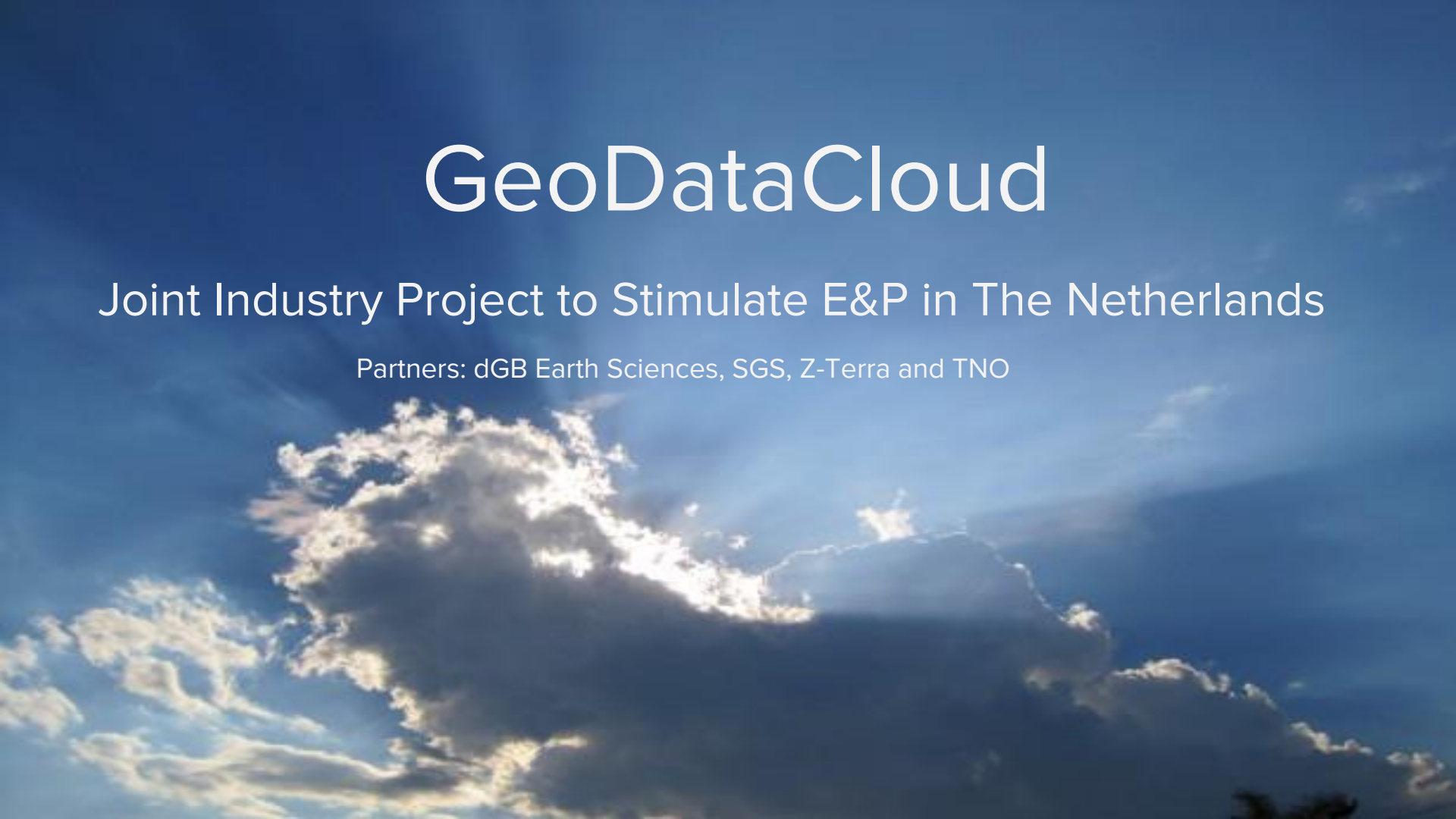

GeoDataCloud
Joint Industry Project to Stimulate E&P in The Netherlands
Partners: dGB Earth Sciences, SGS, Z-Terra and TNO

