Knowledge Management of Earth Models – Paris School of Mines

Concept uncertainty – Midland Valley

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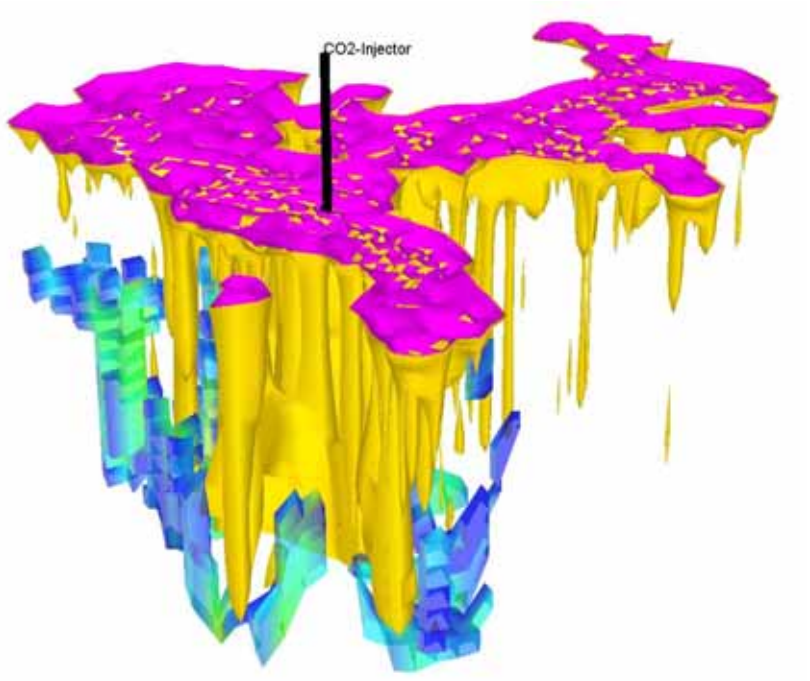
Technology Watch subscription information

This report has been produced as part of The Data Room's Technology Watch reporting service. For more on this subscription-based service please visit the Technology Watch home page or email tw@oilit.com.

TW0708_1 Exhibitors - Software

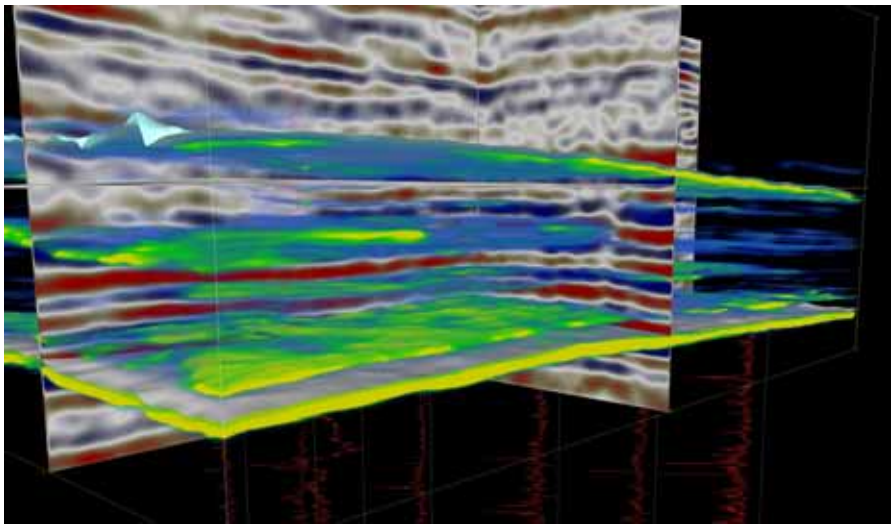
0708_1.1 Computer Modelling Group – modeling Sleipner CO2 sequestration



CO2 sequestration simulation in CMG's GEM.

CMG's reservoir flow modeling extends to CO2 sequestration as shown in the above image from the world's first industrial scale sequestration project on the Sleipner area, Norwegian North Sea. Sleipner produces a million metric tons of CO2 per year which is stored in the Utsira acquifer in the EU-funded CO2STORE project (www.co2store.org). The graphic shows CMG's model of the the long-term fate of CO2, with concentrations (yellow and pink areas) of CO2 dissolved in the salt water and where the CO2 has been converted into calcite over a period of about 500 years. Calcite conversion assures permanent CO2 sequestration. More from dan.dexter@cmgl.ca and www.cmgl.ca. See also the EU Network of Excellence on C02 Geological Storage – www.co2geonet.com and info@co2geonet.com.

0708_1.2 Earth Works – MPSI[1] Stochastic Inversion deal with Arc CLS

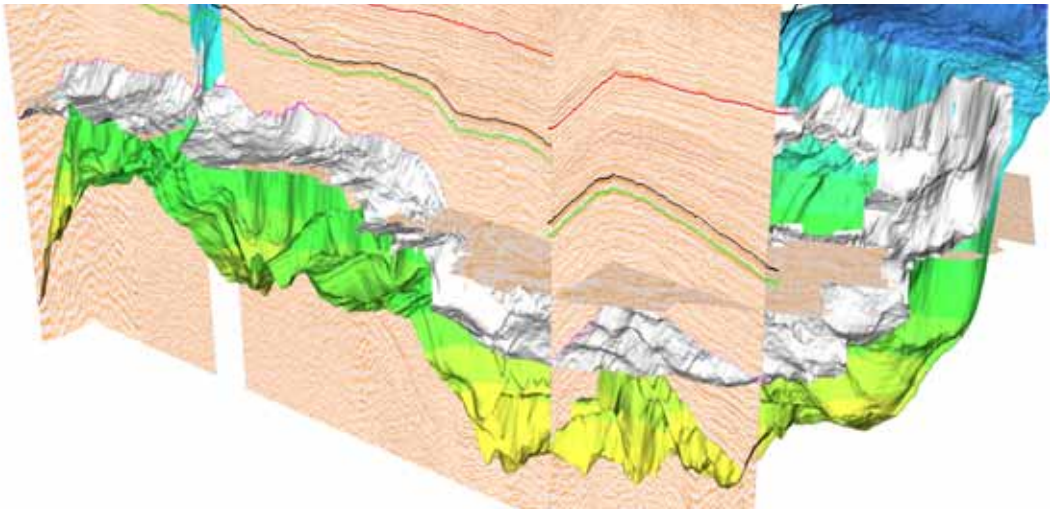


Earthworks' UltraFast MPSI Stochastic Inversion Technology

[1] *Multiple prediction using sparse inversion.*

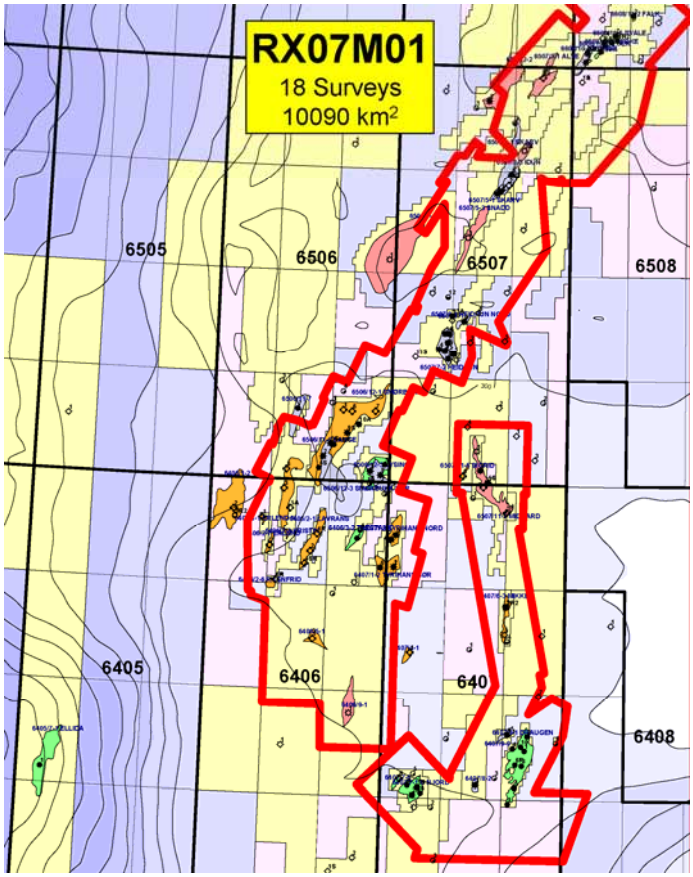
Earthworks has signed with ARK CLS for commercial development of its 'UltraFast MPSI Stochastic Inversion Technology. The first release will include 3D geostatistical model building, error grid constraints and post-stack deterministic and stochastic inversion. More from http://www.sorviodvnvm.co.uk.

0708_1.3 Geocap/Roxicon – interpretation package and Norwegian 'super seismic survey'



Roxicon Super Seismic Survey in Geocap viewer.

First announced in 2000, Geocap was founded by Olav Egelend formerly with Technoguide/IRAP. Geocap's technology is used by the UN in geological and bathymetric visualization for OCS mapping and law of the sea arbitration. The product is now available for use in oil and gas as a flexible data visualization environment. Users can interact with data via a scripting shell, 'make grid', 'map' etc. and build workflows from commands. Geocap uses an Open Data Model from www.kitware.com. 3D visualization is available through a partnership with CyViz – www.cyviz.com. More from www.geocap.no.



Part of Roxicon's Norwegian Super Seismic Survey.

