CGGVeritas 2009 User's Club in China



Gilles Kothe
Geophysical Advisor S/W Product Mngt

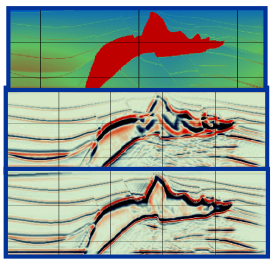
Evolution of User Interfaces

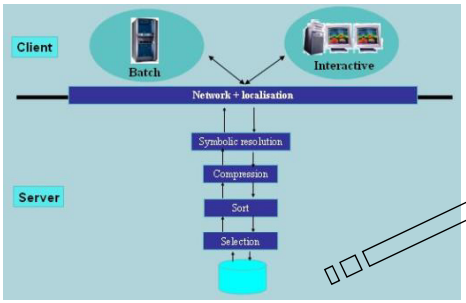
(improved efficiency and ergonomics)

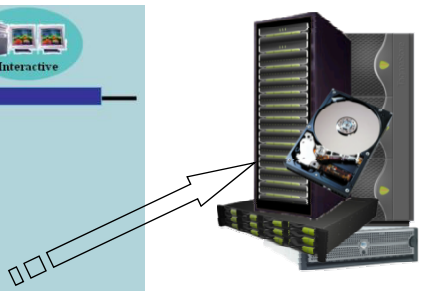
Geocluster 5000 – Release Content

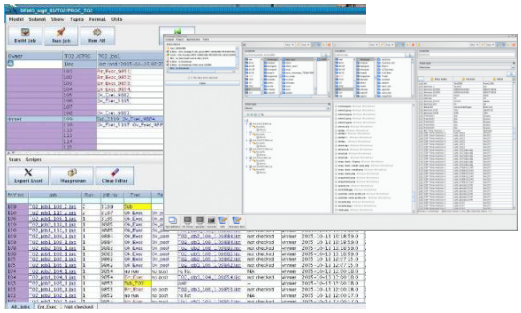
GCT4100 with consolidation of Geocluster batch kernel +

- **Few system evolutions**
- **Many new batch modules (+35/-27)**
- **New Production tool: Geodesk, Kereon, ...**
- **Data serialization: storage with SDS/ddam**







