dGB Earth Sciences

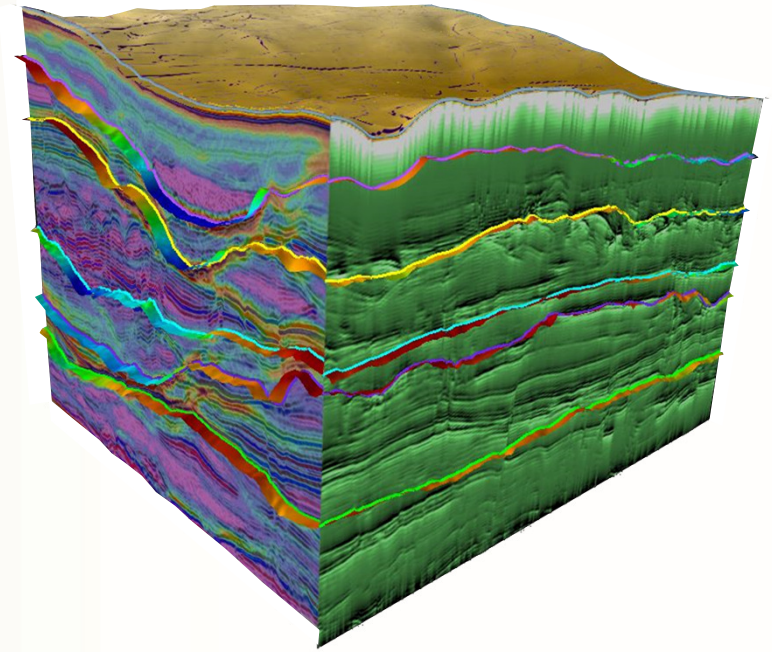
Management and Access of Seismic Data & Wells in The Netherlands

EBN Exploration Day

23 Nov. 2017

Outline

- Introduction
- Basis Registratie Ondergrond (BRO)
- TerraNubis* (GeoDataCloud)



*TerraNubis is the commercial name of the platform developed in the GeoDataCloud project

Introduction

- dGB, SGS and Z-Terra initiated GeoDataCloud, a Joint Industry Project that aims to add value to publicly released seismic data and wells in The Netherlands by creating a cloud environment where these data can be easily accessed and interpreted
- In parallel the government is working on BRO, a central database for all public domain subsurface data in The Netherlands
- The Ministry of I&W asked dGB for advise

dGB's Assignment

- Investigate how seismic data and wells are currently managed and whether the current database is up-to-date
- Inventorize stakeholders' wishes for future management and access in BRO
- Make a recommendation for future management and access that is expected to meet stakeholders' approval
- Timing: Finish assignment end 2017 -> Implementation in BRO Tranche III (2018-2019)

Our Approach

- Presentations + interviews with selected stakeholders from all categories:
  - E&P Companies: NAM, Oranje Nassau, EBN, TAQA, This Presentation!
  - Service Companies: SGS, Z-Terra, Corleonis
  - R&D Organizations: TNO, KNMI, Deltares
  - Universities: TU Delft
  - Gemeentes: Enschede, Rotterdam
  - Provincies: Overijssel, Zuid Holland, Groningen, IPO Presentation 30 Nov.
  - Utilities Companies: Brabant Water

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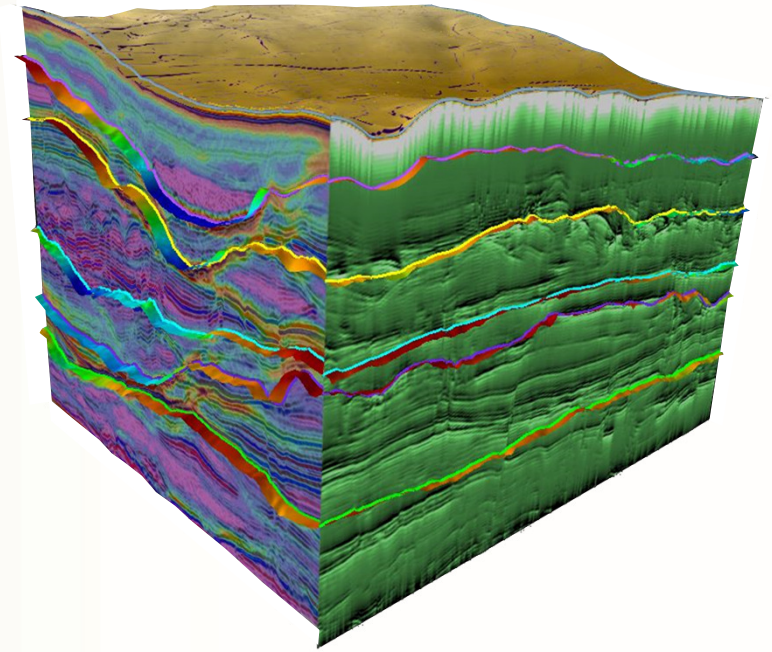