Geocap is used to visualize Roxicon's Super Seismic Survey (above) a non exclusive compilation of Norwegian seismic data in the style of PGS' MegaSurveys. The SSS is delivered with velocity data. More from www.roxicon.no.

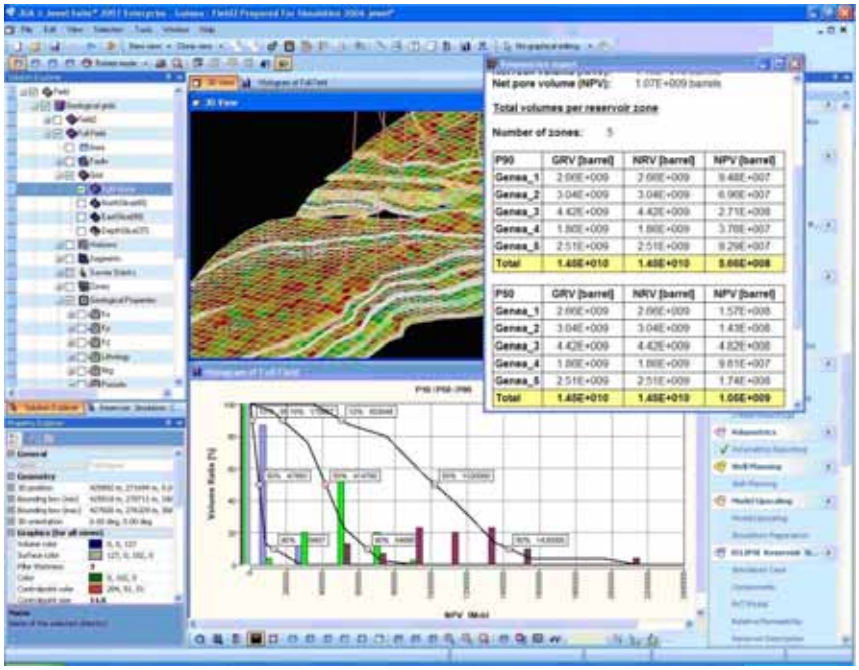
0708_1.4 IFP Archeo-Modeling – semantic web services for geo model management

The strangely-named 'Archeo-Modeling' joint industry proposal by the French Petroleum Institute (IFP) is to develop a semantic web services-based methodology for capturing geological model data from legacy model formats such as RESCUE and GRDECL. The project will leverage work presented in the paper 'Knowledge Management for Shared Earth Modeling' below. More from Jean-Francois Rainaud – j-francois.rainaud@ifp.com and http://www.ifp.fr/IFP/en/files/rechercheindustrie/JIPs-2006/Archeo-Modeling.pdf.

0708_1.5 IKON Science – modeling while picking

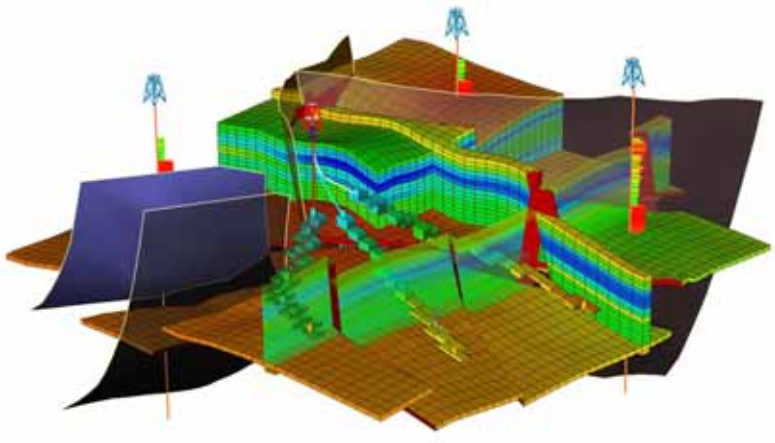
Ikon has grown to 70 employees on the strength of its RokDoc modeling while picking package. RokDoc 5.2 includes a Petrel link (funded by Shell and BG). The Petrel add-on, marked by Ikon, displays two windows. RockDoc's Java application receives broadcasts from Petrel's .NET development. Ikon is also consolidating its recent Geopressure Technology acquisition adding pressure modeling to RokDoc. More from www.ikonscience.com and a downloadable movie of modeling while picking is available at http://www.ikonscience.com/RokDoc5.2%20demo.wmv.

0708_1.6 JOA Jewel Suite – now integrated with ECLIPSE



JOA Jewel Suite now offers Eclipse connectivity.

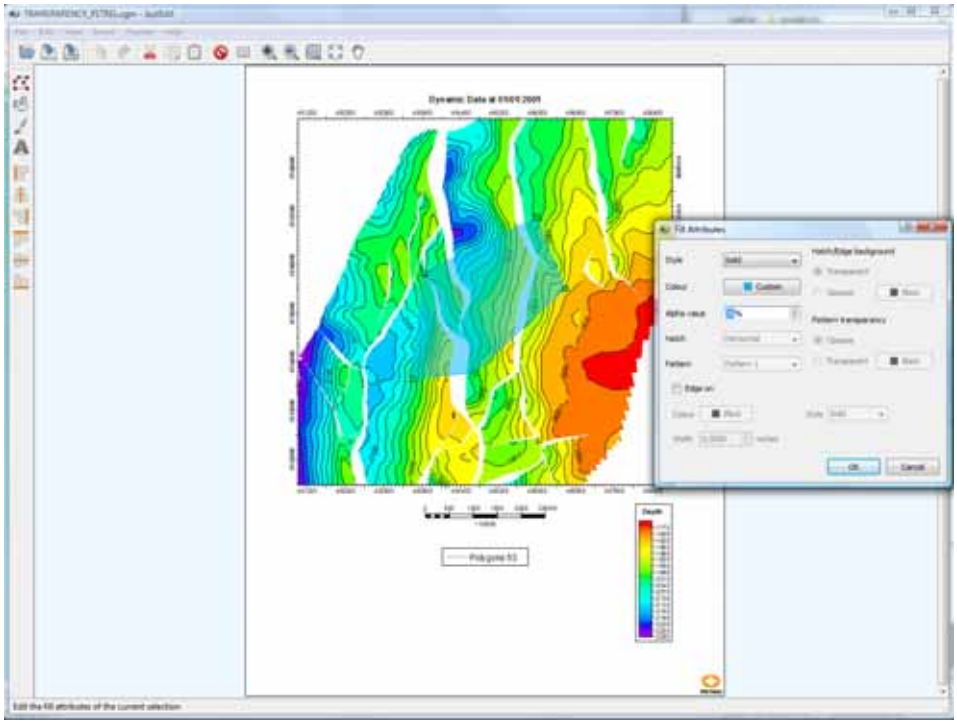
JOA's Jewel reservoir-focused interpretation and modeling package now offers connectivity to Schlumberger's ECLIPSE reservoir fluid flow simulator. Jewel also now offers uncertainty management and a new Windows XP 64 bit release of the package.



Quick project screening in JOA Jewel Suite.

According to JOA, majors and mid market oils use Jewel Suite, particularly for its flexible gridding of complex tectonics. The demo we saw involved the screening of a Gulf of Guinea prospect. Horizons and faults were imported into Jewel which was then used to clean up the terminations before the automated triangulated mesh process. This handles complex faults and stacked reservoirs. Reservoirs and other objects are defined in the hierarchy builder. Gridding is highly orthogonal but 'unstructured' and provides 'a good representation of faults.' More from Gerard de Jager dejager@joa.nl and www.joa.nl.

0708_1.7 Justcroft – JustCGM and JustMontage



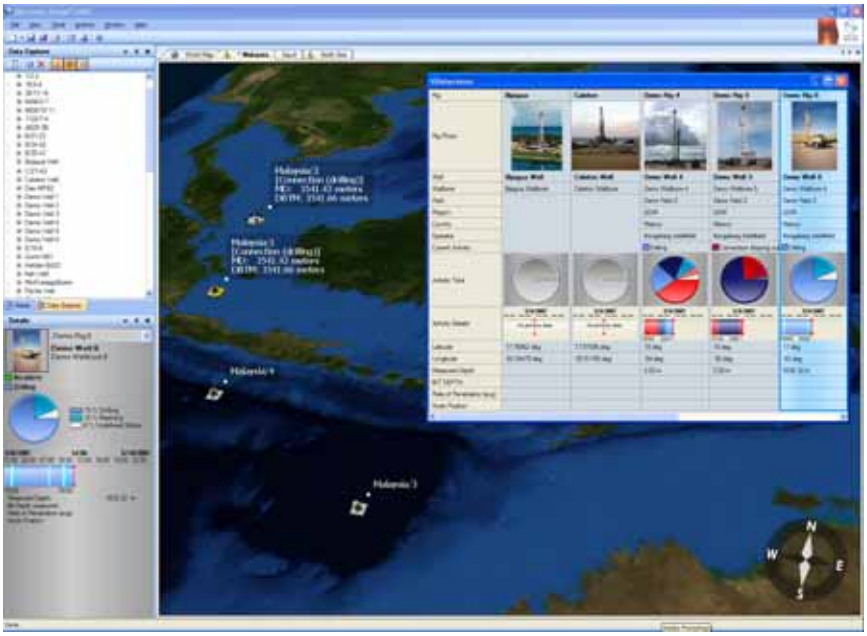
Justcroft's JustMontage 2.2.