Outline

Background

- DINO / NLOG

GeoDataCloud

- Objectives
- Project Outline
- Cloud Environment
- Partners’ roles

Finances

Costs

Background

A recent TNO survey among operators showed that there is interest in ‘The Netherlands’ free seismic data sets that reside in the DINO database provided value is added and the data becomes easily accessible.

dGB and SGS / Z-Terra independently developed initiatives to start projects aimed at addressing these issues. SGS / Z-Terra already started by merging several data sets in the P-blocks and inverting the merged volume to Acoustic Impedance.

dGB, SGS, Z-Terra and TNO joined forces to launch GeoDataCloud: a Joint Industry Project that aims to make free data in the Netherlands available in the cloud and to add value by merging and creating new products.

DINO / NLOG

A unique database / portal with (almost) free subsurface data that serves:

- The Dutch government in enhancing the field development potential and marketing of licence areas (and their upside)
- The E&P industry in The Netherlands and abroad
- R&D communities worldwide

The full potential of DINO / NLOG is not reached because:

- Data sets are separate and of varying quality
- Database is static; seismic data above 250MB is delivered at a fee on physical media

What is GeoDataCloud?

A Joint Industry Project that aims to add value to “free” seismic subsurface data in The Netherlands and to create a cloud environment where this seismic data can be easily accessed and interpreted

GeoDataCloud Objectives

1. Make “free” seismic data more readily accessible for interpretation and/or download
2. Add value to the “free” seismic data
3. Integrate data (seismic, well, geomodel etc.)
4. Reduce costs of managing and using seismic data
5. Create a platform for promotion of novel imaging and interpretation technology
6. Stimulate the E&P industry in The Netherlands
7. Mature volumes by cross fertilization of knowledge that leads to fewer dry wells

Minimum Project: Minimum Viable Product

Create a cloud environment

- New portal with options to see what data and services are available, create user accounts, select machines, rent disk space for own interpretation & processing results, buy value-added products (download), ...
- Update OpendTect to support cloud storage, multi-survey interpretations, multi-user support, interact with the portal to manage paid vs free services, ...

Double the area (to 4600km^2) of the already merged & inverted data volumes to become seeds for the cloud environment

Populate the cloud environment

- All 240 “free” 3D seismic volumes that reside in DINO / NLOG
- The seeds of the Mega-merge and inverted Acoustic Impedance Volumes

Extended Project

Move all Pre-stack gathers, 2D seismic, and Wells from DINO to GeoDataCloud (alternative minimum project)

Extend processing areas

- Mega-merge data set
- Acoustic Impedance Volume

Process / interpret value-added products

- Create additional volumes: e.g. Velocity, Depth, Attributes, Rock properties (porosity, saturation)
- Pre-stack merging and re-processing, e.g. PSDM, Diffraction Imaging, …
- Add interpretations, e.g. markers, horizons, …

www.GeoDataCloud.com

Possible UI

About GeoDataCloud | Data | Software | Services | Contact

GeoDataCloud

Email address

Password ?