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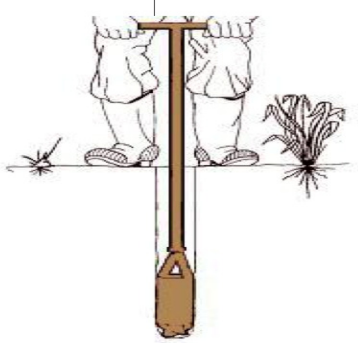
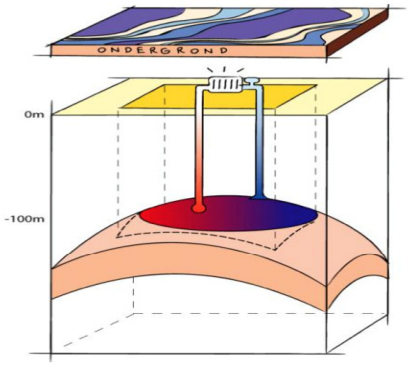
BRO – Basis Registratie Ondergrond

4 categories of authentic data

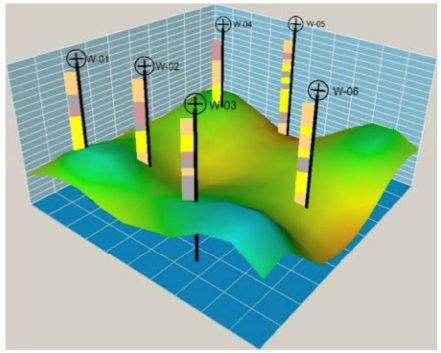


EXPLORATION



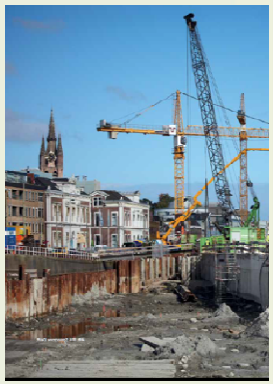
LEGAL RIGHTS

CONSTRUCTION



MODELS

BRO Knowledge Domains – Phased Implementation



CIVIELE TECHNIEK

LANDELIJK GEBIED

WATER MANAGEMENT

NATUURLIJKE BESTAANS-BRONNEN

BRO I

MILIEU KWALITEIT BODEM

CULTUUR HISTORISCHE WAARDEN

BRO II

Seismic data & wells are governed by Mining laws

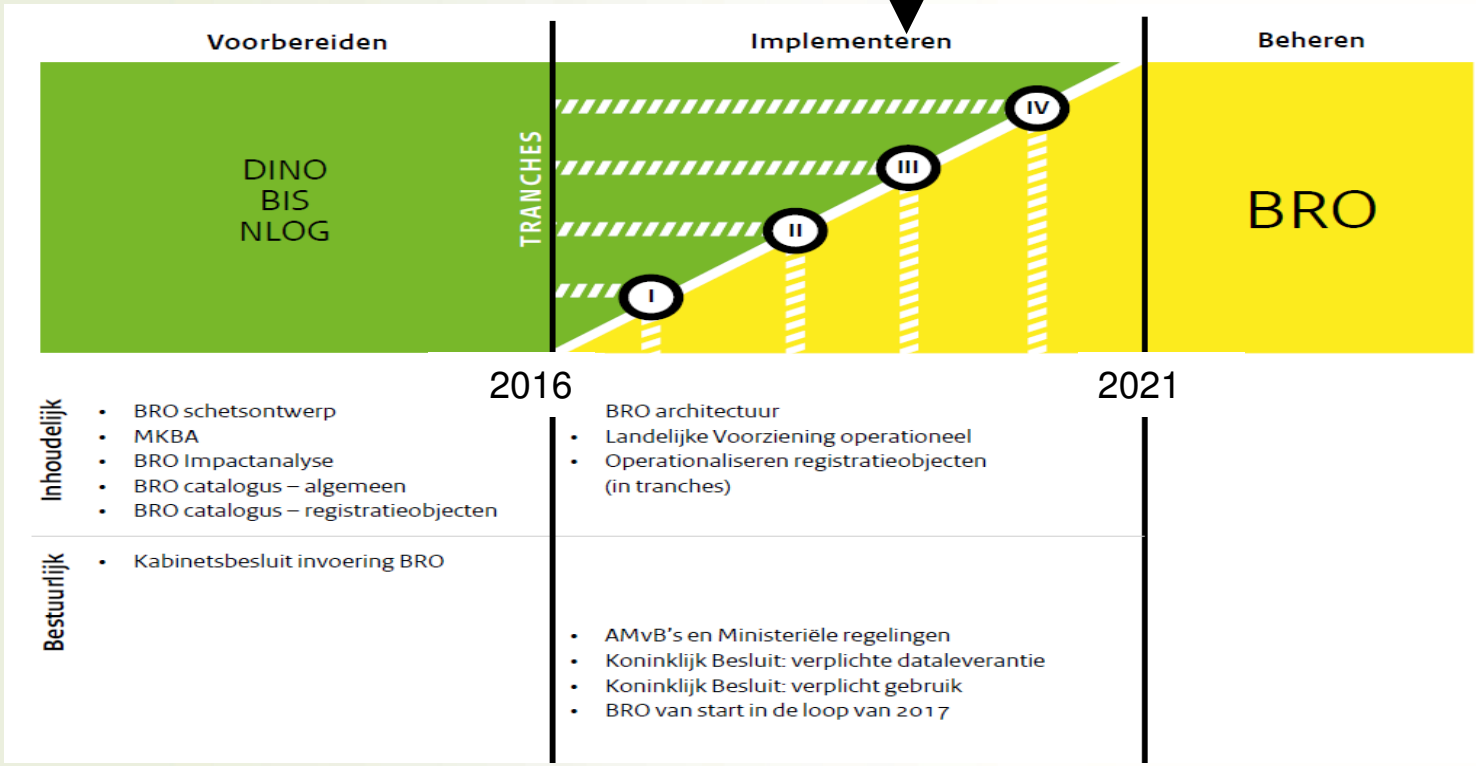
Categorie	Registratieobject	Registratiedomein
Verkenning (resultaat)	1. Geotechnisch sondeeronderzoek *	Bodem- en grondonderzoek
	2. Geo-elektrisch onderzoek	
	3. Seismisch onderzoek	
	4. Boormonsterprofiel	
	5. Profielonderzoek	
Constructie (hardware)	6. Bodemmeetnet	Bodemkwaliteit (in landelijk gebeid)
	7. Bodemsamenstellingsonderzoek	
	8. Grondwatermonitoringnet	Grondwatermonitoring
	9. Grondwatermonitoringput *	
	10. Grondwaterstandonderzoek	
	11. Grondwatersamenstellingsonderzoek	
	12. Synthese grondwaterkwaliteit	