CGM specialist Justcroft has announced a new version of its computer graphics metafile (CGM) montage package JustMontage 2.2. Other Justcroft tools include JustCGM and JustPlot. More from Patrick Squires psquires@justcroft.com and www.justcroft.com.

0708_1.8 Kadme/Digital Earth – new data service announced

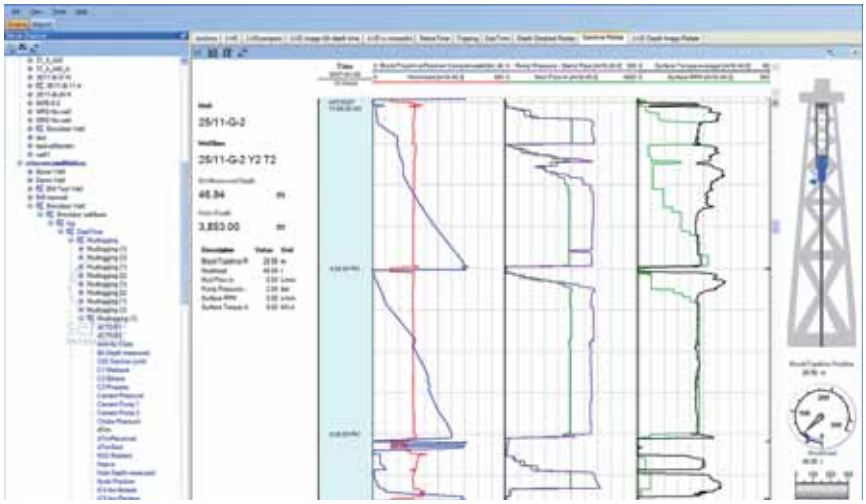
UK-based startup Digital Earth is to use Kadme's search and mapping technology to power its global energy industry information portal. In return, Kadme will have access to Digital Earth's (DE) 'social search' and unstructured data solutions for its own clients. DE's game plan is to develop 'next generation' search and collaboration tools for the energy industry. DE sources its information with a network of regional scouts, the internet, telephone calls, email enquiries, personal visits and trade shows. More from www.digital-earth.com and www.kadme.com.

0708_1.9 Kongsberg-Intellifield – Discovery Portal, Wells and Vispo3D



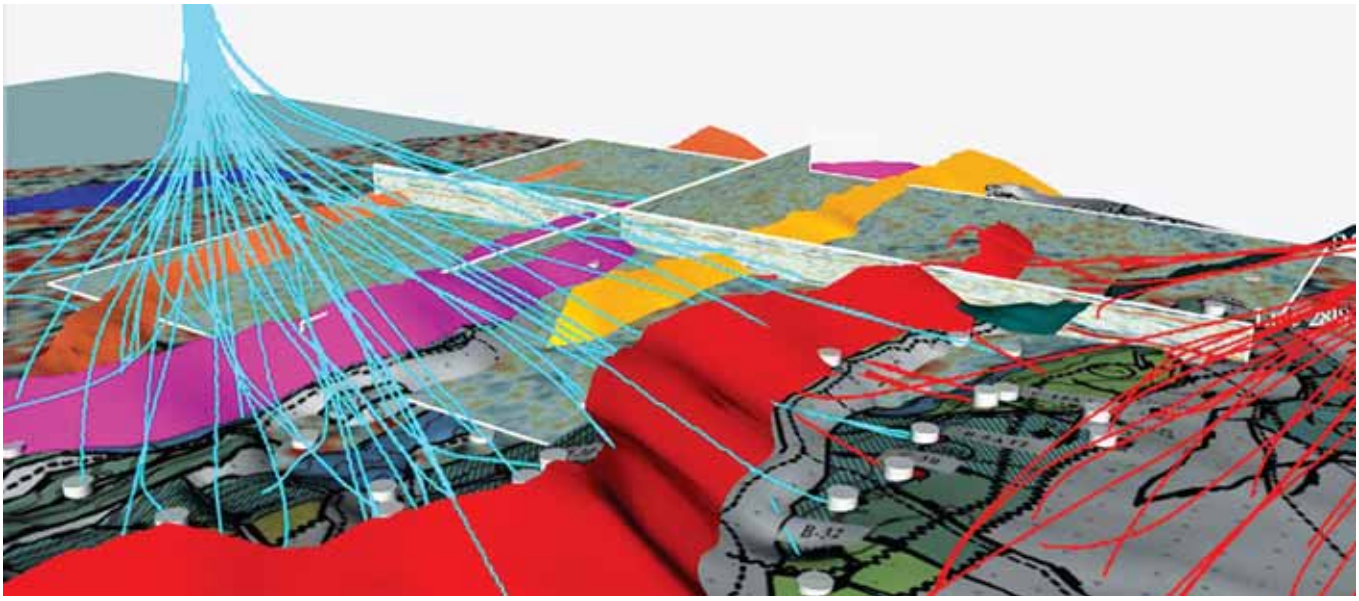
Discovery Portal - drilling activity monitoring

Kongsberg's Discovery Portal allows map-based surveillance and drill down of geographically dispersed drilling operations.



Discovery Wells – Real Time WITSML multi-vendor data feeds

Discovery Wells displays WITSML drilling data in real-time including time and depth-indexed data, real-time and historical data, and a mixture of data from multiple-vendors and rigs in a configurable graphical user interface.



Reservoir management in Vispo3D

Konsberg's Vispo3D Reservoir Management targets life of field production optimization by creating a 3D collaborative workspace for cross-functional teams, bringing together 'people, processes and technology in a single web-based application.' More from ingunn.kolltveit@intellifield.no and www.intellifield.no.

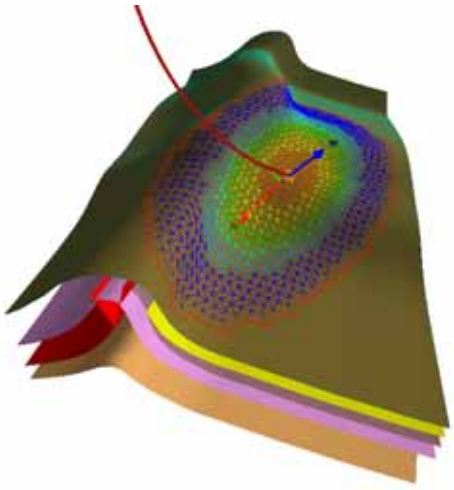
0708_1.10 Landmark - new OpenWorks data model, OpenSpirit connection and ProMax pre stack

Landmark is counting down to the **OpenWorks R5000** release which includes a new data model. This will bring new efficiencies for data managers and in particular, heralds enhancements to the treatment of coordinate reference systems—which has been an 'area of frustration' for users. The new OW data model introduces multi project management, security and the ability to subset data for distribution to partners. Landmark acknowledges that this will be a major disruption and that customers will need (and get) help with migration.

Landmark has also come fully into the **OpenSpirit** fold in order to extend its DecisionSpace infrastructure and dev kit to third party data store access. Customers can now access 13 multi-vendor data stores from DecisionSpace applications.

New functionality in **Promax/SeisSpace** includes new data structures and point and click access to gathers from a CDP fold map. Simplified depth imaging workflows now offer easier parameter selection and management of cluster resources. More from www.lgc.com.

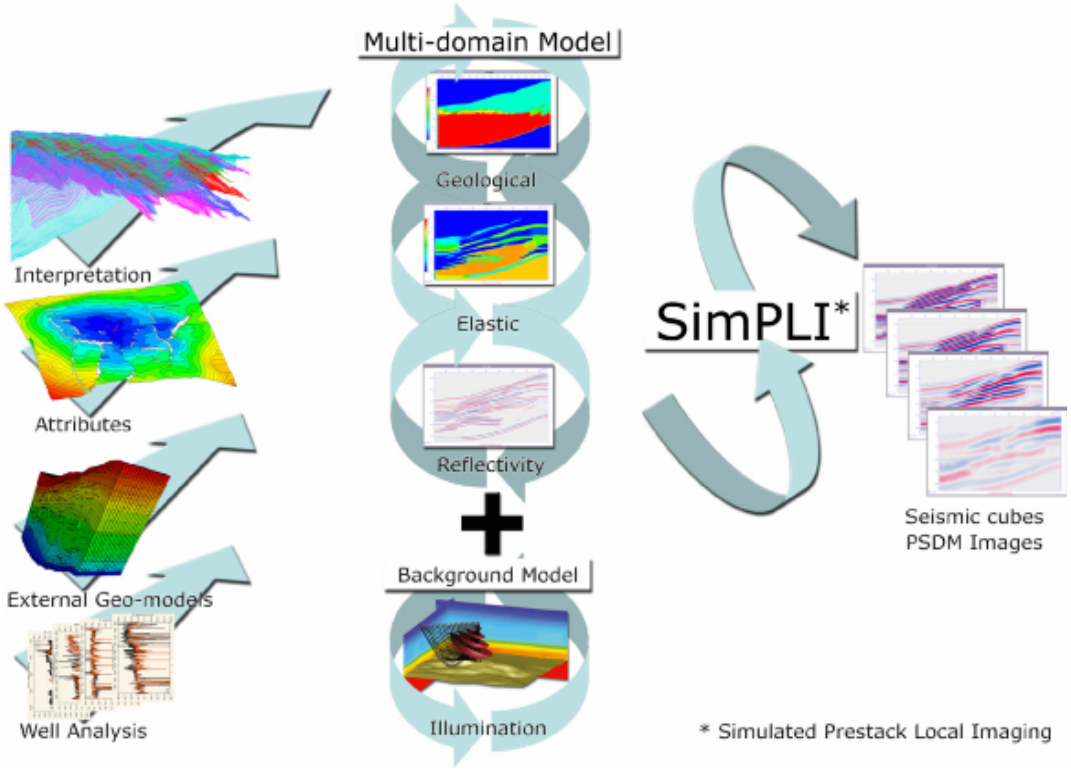
0708_1.11 Midland Valley Exploration – Real Time Model Update