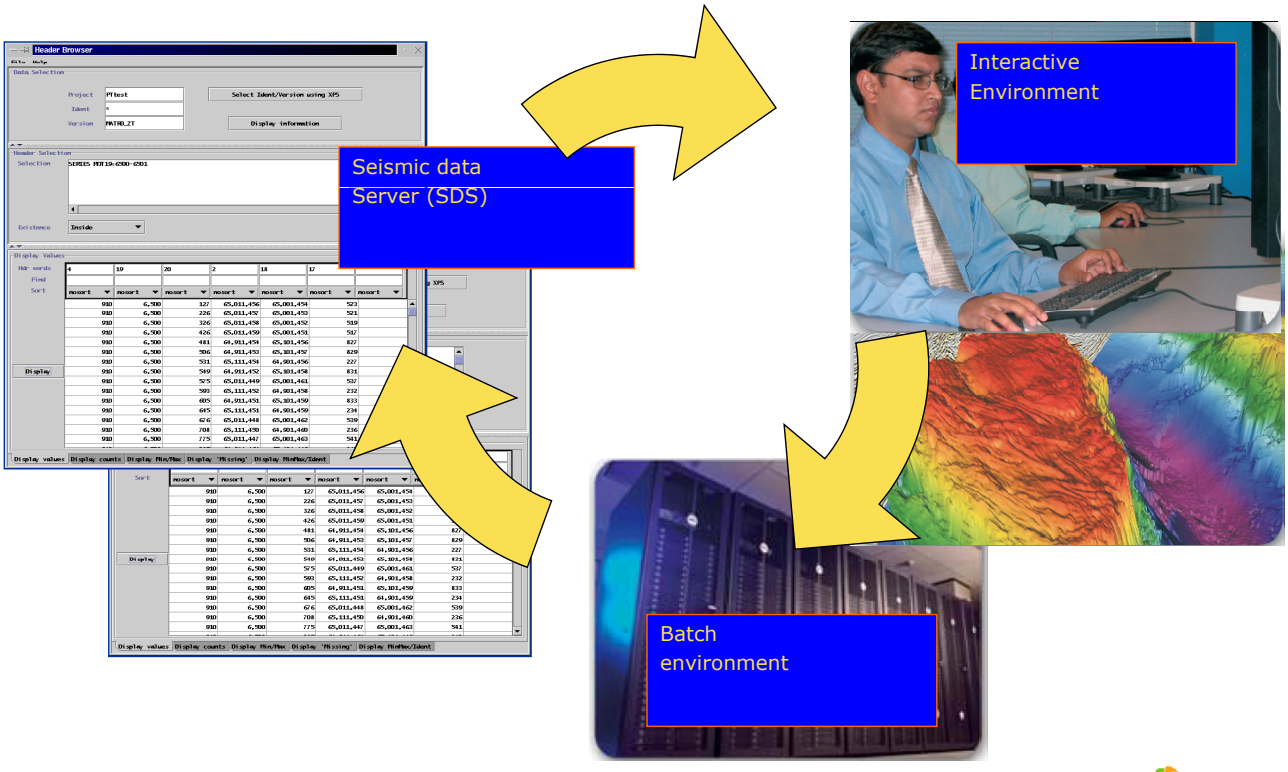


Geocluster 5000 release
New modules and Interactive versions

New modules ready for release (Certified or Not)		Group (for Xdoc)
ADAPT	Improved adaptive subtraction	Antimultiples
AZAVA	Azimuthal anisotropy vs. Angle	Attr. Analysis
CALMC	Application of (PRO4C) calibration filters	MultiComp
CURQC	QC input curvatures	Velocities
DECTP	2D high resolution TauP decomposition (FW/RV)	Sign. Proc.
DIMAT	Diffracted multiple attenuation	Antimultiples
DSCAN	Diffractor scan	Noise Atten.
FDNAT	Frequency dependent noise attenuation	Noise Atten.
FLATN	Gather flattening	Statics
HDFIL	High density filtering	Noise Atten.
HFNMO	High fidelity NMO application	Velocities
HFSTA	High-fidelity statics application	Statics
HDRES	High density residual picking	Velocities
HDRMO	High density RMO application (for HDRES)	Velocities
INFLT	Trace group decompression	I/O
INWET	Input to SRMIP	PSDM
ODIMM	One-D internal multiple modelling	Antimultiples
OUWET	Output from SRMIP	PSDM
PPDEC	Post-stack driven pre-stack deconvolution	Decon.
PRO4C	Calibration of multi-component sensors	MultiComp
QCXPS	Quality control on seismic trace values	Calc./QC
REBOX	High density RMO toolbox (for HDRES)	Velocities
REG2D	2D regularization	Interpolation
REG3D	One-pass 3D regularization	Interpolation
SHRNK	Trace group compression	I/O
SMMOD	Surface related multiple modelling	Antimultiples
SRANG	WE PreSDM angle gathers	PSDM
SRMIP	WE PreSDM	PSDM
SYMUL	End-spread to split-spread shots	Interpolation
TPXPY	3D TauP transform (FW/RV)	Sign. Proc.
TRASY	Trace flow management for HFNMO and HDxxx modules	Flow Mngt
WASAP	Water vevelocity statics application	Statics
WASTA	Water velocity statics computation	Statics
TVATS	Time variant automatic trim statics	Statics
FBPIK	**Automatic first break picking**	**Statics**

APPLICATIONS to deliver for GCT5000	Version
AVOAnalyser	1.4.1
CALIX	1.4.11
DYNAMO	1.7.3
EYEFUL	2.3.7
FastQC	4.1.2
Geodesk	1.4.2.0
GEOPAD	1.7.8
GEOTAPES	2.2.0
GEOWORK	2.2.0.11/1.33.6
GEOUNIX-JGEOUNIX-GEOTCL	4100 ?
JSEG2FI	2.0
JXJOB	0.9
KEREON	1.4.6
LGEDIT	2.3.6
LIBDL	3.4.1
MapQC	1.4.0
MATCALC	4.0.3
MECANO	2.3
MVP	7.0
SDITR	4.4.3
SHOW	(3100-reconduite)
TEAMVIEW	1.11.1
XDOC	
XJOB	3.6.1
XMOD	3.6.1
XPRO	3.5.3
Xps	0715
XPSapplication	2.4.1

Seismic Data Management
Seismic Data Server (SDS) in ddam distributed environment



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Seismic Data Server (SDS)

Benefits:

Deals with intermediate data (not SEG format)
Use files not cartridges (Project/Version/Ident)
Eliminate tape management from user's responsibility
Easier module coding (GETRA/SETRA replacing other i/o modules)
Allow easy and efficient input selection and sorting (in GETRA)
Allow effective output split (SETRA NSEG) and input merge
Allow fast access to headers when traces are not required
Allow better resource utilization with ddam (distributed) version
SDS reading in new interactive applications

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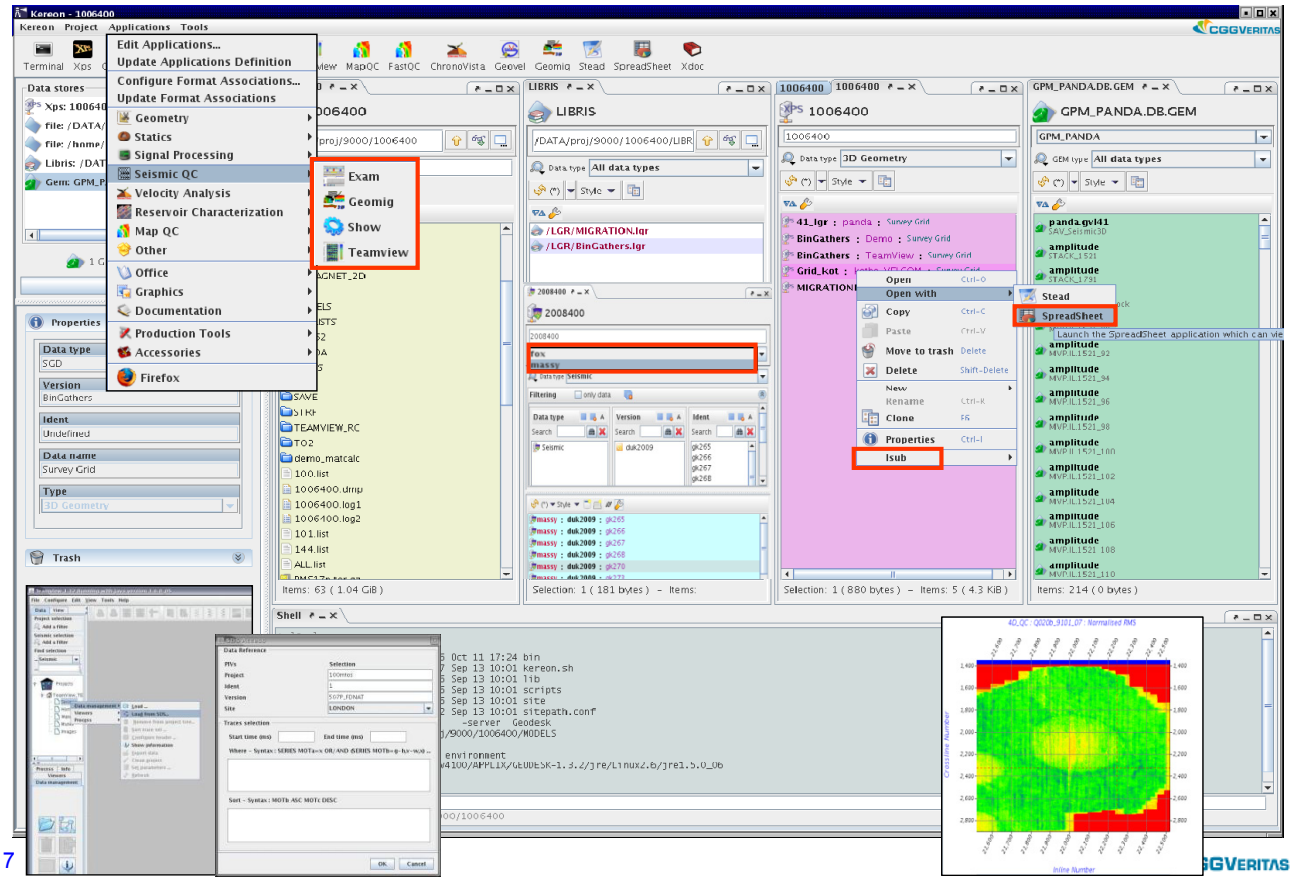
New Java Graphic Interfaces in Geocluster 5000

