

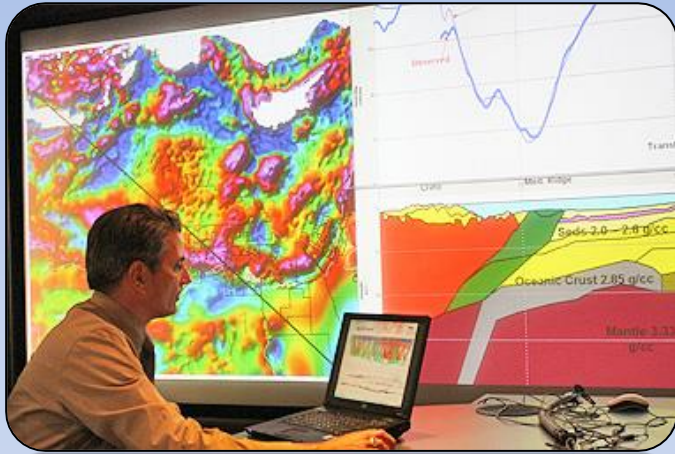
Doing More with Seismic Data - Can GIS do it ?

Morten Tønnesen, MD Geocap AS

Presentation at “2nd Doing More with Subsurface Data”
Norwegian Petroleum Museum Tuesday, May 6, 2014