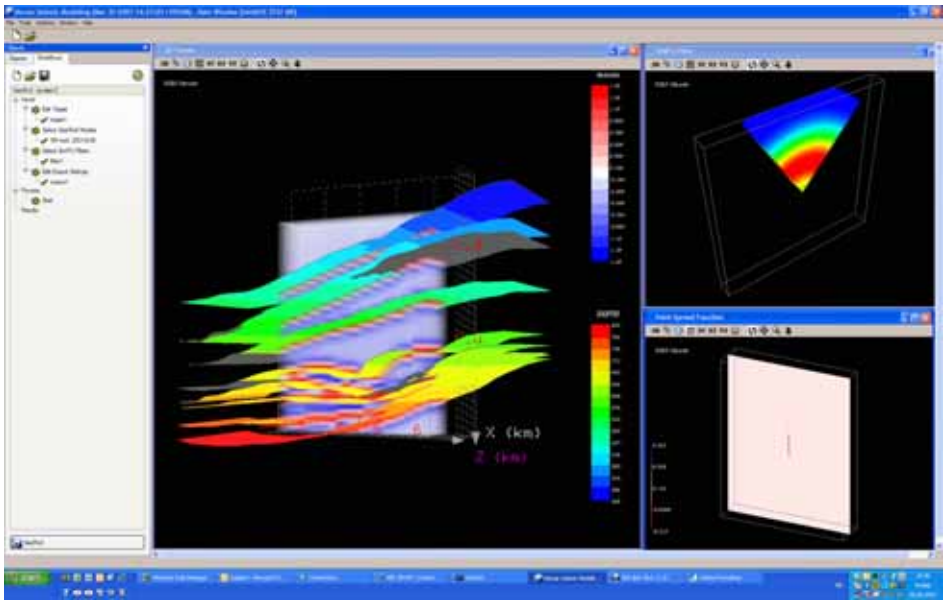
Real Time Model Update tool for 3DMove.

Midland Valley has added a Real Time Model Update tool to its 3DMove package. The above image shows a 3D model updated according to a revised horizon pick at the well. The amount of reshaping is indicated by the colour map. The lateral extent of reshaping can be adjusted. The layers underneath the modified horizon are reshaped passively so that the model retains its geological coherence. After the modification, the well can be projected ahead in the new model and the prognosis revised. More from www.mve.com.

0708_1.12 NORSAR – SeisRox seismic response modeling for survey design



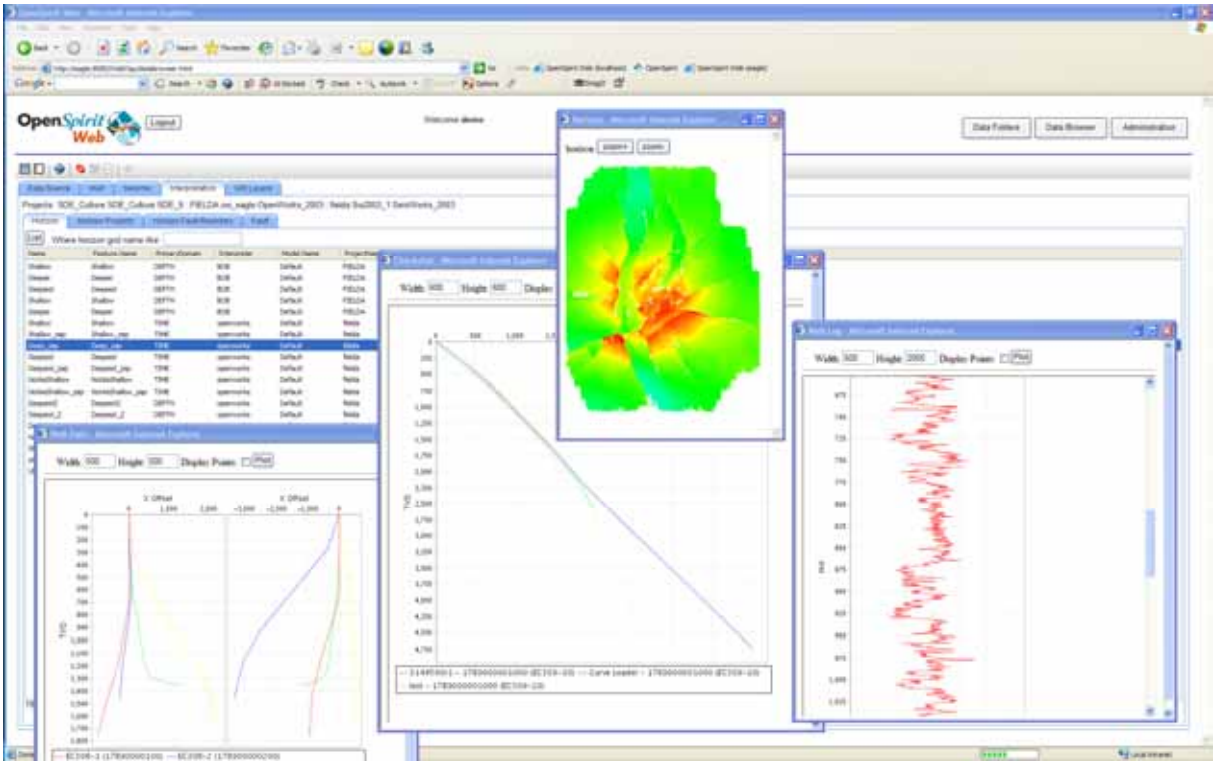
NORSAR's simulated prestack local imaging (SimPLI) workflow



NORSAR's SeisRox seismic modeling interface.

NORSAR's SeisRox models the seismic response of hydrocarbon reservoirs for survey design, interpretation and 4D time lapse data analysis. SeisRox simulates 3D pre stack depth migration to investigate overburden effects on imagery. SeisRox uses 'full rock physics – based modeling'. The SimPLI workflow takes SeisRox model output and simulates PSDM imagery. Trial and error property changes can be made with immediate feedback of results. More from www.norsar.com.

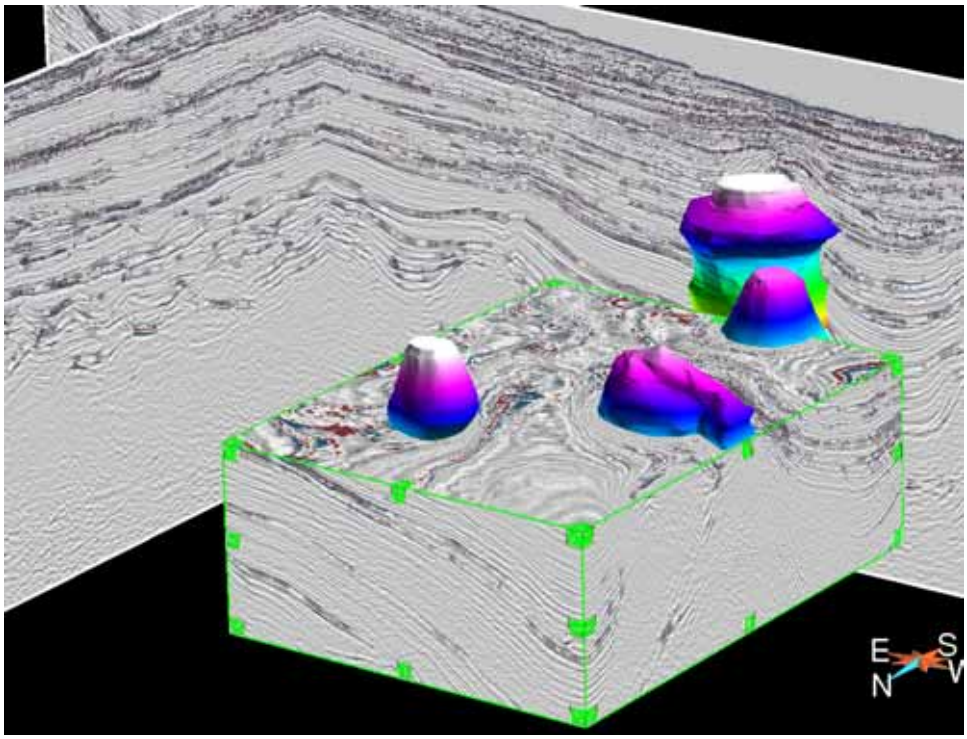
0708_1.13 Open Spirit – web server



OpenSpirit Web Server

OpenSpirit has seen strong growth since Paradigm took a share in the company. The new Web Server above offers browser-based access to OpenSpirit-enabled data stores and GIS data. The web server leverages a Tomcat Application Server to generate 'servlets' like 'sendDataSelection', 'sendGISFeature', 'kmlfromSDE'. Along with the browser version there are ArcGISExplorer and Google Earth clients. Open Spirit is now looking to cover other workflow domains. More from www.openspirit.com.