- Common development platform with generic components based on a toolkit of advanced graphic utilities
- Easy-to-learn and Easy-to-use:
  - *Same look and feel*
  - *Centralized data and production management*
  - *Streamlined data access whatever the storage format*
- Fully portable on any platform that has the suitable Java Virtual Machine and supports either OpenGL or DirectX
- 32 and 64-bit compliant
- Efficient development environment (for sources/compilation/doc/ tests management) with many skilled and 'motivated' developers

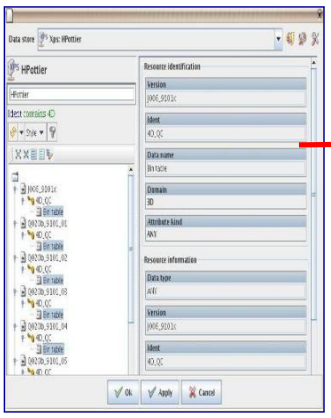
- *GCT5000 reminder: Velcom, Exam and WaveCalc are replaced by GeoVel, Teamview and MatCalc (that integrates WaveCalc)*

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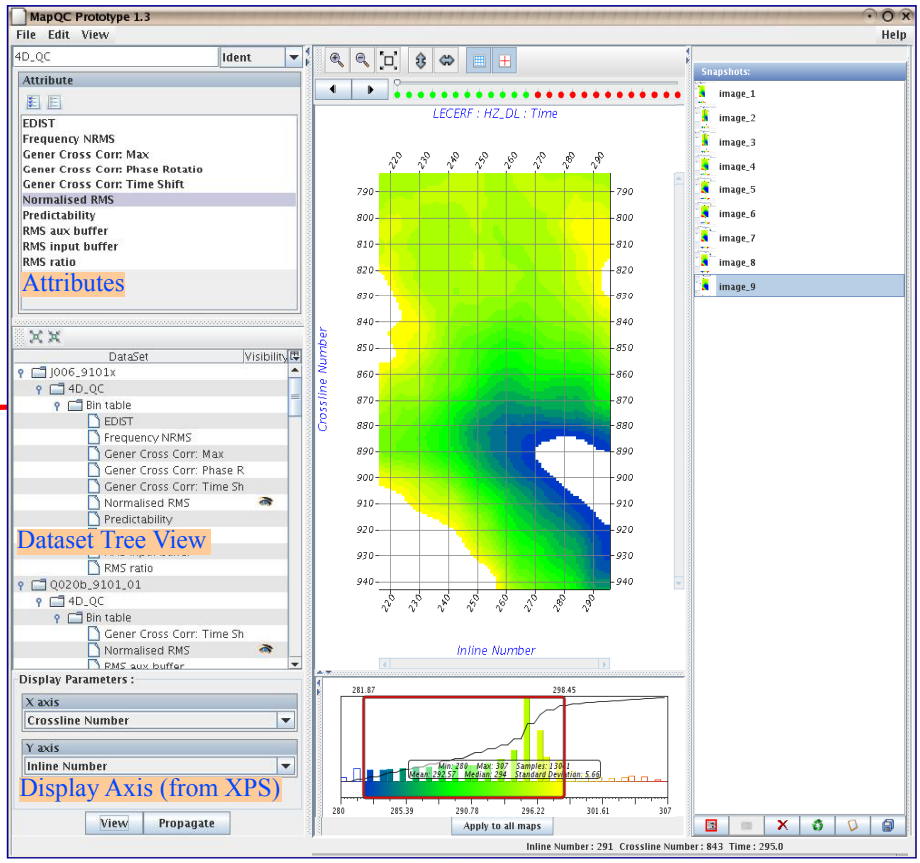
Kereon - data browser & application launcher