Sign In

Not a member? Join now

Available Data

Free

Commercial

Access Data

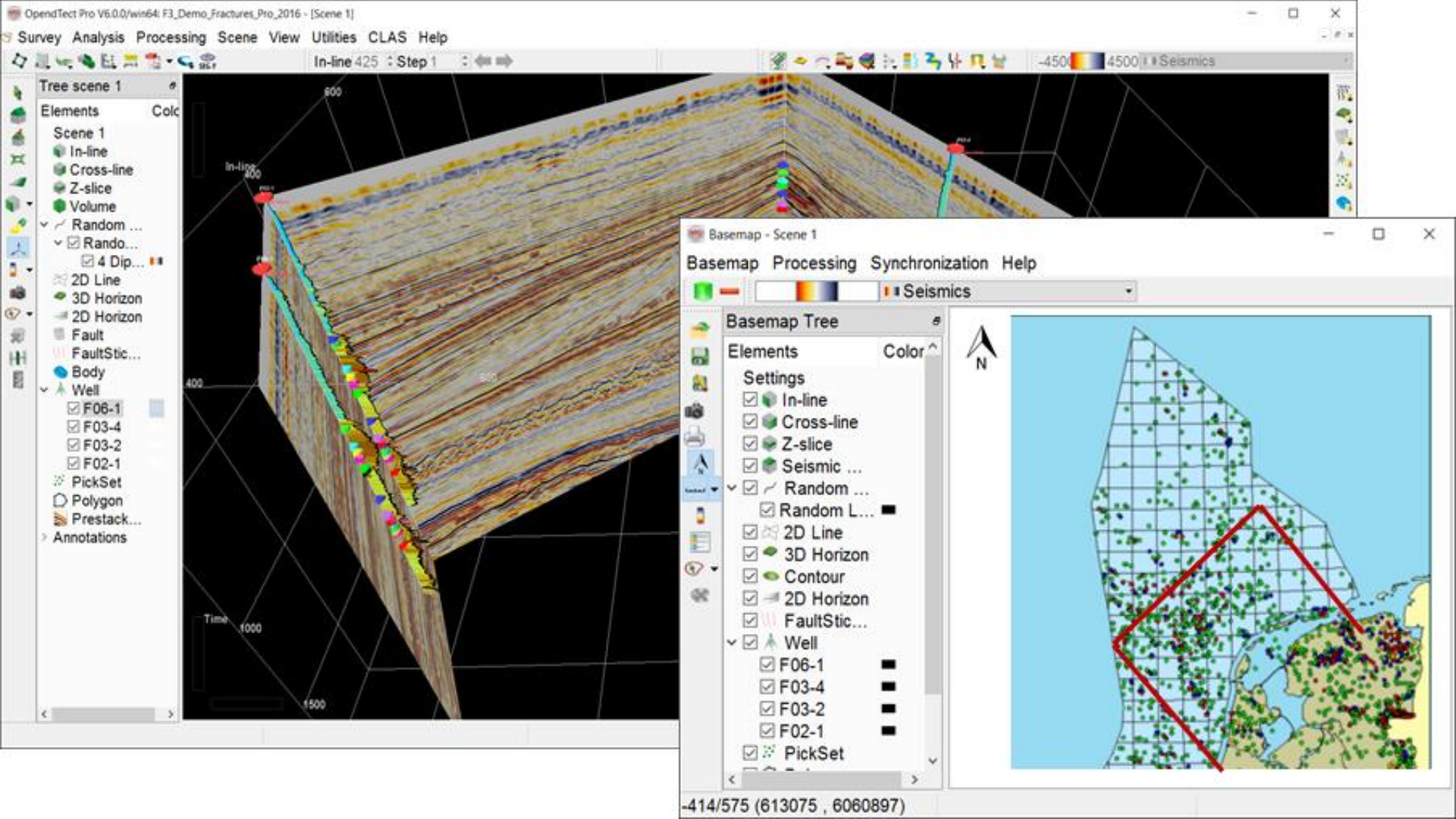
Start OpendTect

INHOUD LEGENDA

Activiteiten

- Alle boringen
- Trajectories (UTM)
- Lopende boringen
- Beeindigde boringen
- Producerende putten
- Velden
- Productieplatforms
- Pijpleidingen continentaal plat
- 2D Seismiek digitaal
- 2D Seismiek analoog
- 2D NAM dataset
- 3D Seismiek
- Vergunningen
- Satellietbeeld
- Topografie