0708_1.14 Paradigm – High Performance Volume Interpretation (with Scalable Graphics)



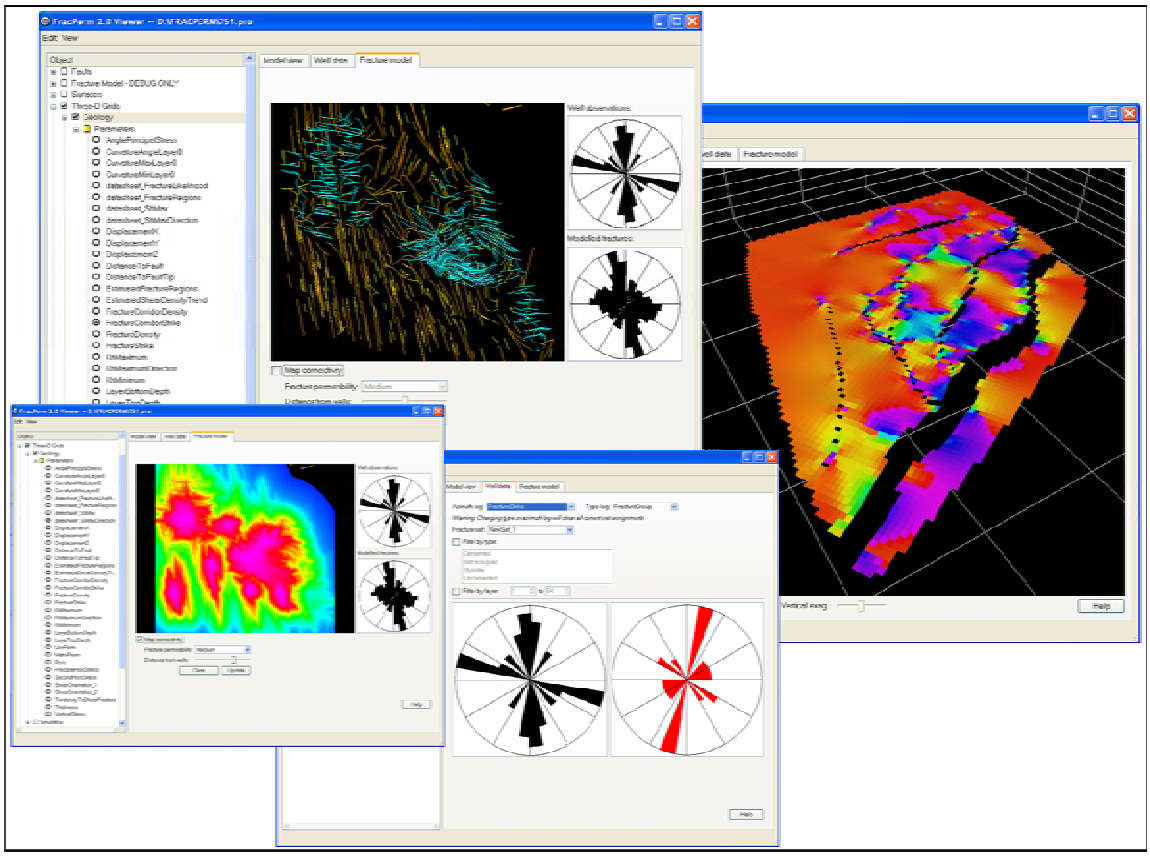
Gocad 2.5 HPVI running on Scaleable Graphics hardware

Gocad 2.5 introduces a new reservoir simulation interface, production data analysis and other enhancements. Gocad is now also available in an 64-bit Windows version. A new high performance volume interpretation option is now available, based on hardware from Scalable Graphics, an INRIA[1] spin-out company. The technology came out of the INRIA distributed visualization 'DViz' R&D project. Scalable's cluster service allows for visualization of large data volumes – up to 110 GB distributed across 8 machines. The Linux cluster retrieves data from disk, renders it and sends it to GOCAD. A Windows client will be available real soon now. Infiniband connectivity makes for 'near zero' preload time. Data access is independent of cursor direction of movement. Future configurations will offer up to 400GB on 8 nodes and 1.2TB on 64 nodes. Single client displays of 100GB require decimation. This technology operates at full data resolution. The dual Opteron servers from Carri Systems include 8 graphics cards – and supply 60 frames per second to the client. More from www.paradigmgeo.com.

0708_1.15 Parallel Geoscience – SPW Seismic Processing system

Parallel Geoscience's SPW System is an interactive 2D/3D seismic processing system for Windows and Linux. About a third of Parallel's sales are for field QC. All the software was written from scratch except for the wave equation migration package which is a joint venture with the IFP. Although software was written for parallel processing, 95% of Parallel's software runs on single CPU machines. Parallel is Microsoft's poster child for seismic processing on Windows 2003 Compute Cluster Server. But most of Parallel's sales have been on Linux. According to Parallel, Windows CCS and Linux showed similar times for seismic processing. More from http://www.parallelgeo.com/.

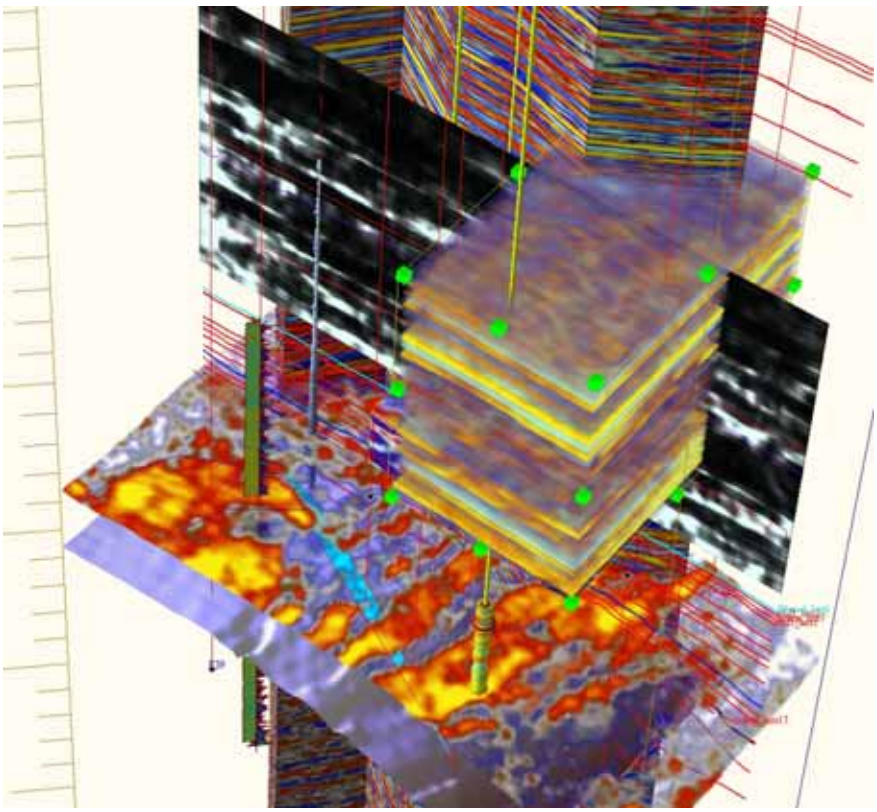
0708_1.16 Roxar – FracPerm 2.0 and Geomodeling resale agreement



Roxar Launches FracPerm 2.0

Roxar's FracPerm 2.0 creates permeability maps for use in flow simulation and history matching. FracPerm operates alongside Roxar's IRAP RMS geological modeler. The new release includes a redesigned interface and a plug-in structure for customization and integration with other software tools. Fracture sets can be generated and color coded. FracPerm users include Hydro, Lukoil, Saudi Aramco, ADMA, OMV, MOL, Surgutneftegas, Petrochina, Pertamina, and CuuLong Vietnam. Roxar's 2006 acquisition, the history matching helper application EnAble can now be invoked from within RMS/Geology. Roxar also has an ongoing geosteering project with Hydro – this targets editing the 3D geological model and recomputing geostatistics around a well.

[1] *French research lab.*



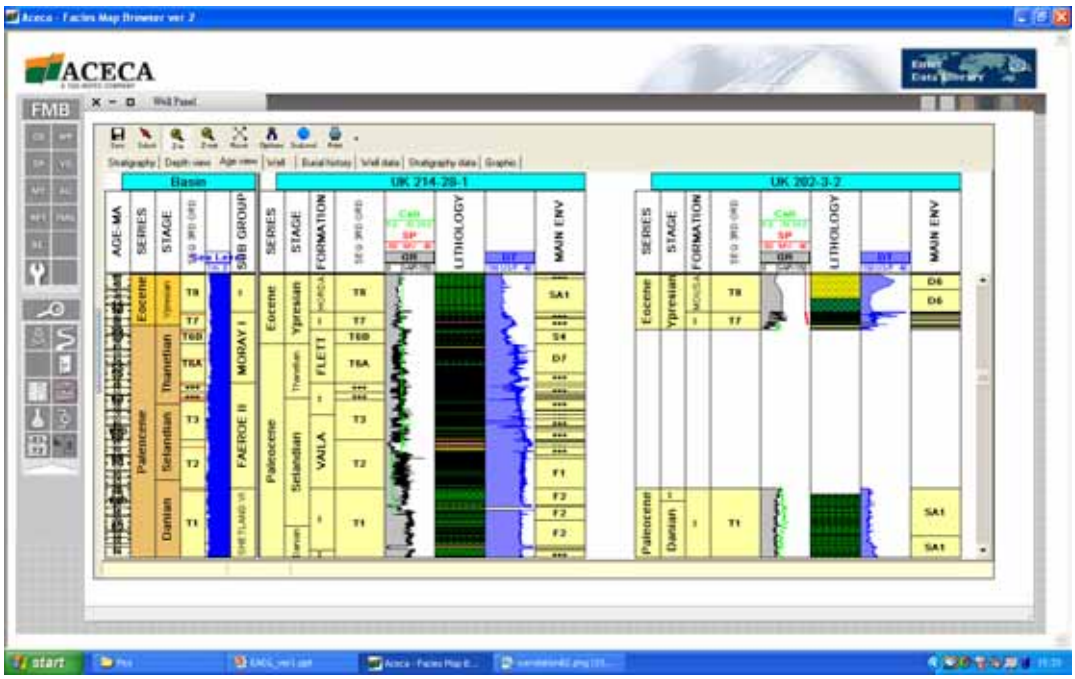
Geomodeling's VisualVoxAT now sold by Roxar

Finally, Roxar has signed a worldwide agreement deal with Geomodeling for the resale of its seismic interpretation software, VisualVoxAt. More from www.roxar.com and www.geomodeling.com.