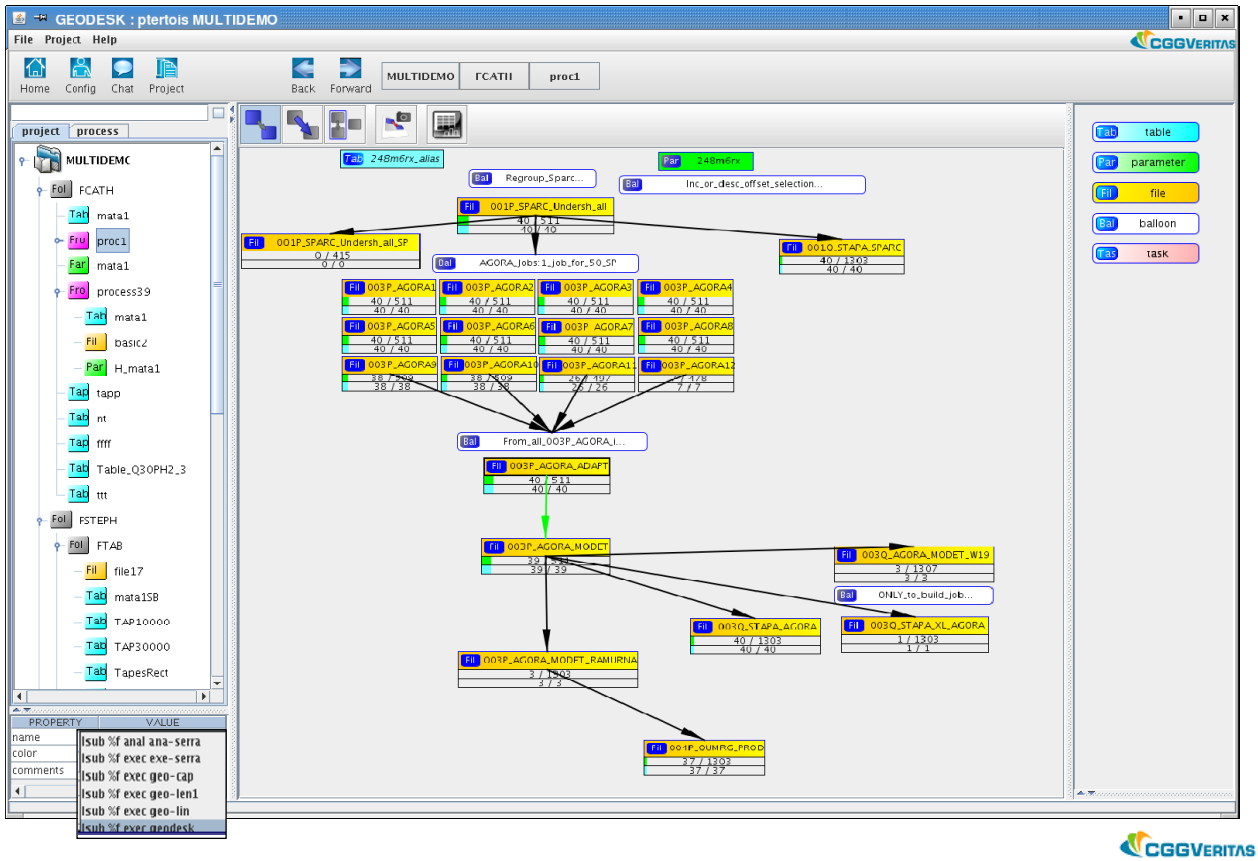
MapQC 1.5 screenshots



Dataset Selection (XPS)

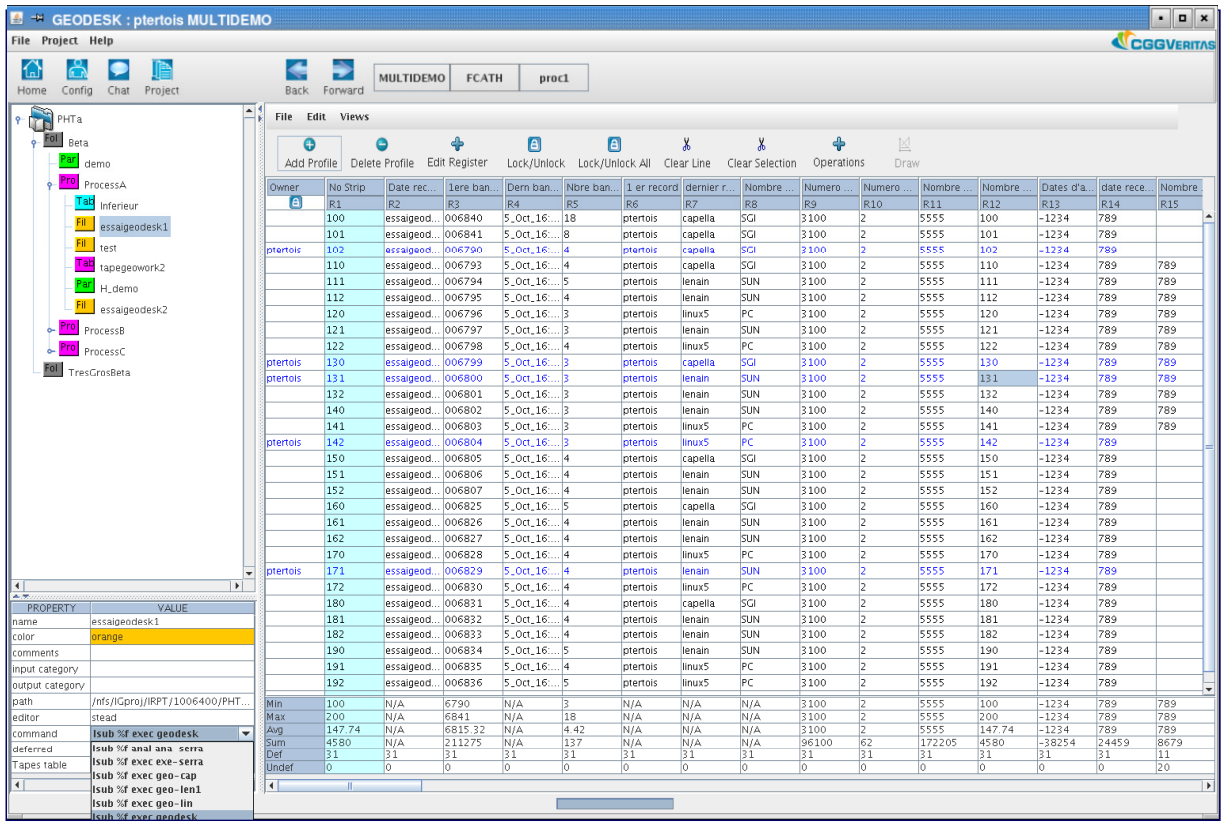


Geodesk - job board (File)