	13. Synthese grondwaterstand	
	14. Mijnbouwwet boorgatsysteem	Mijnbouwwet
	15. Mijnbouwwet booronderzoek	
	16. Mijnbouwwet putsysteem	
	17. Mijnbouwwet productiedossier	
Gebruiksrecht (vergunning)	18. Mijnbouwwetvergunning *	
	19. Koolwaterstof Reservedossier	
	20. Grondwatergebruiksysteem	Grondwater gebruik
	21. Grondwaterproductiedossier	
Model (interpretatie)	22. Koolwaterstofvoorkomen	Modellen
	23. Bodem- en grondwatertrappenkaart 1: 50.000	
	24. Geomorfologische kaart 1: 50.000	
	25. REGIS (inclusief DGM)	
	26. GeoTOP	

Onderverdeling in **3 domeinen**:

- Weg & waterbouw (“ondiep”)
- Grondwater
- Mijnbouwwet (“diep”)

Phased Implementation

Tranche III: seismic + wells



dGB's probable recommendation for BRO

- Seismic data and wells are managed in a government cloud environment
- Post-stack 2D and 3D seismic data and well logs are directly accessible and can be viewed in an Internet browser prior to download
- Pre-stack seismic meta-data is available online, actual data is stored offline
- More types of data should be managed than what is currently done: time-lapse monitoring, ground penetrating radar, side-scan sonar, velocities, …