0708_1.17 Schlumberger (with Statoil) – Results Management

Statoil's Cathrine Gunnesdal described the use of Schlumberger's ProSource Results Manager (RM) for capturing interpretation results from key applications including SeisWorks, OpenWorks (OW), ZMap, EMS and Eclipse. Statoil has corporate and project data managers. Statoil uses RM to capture projects at 'decision gates' such as a recommendation to drill, following a basin modeling exercise or prior to a license application. A high level Statoil governance ruling obligates knowledge workers to clean up their projects before storage in RM. According to Gunnesdal, standard nomenclature has been the key to success. Project data is kept for a year before deletion. ProSource is also used to create and QC OpenWorks projects and particularly, to track which seismic interpretation goes with which eclipse model—this is 'impossible in normal workflow.' The benefits to Statoil include an 'awareness of doing things right,' assuring data management and quality through a proactive approach and a strict nomenclature. The system has successfully re-created an accidentally deleted model that was in daily use. This was fully restored to OW in 10 minutes. Because project re-build is so easy, Statoil now recommends only use of 'daily' data in OW. Partner data creation is also facilitated – it took 20 minutes to export an ASCII file of a project model. Statoil has 17 people in central data management support, more in the assets. More from http://www.slb.com/media/services/software/im/prosourcerm_prodsheet.pdf.

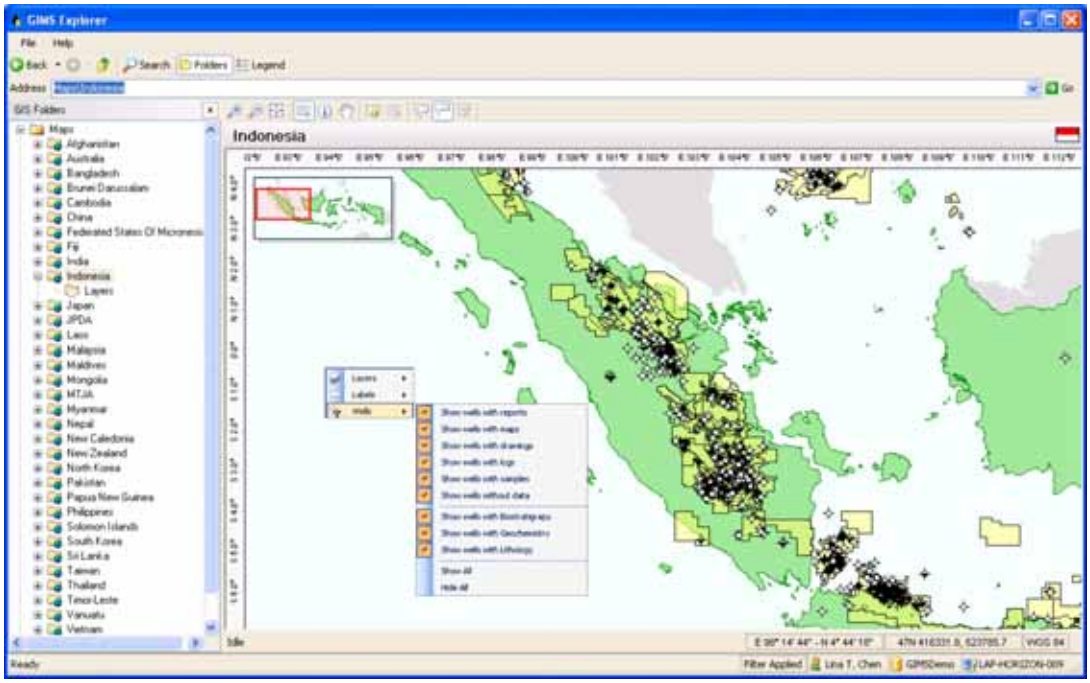
0708_1.18 TGS-Nopec/A2D Facies Map Browser



Aceca Facies Map Browser correlation using a vertical scale in millions of years.

The Aceca Facies Map Browser (FMB – now part of TGS Geological Products & Services) provides visualization of depositional systems models derived from an interpreted well database tied to reference 3D seismic volumes. FMB displays details of the basin stratigraphy and fill, with an audit trail providing context and background to the interpretation results. Depositional systems maps are derived from UK, Irish and Norwegian released seismic and well data. More from Jenny Salinas Jenny.Salinas@tgsnopec.com and http://www.aceca.co.uk/.

0708_1.19 Zeh/Horizon GIMS



Horizon's geological information management system GIMS.

Zeh is expanding its software lineup with Horizon's 'GIMS' geological data management package. GIMS is a data management tool for management of physical and digital assets. GIMS offers a GIS interface, viewers for PDF, TIF, LAS, SEG-Y and assures information traceability and a secure master data archive. GIMS originated as a front end to Fugro-Roberston's SE Asia geology, geochemistry and biostratigraphy dataset. The data viewer and service combo displays well spots with drill down to a pdf of say, a palynology report. 'Worksets', collections of links to data, are used to create farmout CD distributions. Zeh is working to integrate GIMS with its SeisInfo

package. ZEH was also showing its CGM plug-in for Petrel 2007.1 – used to export Petrel graphics to CGM montages. More from www.zeh.com and Andy Livsey arl@horizon.co.id.

TW0708_2 Exhibitors – Hardware and Storage

A good introduction to some of the issues behind storage area networks (SAN), network attached storage (NAS) and virtualization is available on http://en.wikipedia.org/wiki/Storage_area_network. In the recent past, pre stack data was confined to the 'silo' of the processing house. Seismic processors would take the vast data volumes recorded in the field (some 300 terabytes (TB) for a Gulf of Mexico 3D survey) and process it down to a few hundreds of GB for interpretation. But interpreters interested in amplitude vs. offset, or other pre-stack indicators of the presence of hydrocarbons are increasingly leveraging pre-stack data—stressing data storage, network bandwidth and project data loading times. According to a NetAPP estimate, there are about 70 petabytes (PB) of upstream data stored on spinning disks today.

0708_2.1 Blackberry in Oil and Gas

Blackberry has appointed an oil and gas contact, Thomas Neubauer (tneubauer@rim.com) and was showing some applications developed by partner companies. BFI is extending Siemens' Siematic process control infrastructure to Blackberry users. More from Christian Schad cs@bfinet.de and www.bfinet.de (although mostly in German). Another Blackberry associate IQlink offers Blackberry integration with SAP – contact Peter Stapells peter.stapells@iqlink.co.uk.

0708_2.2 EMC Centera 'soup to nuts' provider.

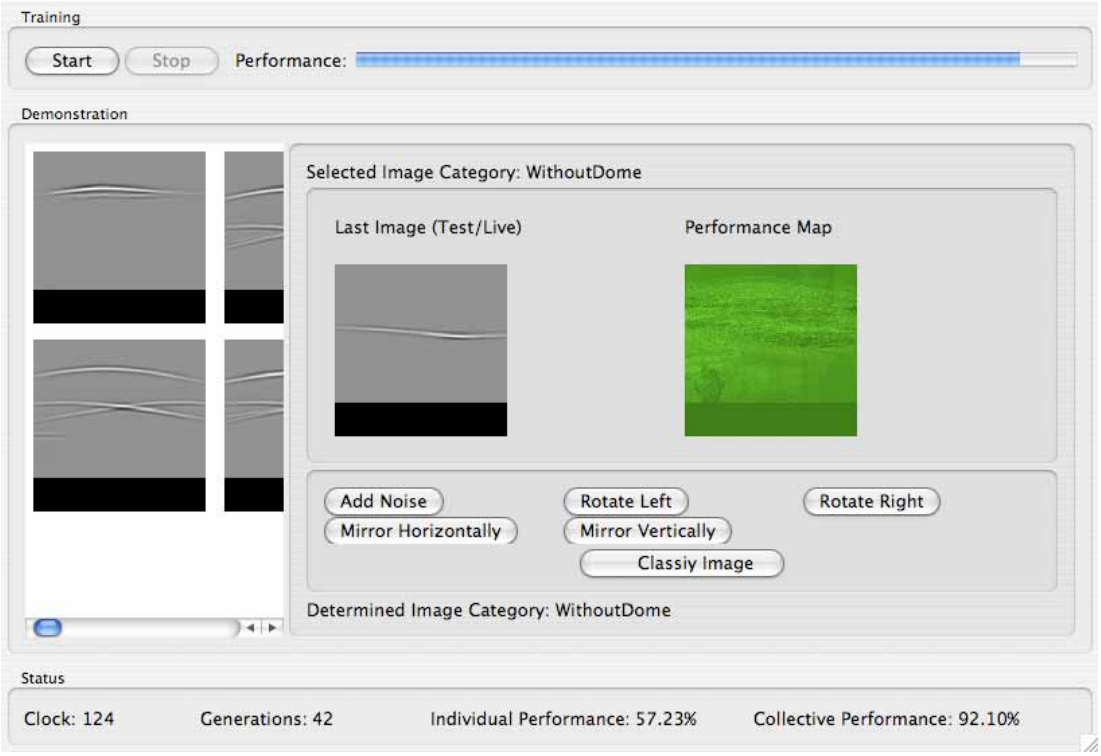
EMC2 offers solutions for high performance computing and clustered file systems and is working with Landmark on a hardware/software bundle of the OpenWorks R5000 synchronous release. In its recent acquisition spree EMC2 has acquired Documentum, the Smarts network manager, VMWare's server virtualization and Rainfinity's file virtualization. Rainfinity's digital rights management technology encrypts data at the file level and is claimed to offer synergy with Landmark and Schlumberger's applications. EMC2 is also offering best practices for migration and upgrade to Oracle 10G. EMC file systems equip HPC clusters deployed by Exxon, WesternGeco and Statoil – all used for seismic processing. The global file system and SAN is exposed to the cluster as NAS. A Gartner study described EMC2 as a 'soup to nuts' provider. More from Peter Hodge Hodge_peter@emc.com and www.emc.com.