The Need for a Shared Earth Model

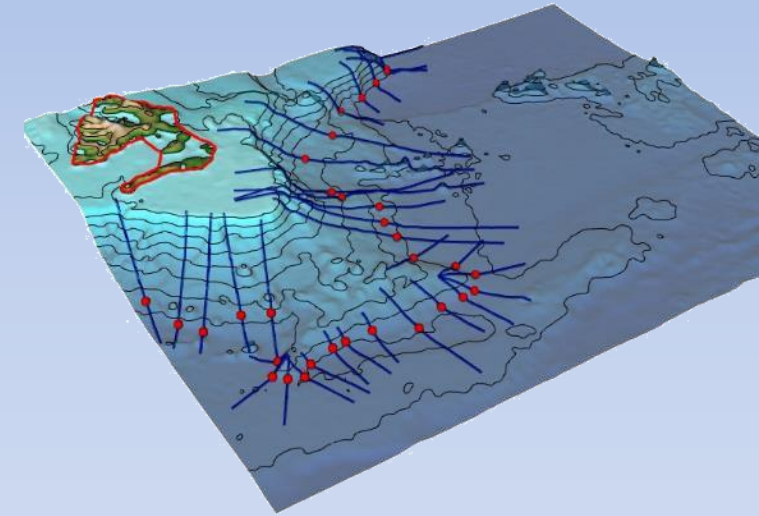
Subsurface exploration and production



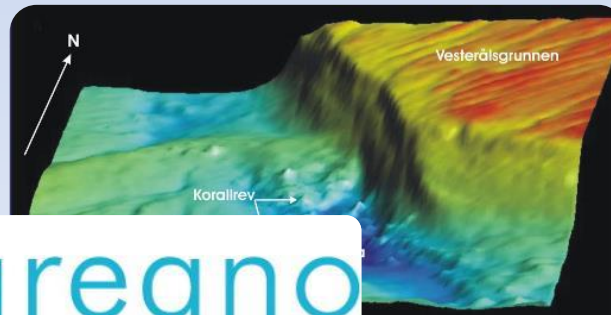
Subsea Offshore installations



Management of the continental shelf and maritime zones

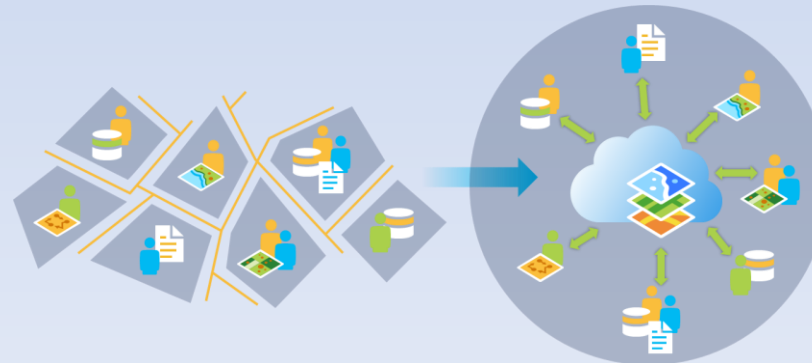
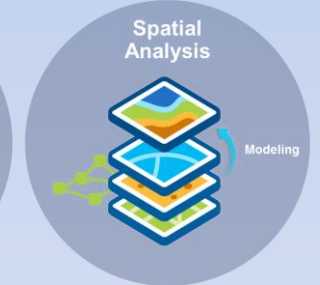
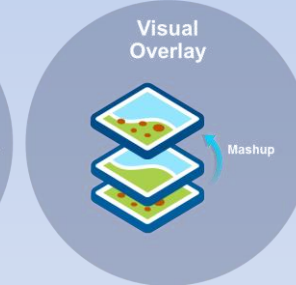
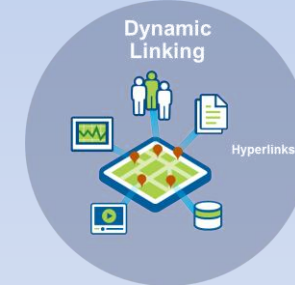
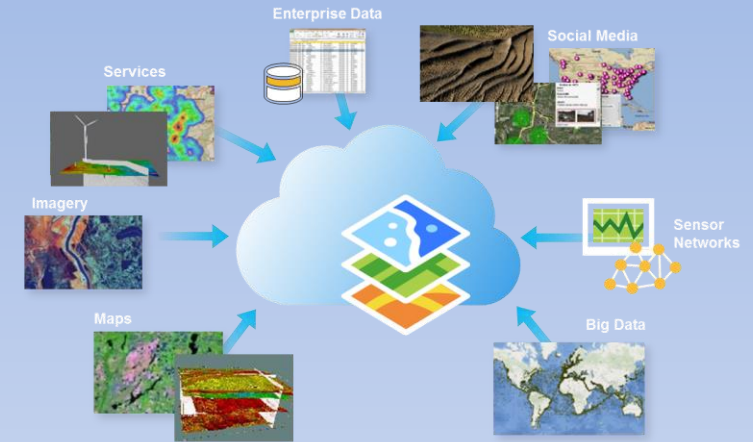
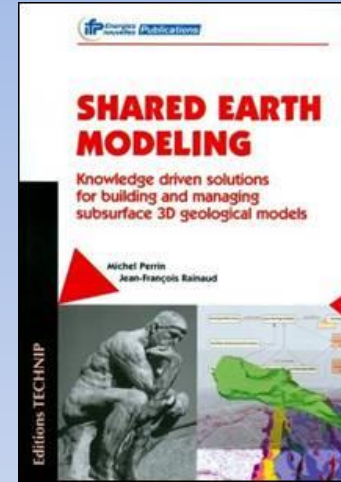


Environmental management & surveillance



Requirements for a Shared Earth Model

- Ability to represent and visualize all kinds of data types
- Ability to integrate, link and combine various data sources
- Ability to integrate organizations and people to facility collaboration
- Ability to organize information to simplify discovery, access, sharing and collaboration