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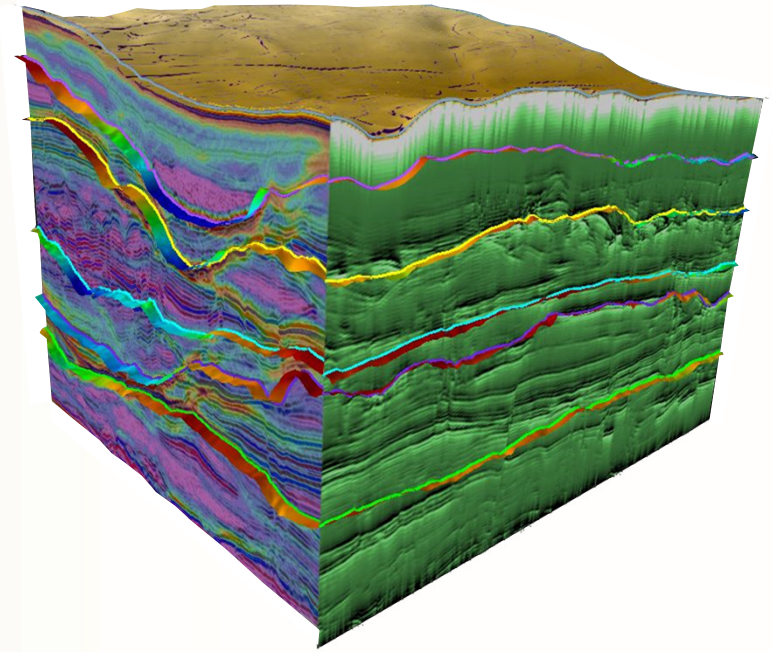

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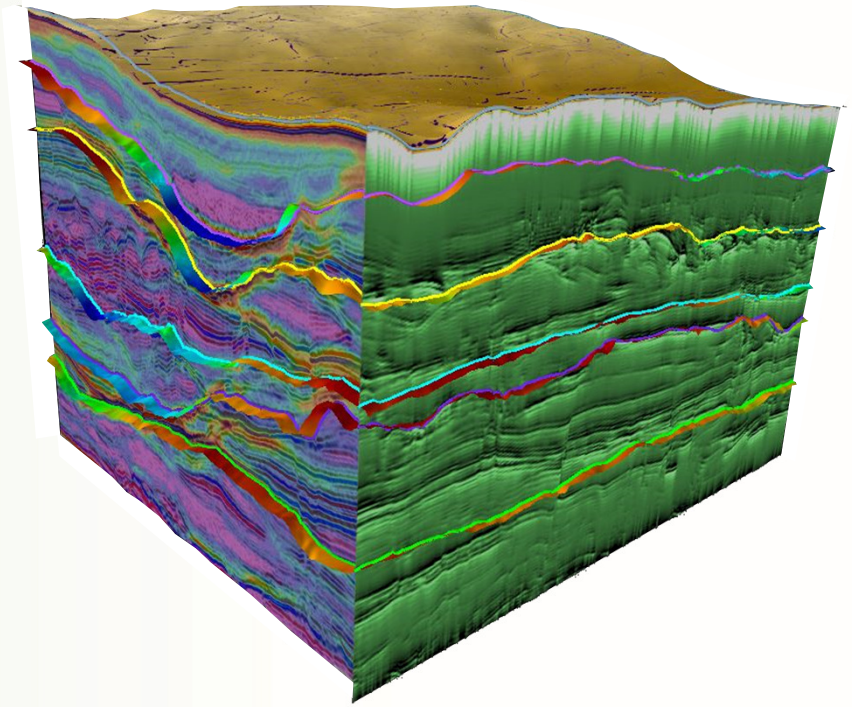


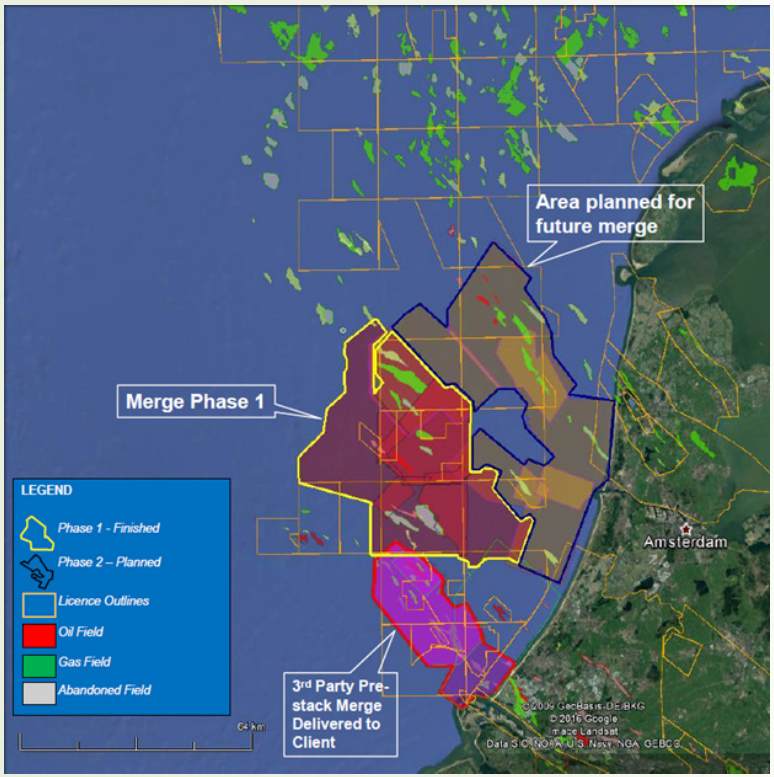
Consequence for TerraNubis

- TerraNubis aims to be an international market-place for value-added seismic products and a platform for seismic interpretation in the cloud