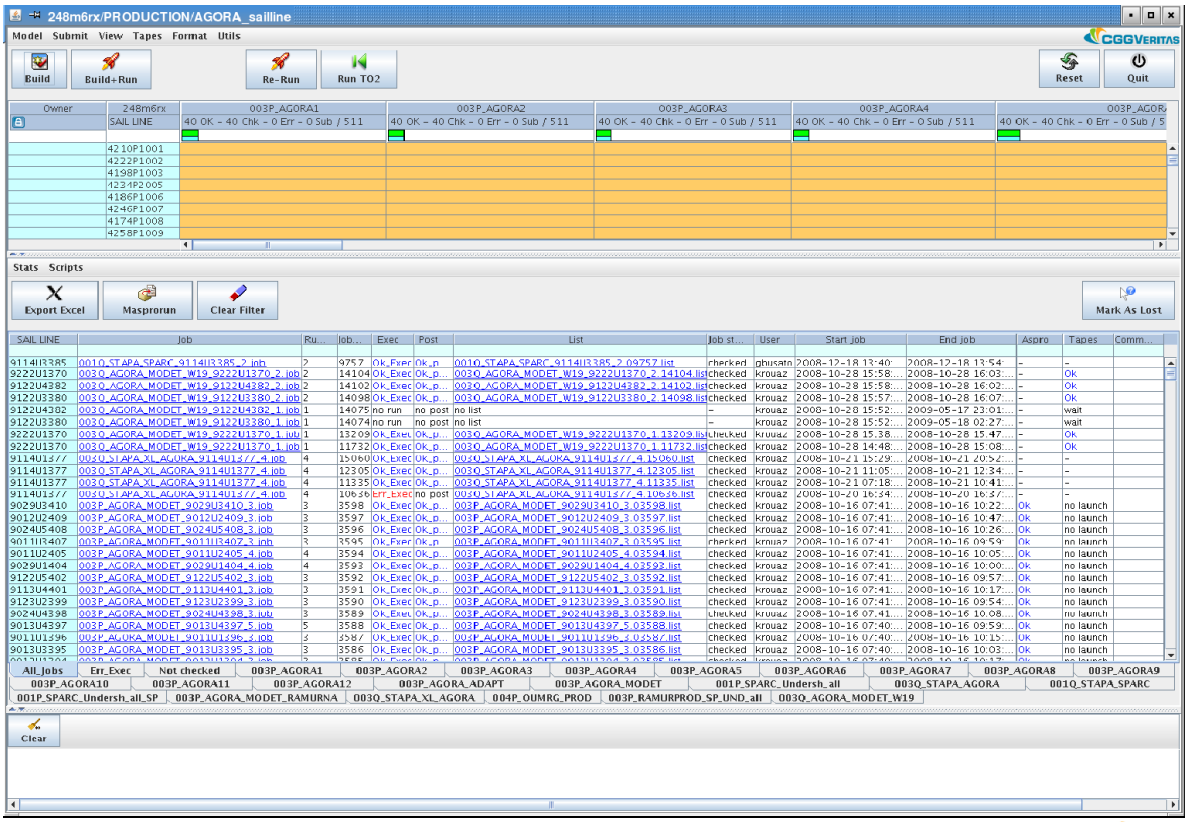
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Geodesk - parameters board (Table)

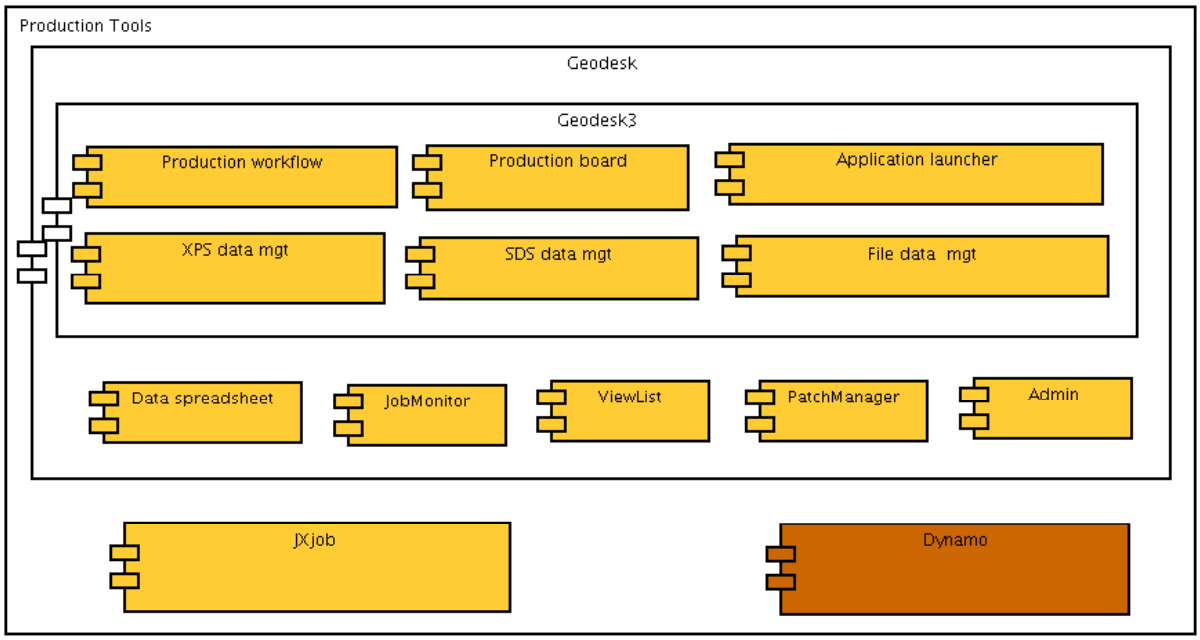


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Geodesk - production board



Production Tools for *geovation*



geovation : Flexible headers

Current GCT Trace Headers

64 words
(Integer, 1 to 32 bits)