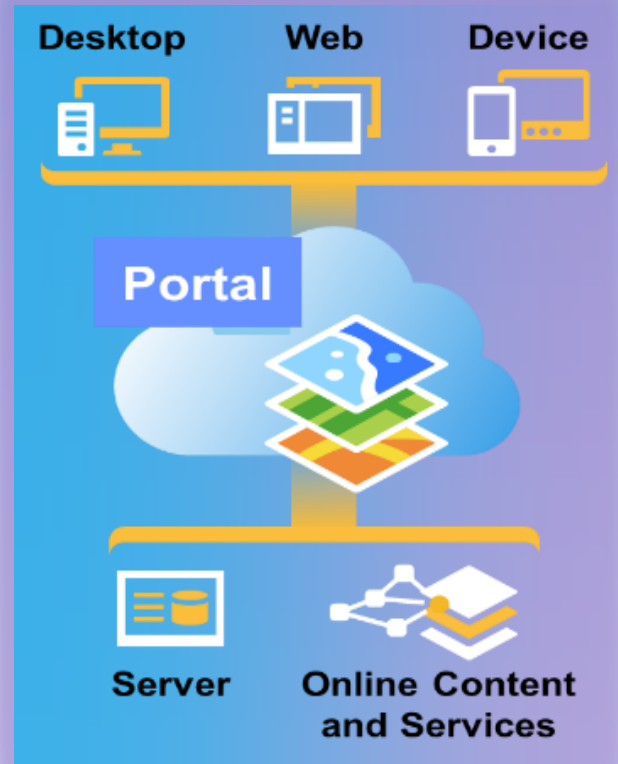
The Challenge and the Opportunity



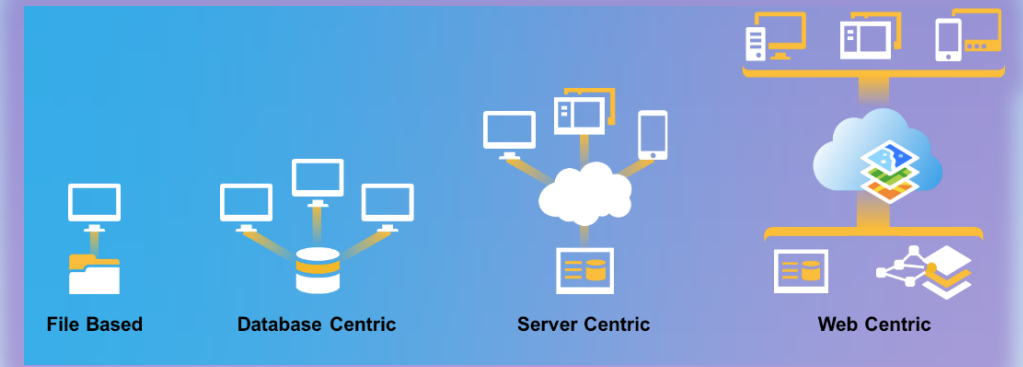
Key Question: Can GIS do it?

The Strength of the GIS Technology Platform

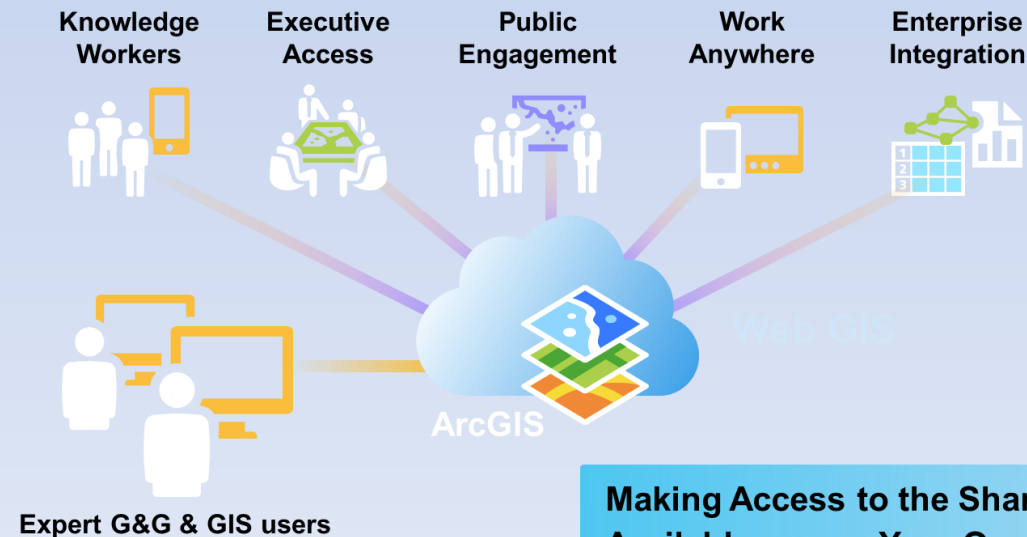
Supporting Desktop, Web & Mobile Devices