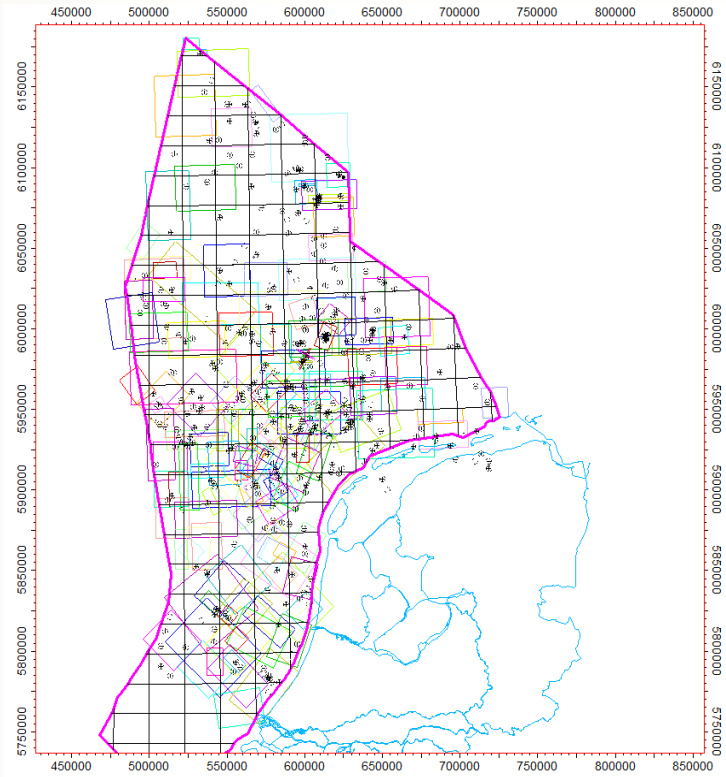
- Users can:
  - Buy seismic data sets and interpretations
  - Sell seismic data sets and interpretations
  - Rent hardware & software to interpret proprietary data sets (bought in GeoDataCloud and/or uploaded)
  - Manage proprietary data sets
  - Import public domain data from BRO