→

Octopus Trace Extended Headers

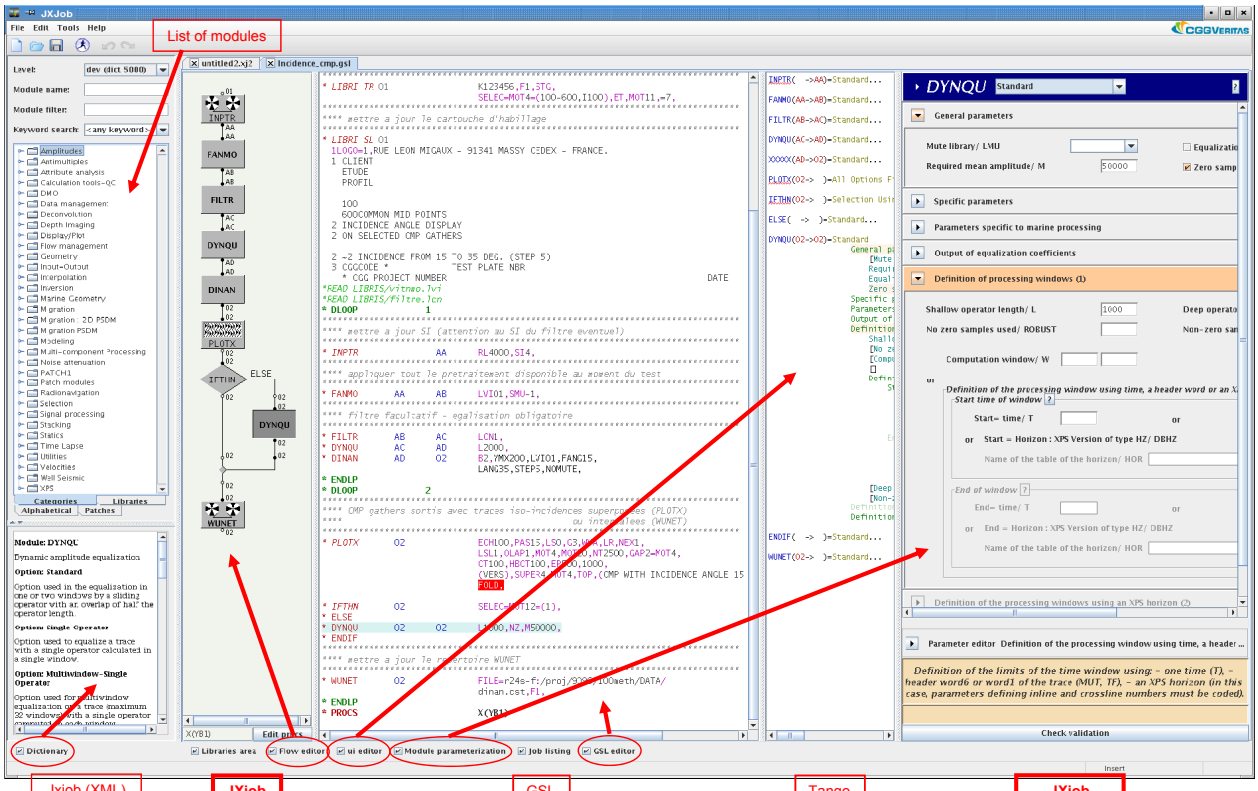
Attribute Names
(Variable Integer or Float, 32 or 64 bits)
"unlimited number"

Flexible headers - advantages for Users:

- One meaning for each header content (attribute)
- Users may have as many as ~800 attributes
- To be able to give logical names to headers
- To be able to store values in floating point
- More accurate positions, distances, angles and statics
- Number of HA can change with different processing steps

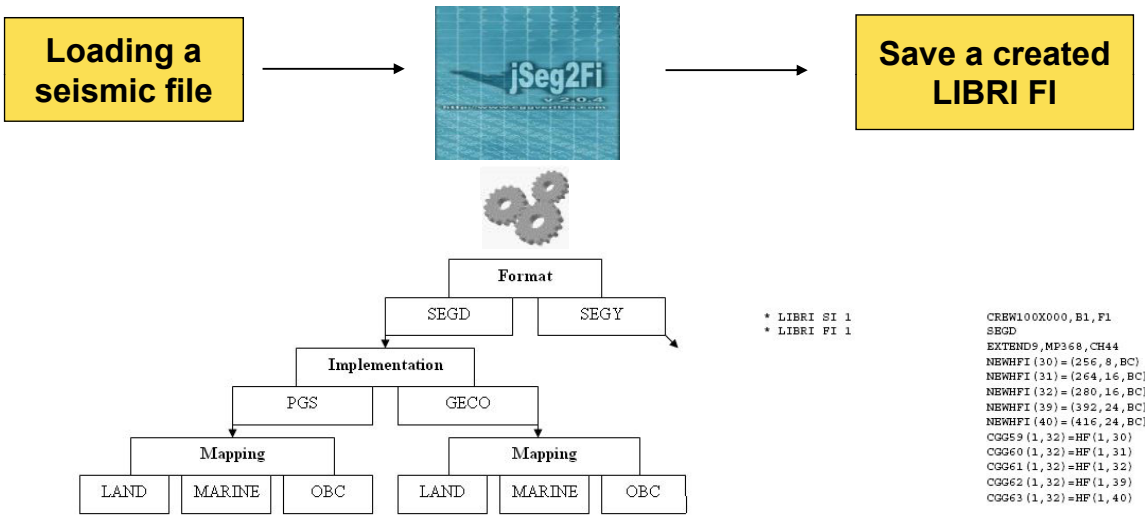
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JXjob – job builder with *gsl* to *xjj* to *jui* converter