Supporting Common Computing Architectures

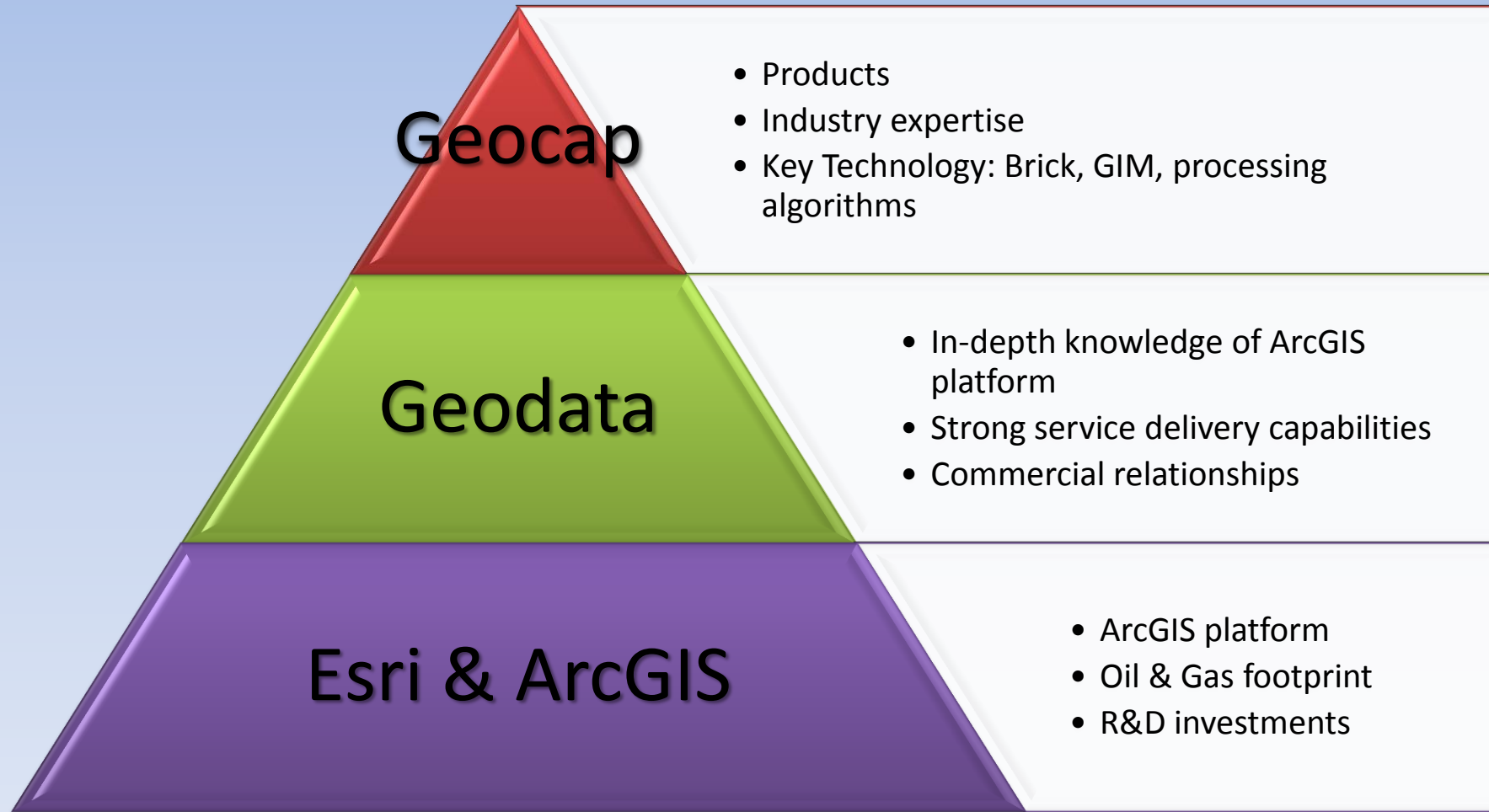


Supporting the Enterprise

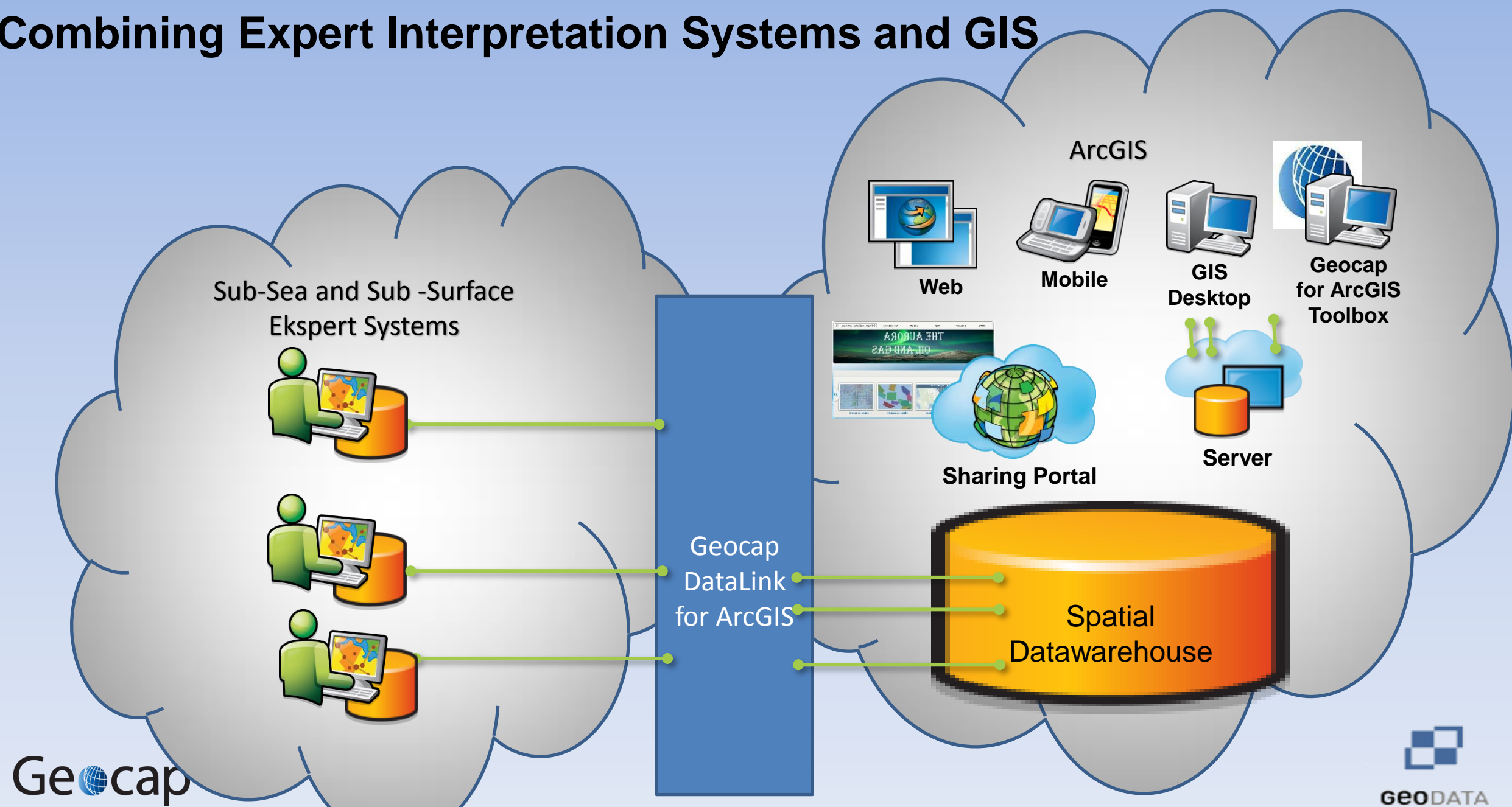


Value Proposition

Geocap + Geodata + Esri partnership



Combining Expert Interpretation Systems and GIS



Enabling Multi User Seismic and Water Column 3D Visualisation and Interpretation in ArcGIS