TerraNubis seed data sets

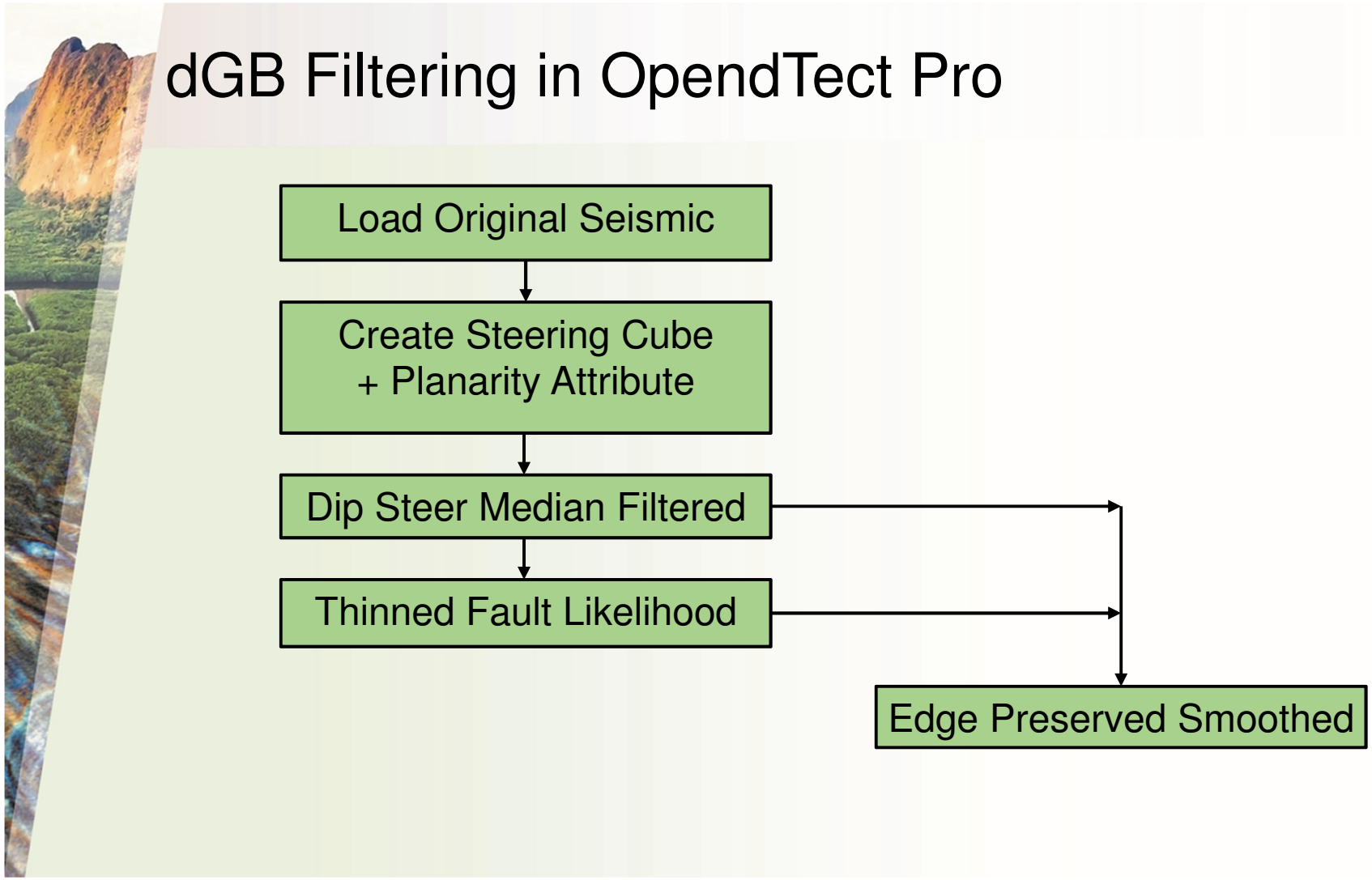
SGS and Z-Terra: merging + inversion



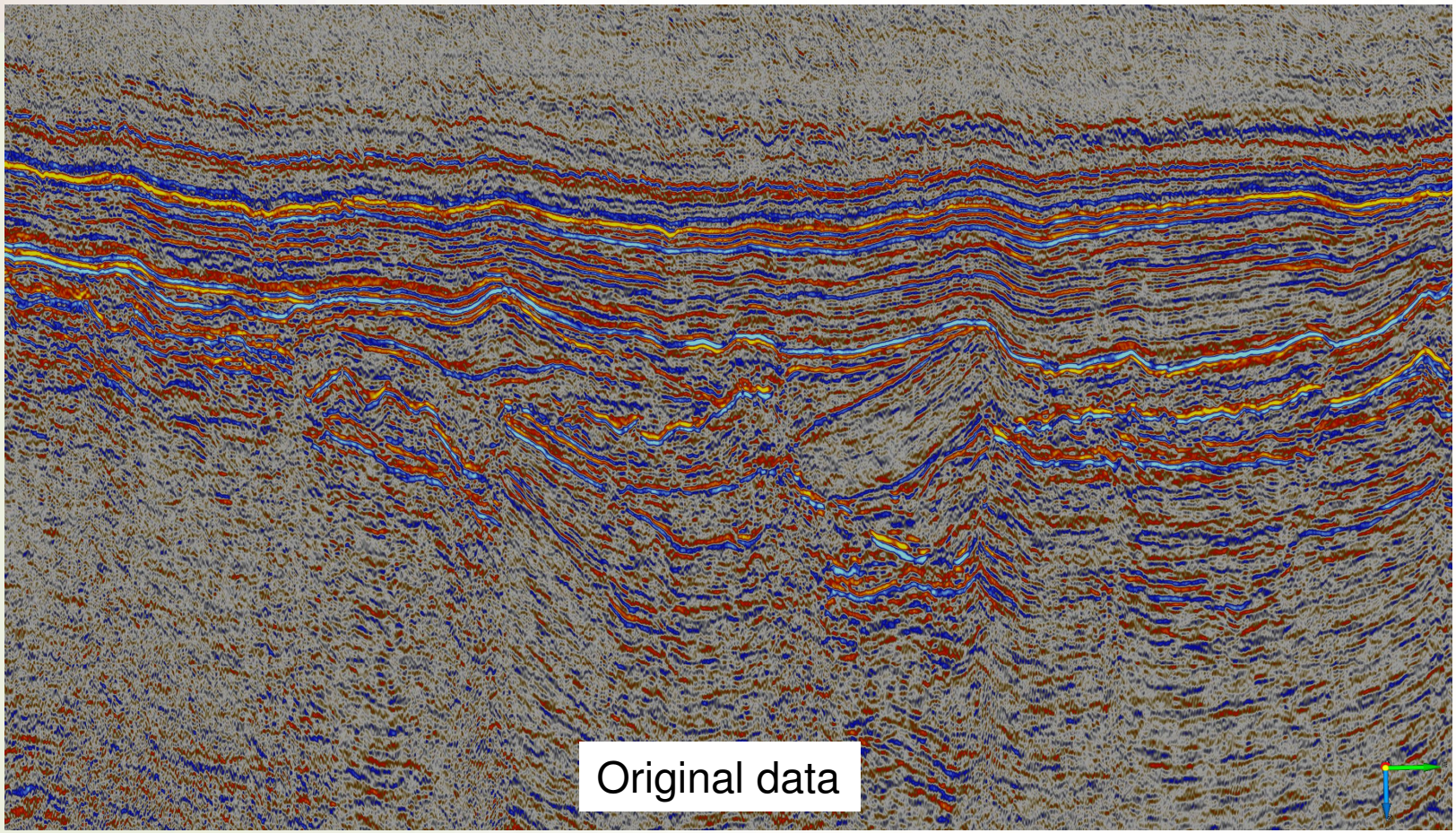
dGB: filtering offshore blocks