VERVERSEN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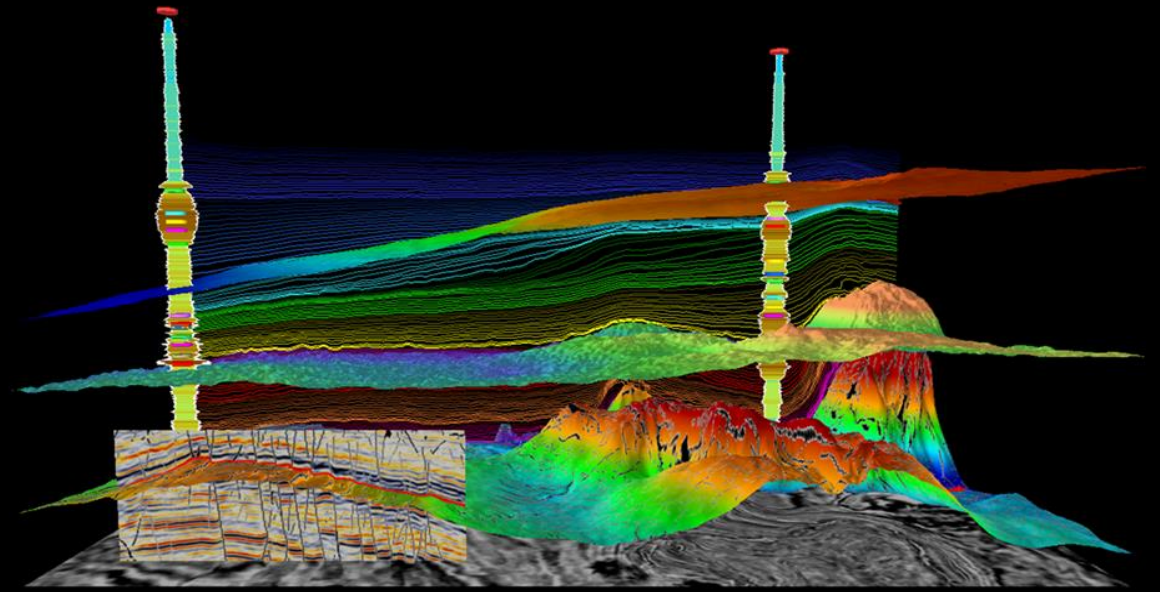
Partners	Minimum Project	Extended Project
dGB Earth Sciences	Set up Cloud environment, Make OpendTect “cloud-ready”	Special attributes and seismic interpretation workflows
TNO	Making seismic data more readily accessible for interpretation and/or download. Embedding in BRO	Development of new processing algorithms and plugins, tailor-made workflows and tools
SGS Horizon	QA/QC on seismic marker horizon interpretation (prior to seismic merge), QA/QC of seismic merge, Impedance Inversion	Impedance Inversion, Rock Property mapping, regional NLOG well data integration, seismic interpretation
Z-Terra	Post-stack merging	Post-stack merging, Pre-stack data merging, Re-processing