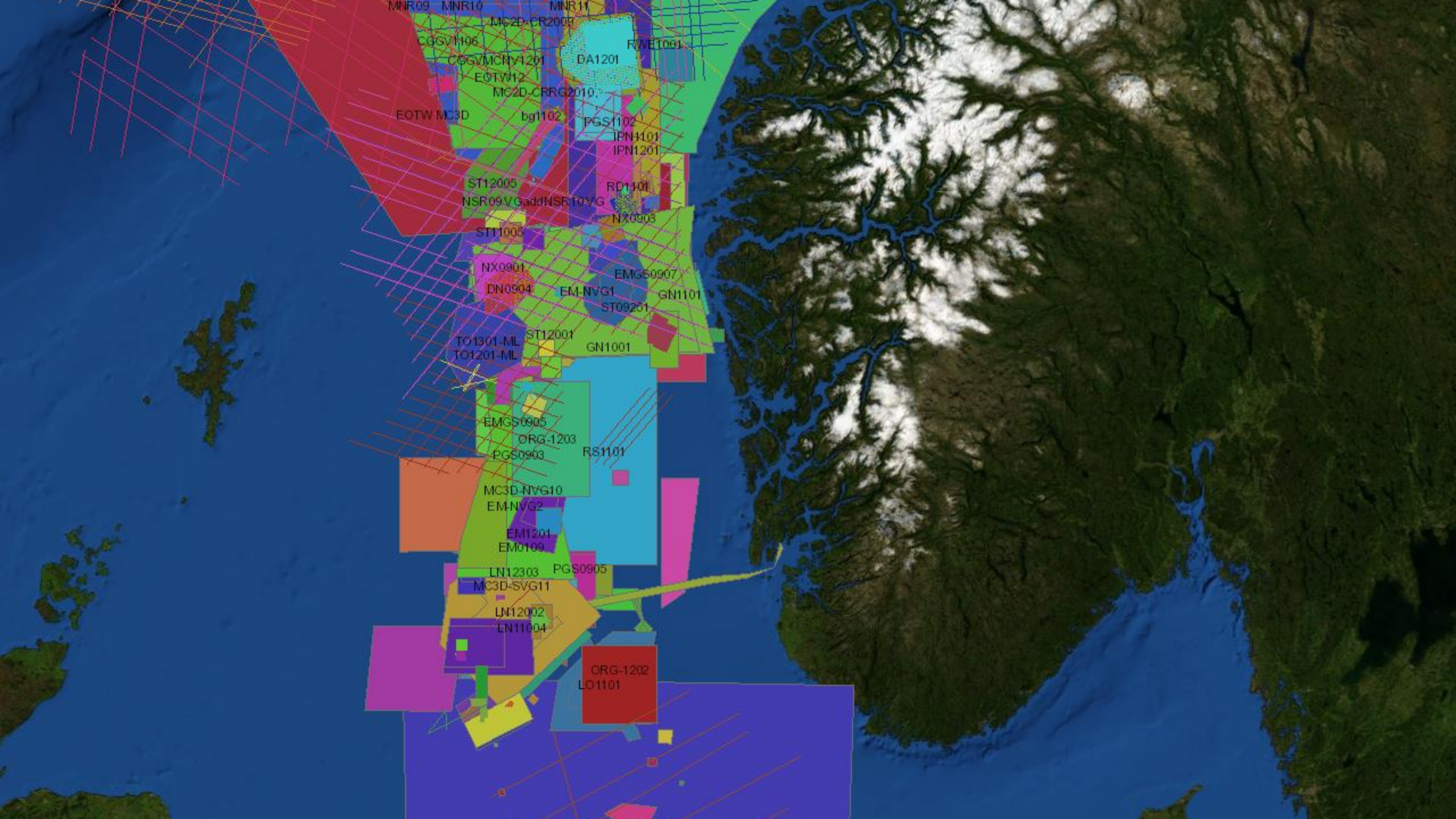
**Multiple interpreters
share one database**