dGB Filtering in OpendTect Pro



Example A08 / A09 Z3NAM1993A



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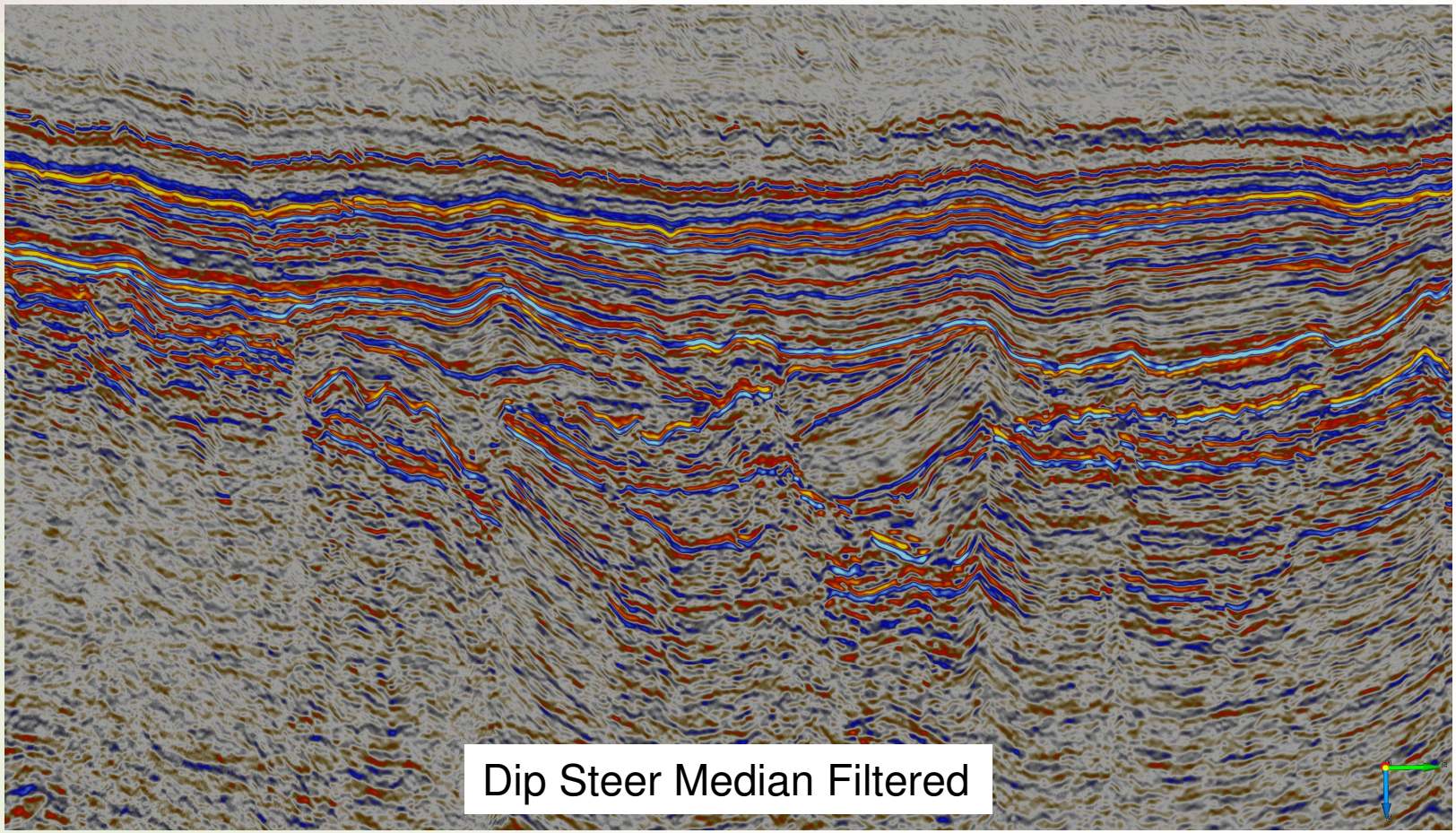