dGB Earth Sciences

Creators of OpendTect

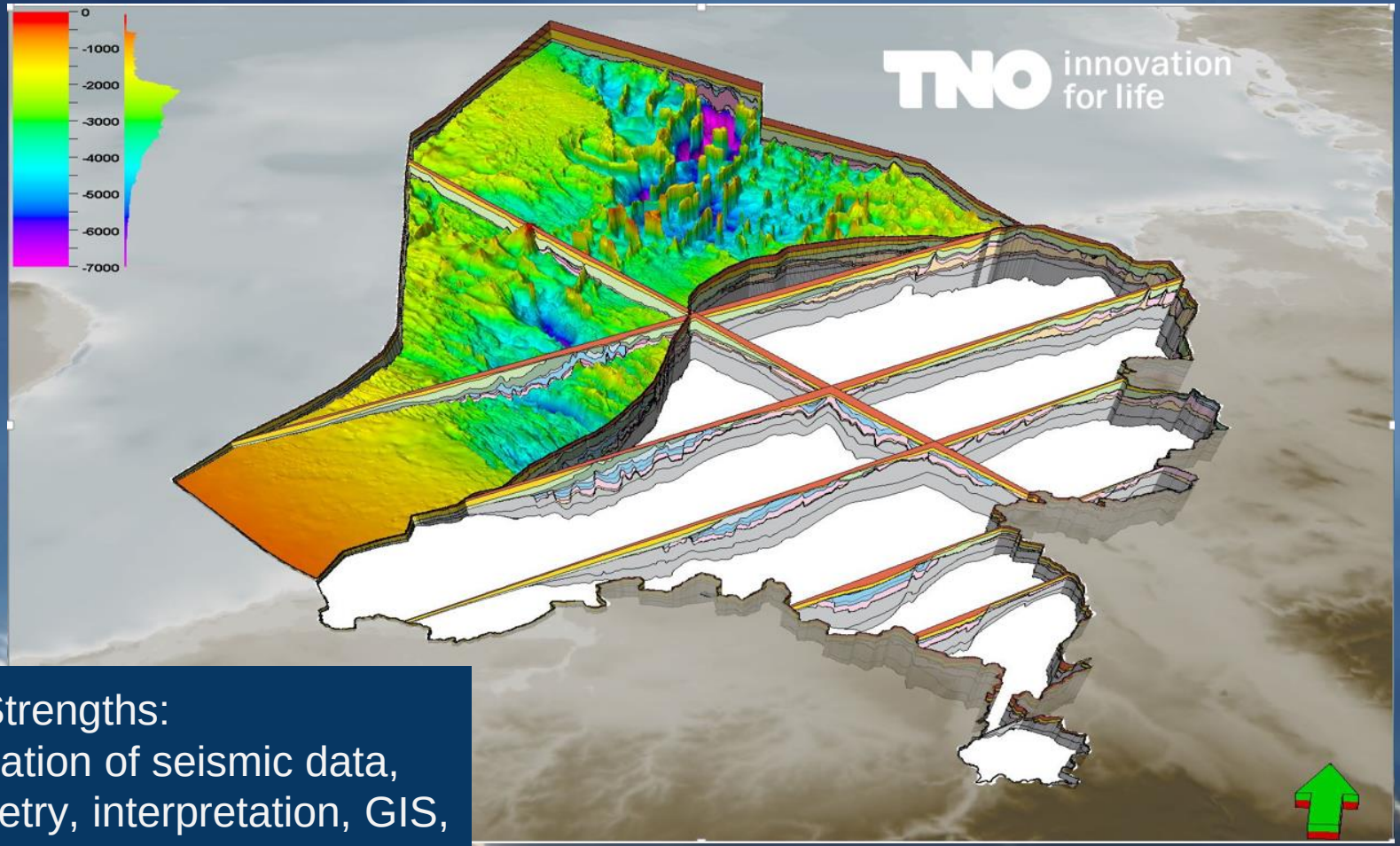
Key Strengths:
Development and application of advanced seismic interpretation workflows