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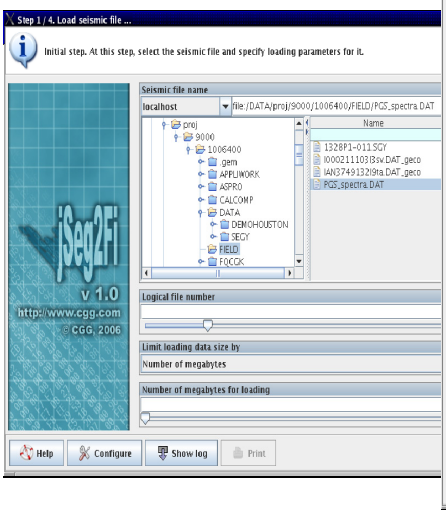
JSeg2FI: typical user session for SEG reformatting

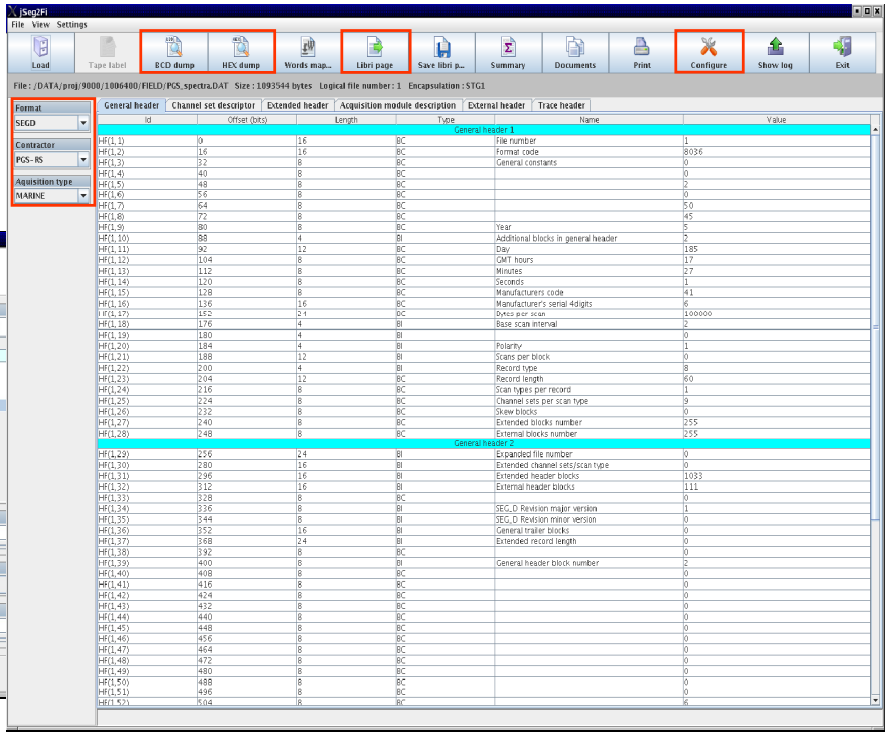


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JSeg2FI 1.0 – SEG reformatting

1. Sample reading and format detection
2. Header's control
3. Mapping in LIBFI





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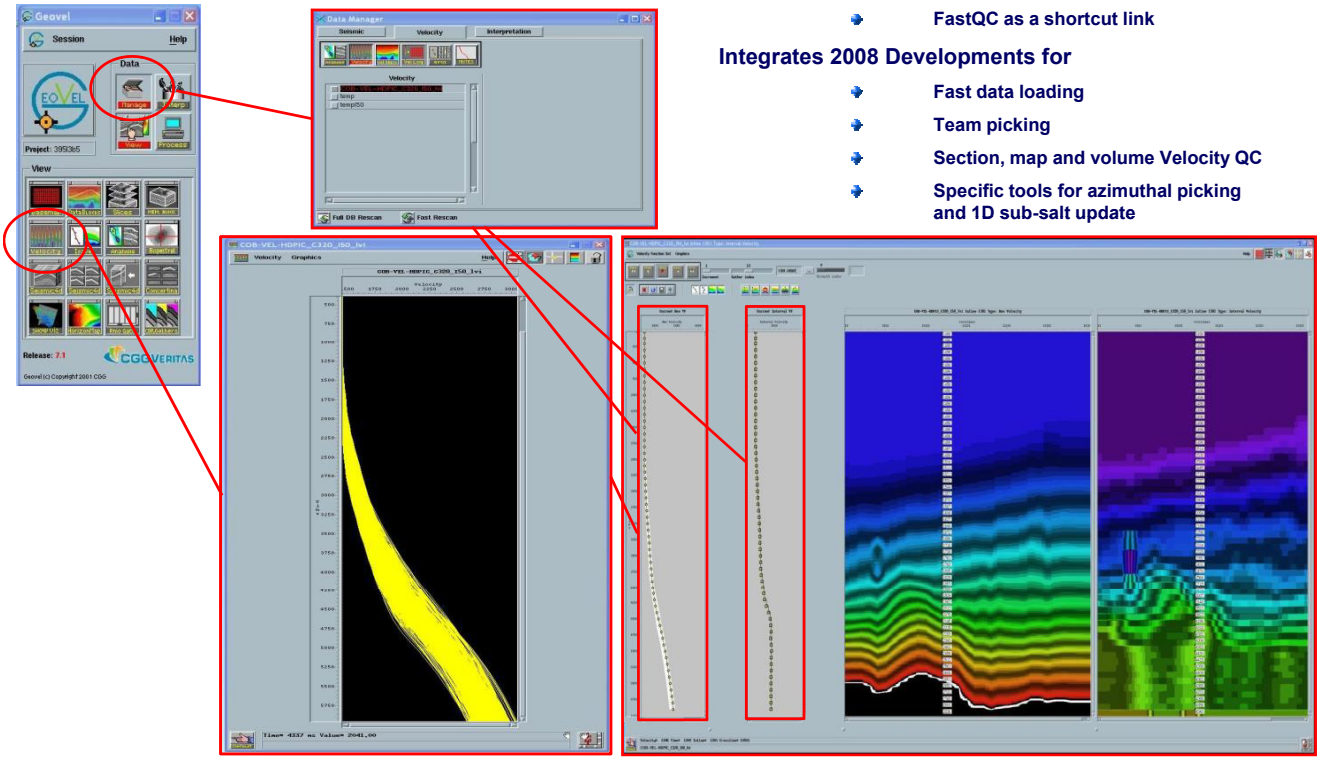
GeoVel 7 updates