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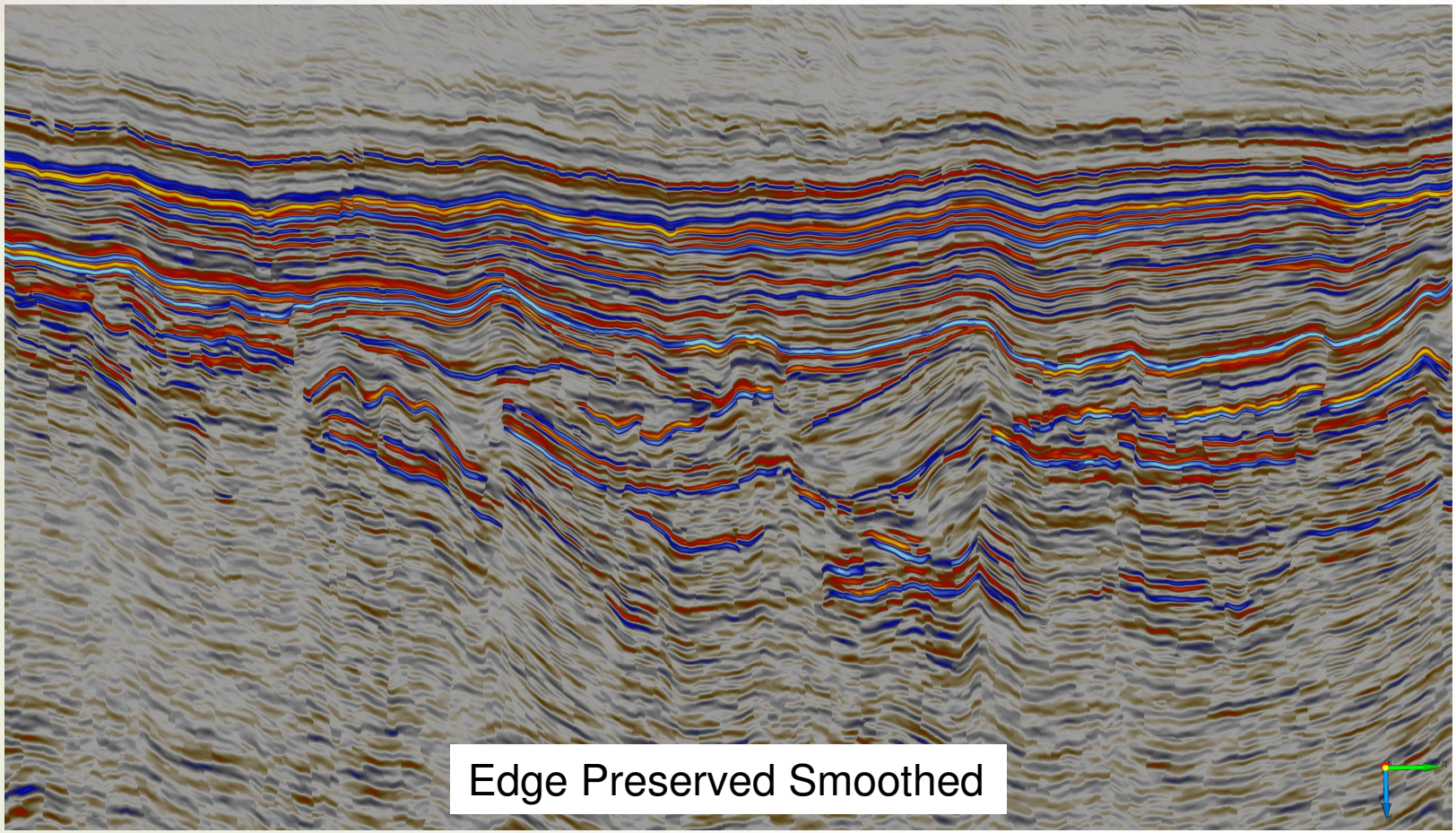

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