OpendTect

Distinguished Achievement Award 2016

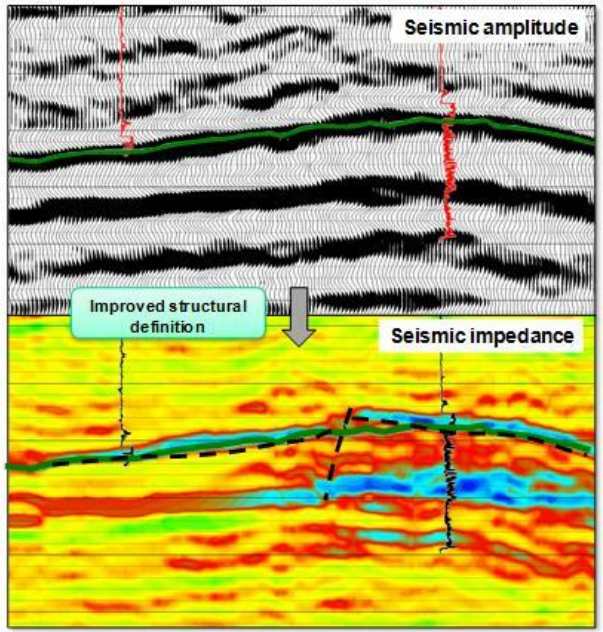
SEG SOCIETY OF EXPLORATION GEOPHYSICISTS



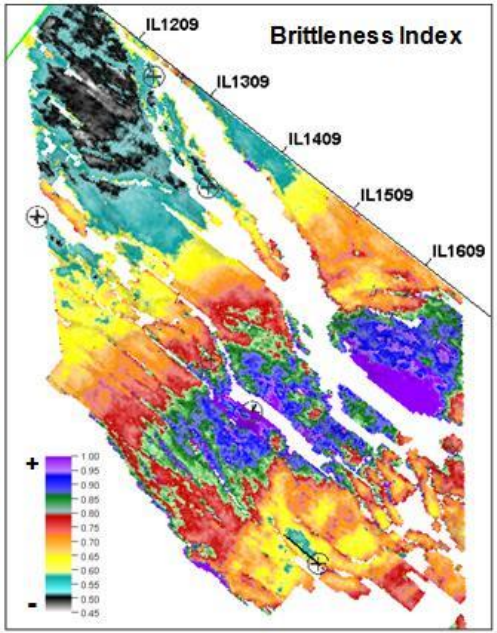
Key Strengths:
Integration of seismic data, geometry, interpretation, GIS, Maps, Tools and Algorithms

SEISMIC IMAGING AND RESERVOIR CHARACTERIZATION

- Key Strengths
  - Seismic Imaging
  - Inversion for Reservoir Characterization
  - Seismic Interpretation



Improved structural interpretation of low-frequency seismic using seismic inversion.



Estimation of Brittleness Index for sweet spot estimation in shale plays.

Key Strengths:
Integrated Seismic Imaging Software and Processing Services

Project Costs

Minimum Project (Cloud Environment; OpendTect; filling the environment with “free” 3D volumes, Mega-merge and Acoustic Impedance seed areas):

- Total Costs: 850K€

Alternative Minimum Project: as above + move all pre-stack, 2D and wells from DINO / NLOG to GeoDataCloud

Extended Project (extending Mega-merge and AI seed areas; adding more data types; creating value-added products):

- Offered at cost per sub-project

Project Funding

Joint Industry Project funded by sponsors. Potential Candidates:

- EBN
- Ministry of Economic Affairs
- Local Governments (Provinces)
- Netherlands E&P Operators
- Geo-thermal Industry
- Salt mining Industry
- ...

Amount sought: 850K€ or More.

Sponsors Benefits

Minimum Project:

- Free browsing in OpendTect Pro of the data sets available in the cloud at the end of the minimum project: existing 3D volumes; Mega-Merge and Acoustic Impedance seed volumes
- Free copy of available data sets; download at cost
- Steering Power: have a say in which areas to merge and invert

Extended Project:

- Free copy of sponsored value-added products
- Discount on non-sponsored value-added products (discounts are proportional to investments made)

Post Minimum Project

Cloud Environment will be self-sustaining and growing:

- Free browsing of “free” 3D data sets; Downloads at cost
- Value-added products can be downloaded, or the data can be used / interpreted in the cloud. Prices are set per product per sq.km.
- Interpretation space can be rented
- New value-added products will be created on a project per project basis (sponsored and/or produced by the partners at their own cost)
- Cloud Memberships will be offered
  - Annual Subscription Fee
  - Discounts on value-added products and services

Why should E&P Operators be interested?

The Project gives operators direct access to all “free’ seismic data

Depending on the amount of funding sponsors also get direct access to value-added products:

- Mega-Merge data set (see edges, regional context, save on reprocessing / acquisition, …)
- Inverted Acoustic Impedance Volume of the Mega-Merge
- Attribute volumes (Thinned Fault Likelihood, ChimneyCube, …)
- Rock Property Volumes (improve reserve estimates, identify areas with upside potential, …)
- Re-processed Volumes (PSTM, PSDM, Diffraction, …)
- 2D Seismic, Wells, Pre-stack gathers
- ....

The GeoDataCloud environment offers an ideal platform to learn about E&P cloud computing and its potential for your next generation IT infrastructure.