0708_2.3 Headwave - 'Headwave for Interpreters'

Headwave is now selling its pre-stack data access technology independently of Petrel as a stand alone pre-stack 'Headwave for Interpreters' (HfI) package. The GPGPU compression-based technology offers access to terabyte size data sets without requirement for a storage cluster. Compression/decompression is performed on $500 NVIDIA 8800 cards. The system targets pre-stack interpretation or processing. Compression technology is used on Fugro's seismic boats and in an 'undisclosed' interpretation system. A 64 bit release is scheduled for later this year. Floating point math will also be available real soon with a new CUDA release. Plans are now to add picking functionality to the HfI package and to extend the GPGPU-based number crunching to seismic processing. More from www.headwave.com.

0708_2.4 IBM – Deep Computing Visualization, Simudyne, Blue Gene

Deep Computing Visualization (DCV) offloads graphics to dedicated hardware and now supports a Windows XP client so that Petrel users can benefit. Part of IBM's DCV effort involves developing a 'convergent' visual computing paradigm so that, for instance, 'Petrel and Geoprobe could cooperate at a meta layer via open visualization standards.'



Simudyne's AutoCore pattern recognition application classifies prestack seismic data.

IBM partner Simudyne was showing a rather obscure technology leveraging the Cell Broadband Engine (BE) as used in the new Sony Playstation. Simudyne's 'AutoCore' is described as a virtual machine that uses an 'evolutionary computing' technique for seismic analysis and pattern recognition. Other applications address steam and water injection program optimization. The system is said to 'write its own software'. Chevron and Statoil are said to be trialing the box. More from Justin Lyon - justin@simudyne.com and www.simudyne.com.

IBM claims 15 teraflops from its Blue Gene 'petascale' machine.

IBM is also active in high performance computing with its Top500-winning Blue Gene. By building high-end interconnect into the hardware IBM claims very high real bandwidth—280 out of theoretical 360 TF machine. Commodity-based clusters usually max out at around 10% of their notional peak. More from Earl Dodd - earldodd@us.ibm.com and http://www-03.ibm.com/industries/chemicalspetroleum/index.jsp.

0708_2.5 Isilon IQ storage

Seismic Exchange has a petabyte of seismic data hosted on Isilon IQ clustered storage. The central repository of its proprietary 3D seismic library is powered by Isilon's OneFS operating system software. This unifies 30,000 total square miles of 3D seismic imaging data into one 'seamlessly expandable' pool of high-performance storage.

Integration was performed by Network Touch and the Houston Information Team. More from Gary Willoughby gary.willoughby@isilon.com and www.isilon.com.

0708_2.6 Net App – Chodi and Gavin Keeler

NetApp is evolving its offering from hardware to include application support. Many upstream applications run across Oracle and flat files which NetApp consolidates to a single system, simplifying backup procedures. NetApp clients include Shell (4 PB), Aramco (2½ PB) and Petrobras (5 PB). NetApp has several certification programs ongoing with Landmark and Schlumberger. NetApp systems are also resold by IBM as the N-Series. See also NetApp's white paper 'Effective Practices for Information and Data Management in the Upstream Oil and Gas Industry.' NetApp does not think the E&P data explosion is going to end any time soon. Today the company is looking at keeping more prestack data online to support huge processing requirement and to manage multiplying seismic data volulmes across processing and storage. More from Chodi McReynolds chodi@Netapp.com and www.netapp.com/oilandgas.

0708_2.7 Sun – reforming oil and gas unit

Sun has reformed its recently disbanded oil and gas unit and is getting back market share with its x86 workstations and the 'Thumper' 24 TB storage system. Dual AMD processor workstations are used by Devon, BP, Conoco-Phillips, Chevron and WesternGeco. Sun's top-flight U40 workstation with dual NVIDIA 5600 cards is in the process of certification with Landmark. Sun's acquisition of SeeBeyond has given it an SOA offering. SeeBeyond is used by BP for global identity management. Finally Sun's 'Project Blackbox' delivers a configurable data center, high performance computer or whatever you need in a standard shipping container. More from http://www.sun.com/products/soa/index.jsp and http://www.sun.com/solutions/landing/industry/energy/oil_gas.xml.

0708_2.8 Tyan Computer – Personal Supercomputer

Tyan's new PSC T-600 series Personal Supercomputer is a 5-node cluster with Intel 50-watt quad-core processors and up to 60TB RAM.The Tyan PSC T-600 series is delivered as a ready to use pre-tested cluster configuration. ISV partnerships include ANSYS/Fluent, LSTC, Wolfram Research. Prices from $20,000. More from Howard Wiblin howardw@tyan.eu and www.tyan.com.

0708_2.9 Verari – VB 5150 Storage System

Verari's VB 5150 Storage Subsystem for the BladeRack 2 holds up to 576 TB of NAS storage per rack. Verari claims over 1 petabyte of storage sold to the oil and gas vertical. Drive choices include 500GB, 750GB or 1TB SATA II hard drives. RAID levels supported include RAID 6 and 60. Utilizing RAID 6, a VB5150 Storage Subsystem can tolerate two simultaneous disk failures, drastically reducing the risk of unrecoverable media errors during rebuilds. More from www.verari.com/storage.asp.

TW0708_3 Exhibitors - other

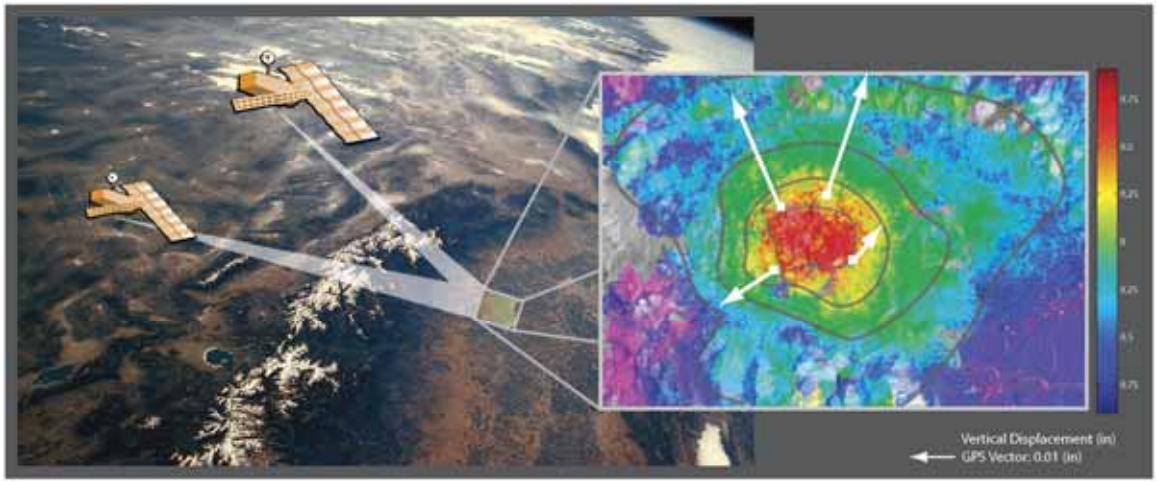
0708_3.1 Cydarex (IFP Group) poroperm from cuttings and core analysis

Cydarex' hardware performs porosity and permeability from drill cuttings. Only a few cubic centimeters are required for the analysis. More from contact@cydarex.fr and www.cydarex.fr (although a rather uninformative home page).

0708_3.2 Ovation/DPTS – Data Stewardship Program

Ovation's Data Stewardship program, which hosts and refreshes companies' E&P data has met with modest success with five US clients signed-up and management of CGG's 120TB multi-client library. More from www.ovationdata.com and www.dpts.co.uk.