Simplified Packaging

- GeoVel integrates Geomig features (including ShowViz 3D viewer)
- FastQC as a shortcut link

Integrates 2008 Developments for

- Fast data loading
- Team picking
- Section, map and volume Velocity QC
- Specific tools for azimuthal picking and 1D sub-salt update

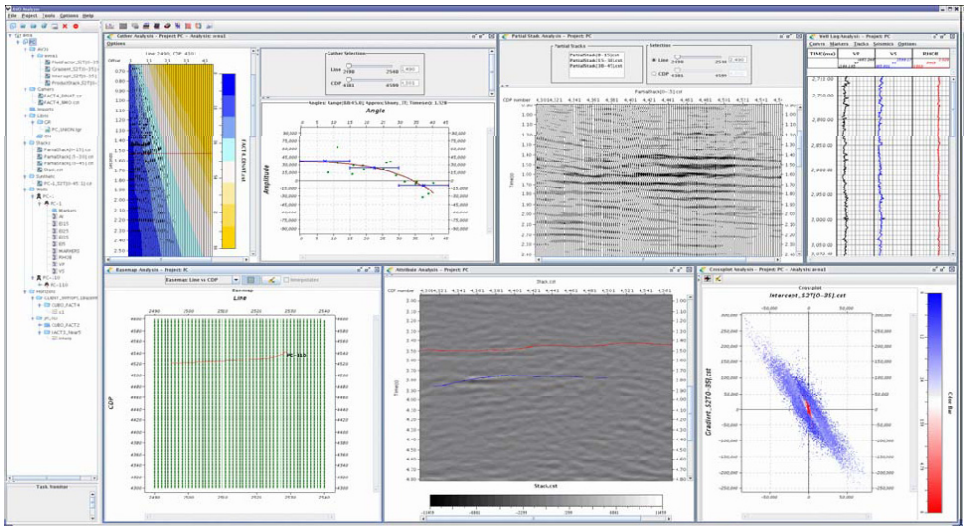


Drag and drop the velocities from the data manager (or the velocity set display) set onto the rms or the interval function to display it in the background

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AVOAnalyser is designed for:

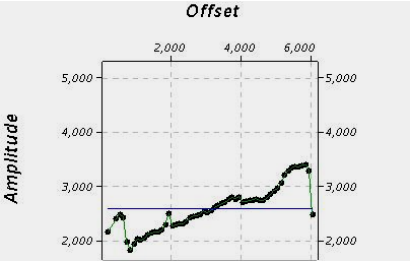
- **Computation & analysis of AVO anomalies**
  - **Performing fast AVO/AVA analysis, feasibility studies & support the simultaneous stratigraphic inversion process**
  - **GCT integration: data format (cst files, LIBRI, read data from GEM)**
  - **Processing Quality Control**



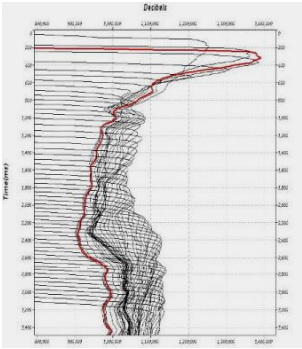
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AVOA in Processing:

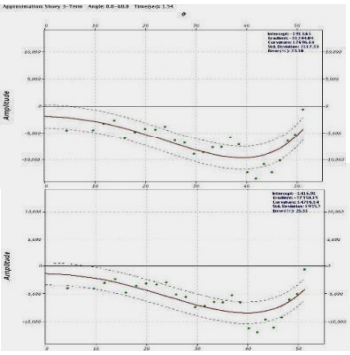
- **AVO response at difference stages of the processing sequence (antinoise, velocity QC, …)**
- **Evolution of the AVO response at the target level, analyzing the impact of different parameters on the AVO anomaly**
- **AVO response & synthetic AVO response comparison (when Vp-Vs-Rhob wells are available)**
- **Angle stack analysis**
- **Amplitude decay analysis (cf. ADGIN)**



AVO background f(offset)
for a given dataset and for a given time window



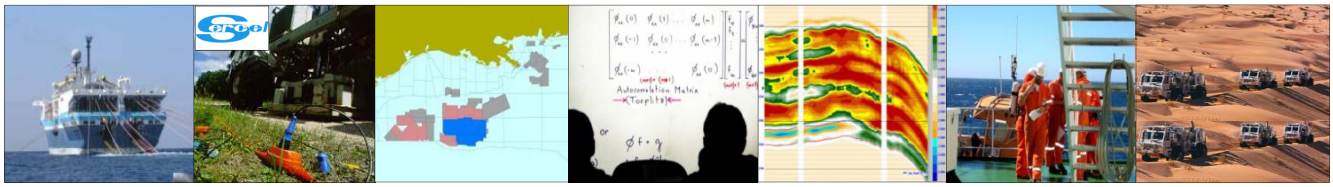
For each offset a decay amplitude curve was computed



AVO curve @ target level, with & without AVO background compensation

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We look forward, as CGGVeritas, to serving you in the future.