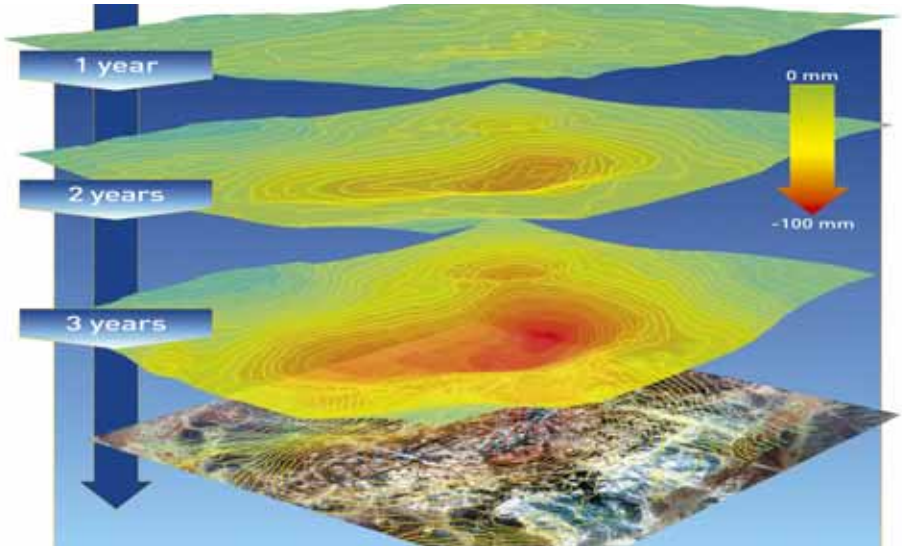
0708_3.3 Pinnacle Technologies – GPS InSAR deformation analysis



Satellite-based radar surveys reveal subsidence caused by oil production.

Pinnacle offers a combination of downhole microseismics surveillance and satellite-based deformation measurements to track ground movement such as compaction during oil and gas production. GPS InSAR measurement has been used to follow Shell's 'Huff n' Puff' heavy oil production in Canada's Peace River field. Pinnacle sees the technique as an alternative to 4D seismics. Deformation measurements can be made daily. The technique can also be applied to CO2 sequestration. More from www.pinntech.com.

0708_3.4 TRE – Marco Bianchi



PSInSAR time-lapse study over compacting oil field.

TRE is a spin-out of the Italian R&D Polmi establishment. The PSInSAR technique involves satellite-based radar 'permanent scatter interferometry' to measure ground displacement (compaction) down to 1mm/year. A corner cube reflector can be deployed for increased precision. A map of London shows subsidence along the new Jubilee tube line (in conformity with engineering prognosis). PSInSAR data is integrated into a GIS environment to generate deformation maps and contour lines of the displacement field. More from Laura Pezzotti laura.pezzotti@treuropa.com and www.treuropa.com.

TW0708_4 Papers of note

As usual, information and data management papers and poster sessions were lumped in with 'other seismic processing' or 'near surface effects in E&P'. The reviewing process has let through some interesting vocabulary – '*interessement,*' '*problematization' and especially 'oralnology*' and '*oralnic*.' The last two are intriguing in that the authors did not bother to say what these 'neologisms' actually mean despite the fact that they are not in the dictionary and are virtual 'googlewhacks.'

0708_4.1 Automated Geobody Extraction with 3D Waveform Sequences[1] – H. Borgos (Schlumberger) et al.

Classification techniques used to automate 3D seismic sequence interpretation and geobody extraction – very nice geobody images in Petrobras data.

0708_4.2 Solving the data management puzzle[2] – F. Hunault, (Total)

The paper summarizes the gap between perception of perfect data management and the reality of 'incompatible data models, poor interfaces, missing components and incompatible software.' Total has attempted to solve the puzzle with a single large virtual database, the 'Intranet Geosciences Data Base' (IGDB). The IGDB leverages a Unique Identifier (ID) for E&P objects, the use of Oracle 'materialized views' instead of data copy and intelligent replication. The work in progress still relies in part on ASCII data exchange to circumvent proprietary data sources. Paper includes an interesting critique of vendors' 'non-imbricated' solutions. But salvation lies in 'web services, GIS integration and the common data model.'

0708_4.3 Seismic processing tests on the CELL[3] – C. Bednar, Panorama Technologies

Paper describes progress in porting seismic code to the IBM Cell BE (the chip used in the Sony Playstation III). Panorama's software installed without difficulty on the CELL architecture. Tests so far show finite difference codes execute 'on the order of' 9.94 times faster than on a 2.2GHz AMD processor. Ray tracing performance remains problematical.

0708_4.4 Multidisciplinary real time monitoring[4] – E. Tan, Halliburton et al.

Real time technology as applied to Petronas' Angsi development from rig site data collection, transmission and web-based delivery. Real time data is integrated into a geological and geophysical project database and 3D visualization tool for viewing of planned and current well trajectories in the context of a 'Drill to Earth Model' approach incorporating existing wells and operational data. The project was built around Baker Hughes INSITE real-time data management system. Third party rigsite data integrated with WITS. Access to web-based data leverages Novell i-Chain[5] single sign-on. Paper includes an exhaustive list of applications used on the project.

0708_4.5 Knowledge Management for Shared Earth Modeling[6] – L. Mastella et al., Paris School of Mines

Shared Earth Modeling (SEM) should allow sharing of data and knowledge related to data interpretation .A prototype ontology-based 'Geological Knowledge Editor' (GKE) has been developed to support SEM knowledge management and assure reservoir modeling 'quality of service.' The GKE displays fault networks and stratigraphic columns and supports model editing and automation. The GKE leverages semantic web technologies to develop and deploy SEM related ontologies (shared vocabularies). The project is to develop a meta model to describe data in existing formats such as RESCUE, GRDECL or GoCad.

0708_4.6 Permanent Fiber-Optic Borehole Seismic at Valhall[7] – B. Hornby et al., BP

The world's first successful installation of a permanent borehole seismic system in an offshore production well. The fiber-optic based system has 5 levels of 3component seismic sensors. Active seismic data has imaged out to 400m from the borehole. Passive (micro-seismic) monitoring is used to track chalk compaction as the reservoir is produced and to monitor cuttings injection and well stimulation.

0708_4.7 Concept Uncertainty in Seismic Interpretation[8] – C. Bond et al., Midland Valley Exploration

A synthetic seismic section was built over a known structural feature and shown blind to some 400 interpreters. The results showed 'success rates' of less than 21% in identifying the tectonic setting and below 2% success at identifying 90% of the key features. The low success rates illustrate the risks of deriving a single deterministic model for a massively under constrained interpretational problem. Modern workflows that attach uncertainty to individual parameters such as permeability mask major uncertainties in the geological model.

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[1] http://www.earthdoc.org/detail.php?paperid=B014&edition=27.
[2] http://www.earthdoc.org/detail.php?paperid=H008&edition=27
[3] http://www.earthdoc.org/detail.php?paperid=E041&edition=27.
[4] http://www.earthdoc.org/detail.php?paperid=D013&edition=27.
[5] http://www.novell.com/products/ichain/.
[6] http://www.earthdoc.org/detail.php?paperid=D021&edition=27.
[7] http://www.earthdoc.org/detail.php?paperid=P201&edition=27.
[8] http://www.earthdoc.org/detail.php?paperid=P242&edition=27.

0708_4.8 Real-time quality control of directional survey data[1] – R. Nyberg et al., Statoil

Real time QC of deviation showed that gross errors and/or poor tool performance affected some 94% of Statoil's operated wells over a three year test period. The in-house developed Survey QA/QC application connects to service companies' WITSML servers and streams standard parameters and survey data into Statoil's Directional Drilling Database.

0708_4.9 A geophysical metadata hierarchy [2] – L. Sores, Eotvos Lorand Geophysical Institute

The European GEOMIND project is to create a web map services-based GIS portal for geophysical metadata and data services. This paper describes an XML geophysical community profile for the ISO19115 Metadata model and a generalized geophysical data model. The profile includes digital rights management, data quality, EPSG coordinate system codes, source datasets and descriptive keywords for thematic search. ISO19115 is based on XML schema definitions included in the ISO19137 standard. The multilingual geophysical metadata and data portal will leverage a new XML schema-based language to describe geophysical datasets.

0708_4.10 Experimental design for uncertainty analysis and optimization[3] – H. Kloosterman et al.

A range of subsurface uncertainties and development options analyzed using Experimental Design (ED). 40 key development option parameters were then optimized. Design and analysis of simulation runs were performed using commercially available software from JMP (http://www.jmp.com/applications/doe/index.shtml).

0708_4.11 C034 Exploration Potential of the Middle East – A. Fraser et al., BP

Composite Common Risk Segment mapping of the future potential of the Middle East shows over 100 billion boe to be found with some in likely 'super giant' fields of over 1 billion boe. The bulk of the remaining undiscovered oil potential is likely to lie in the Tertiary and Mesozoic trends of the northern Gulf (Kuwait, Iraq, Iran).

TW0708_5 SEG D Rev 3 update

The SEG standards committee met at the EAGE to progress the SEG-D Rev 3 tape standard. This is looking beyond conventional seismics to new data types including passive 'interferometry' and seabed EM. The committee is planning a web service for software conformity testing. SEG-D has not embraced XML, but with more rigorous lock down of bit positions it should be easier to translate header information to a tagged format.

TW0708_6 Technology Watch Subscription Information

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[1] *http://www.earthdoc.org/detail.php?paperid=P153&edition=27*.

[2] *http://www.earthdoc.org/detail.php?paperid=P152&edition=27*.

[3] *http://www.earthdoc.org/detail.php?paperid=H035&edition=27*.