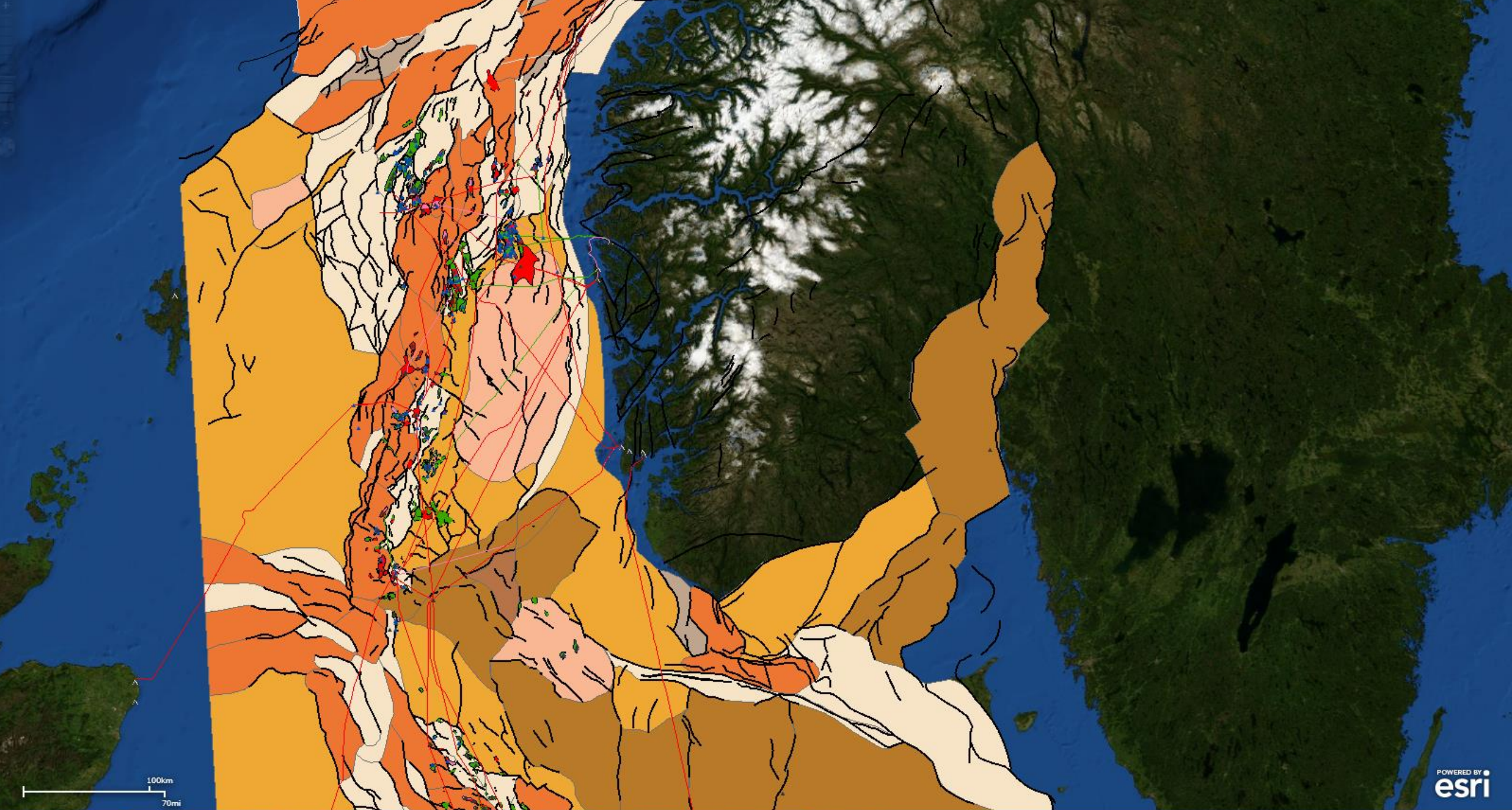


Geodatabase

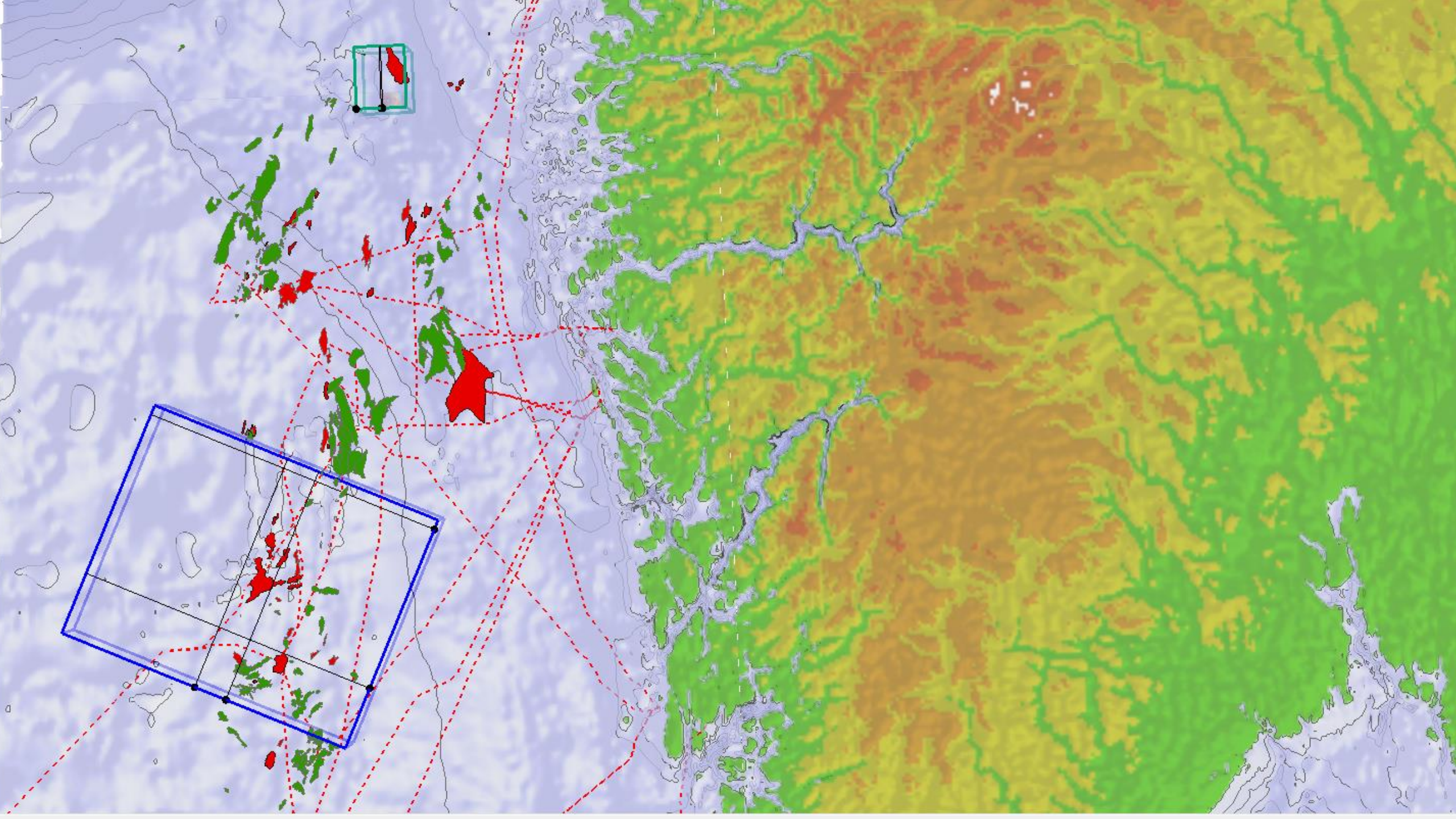
In geodatabase:

- Seismics
- Surfaces
- Interpretations
- Versioning





POWERED BY
esri





Scandinavia Land and

NCS 3D Seismic Cube Mega Timeslice 2960 .00 Commands Commands

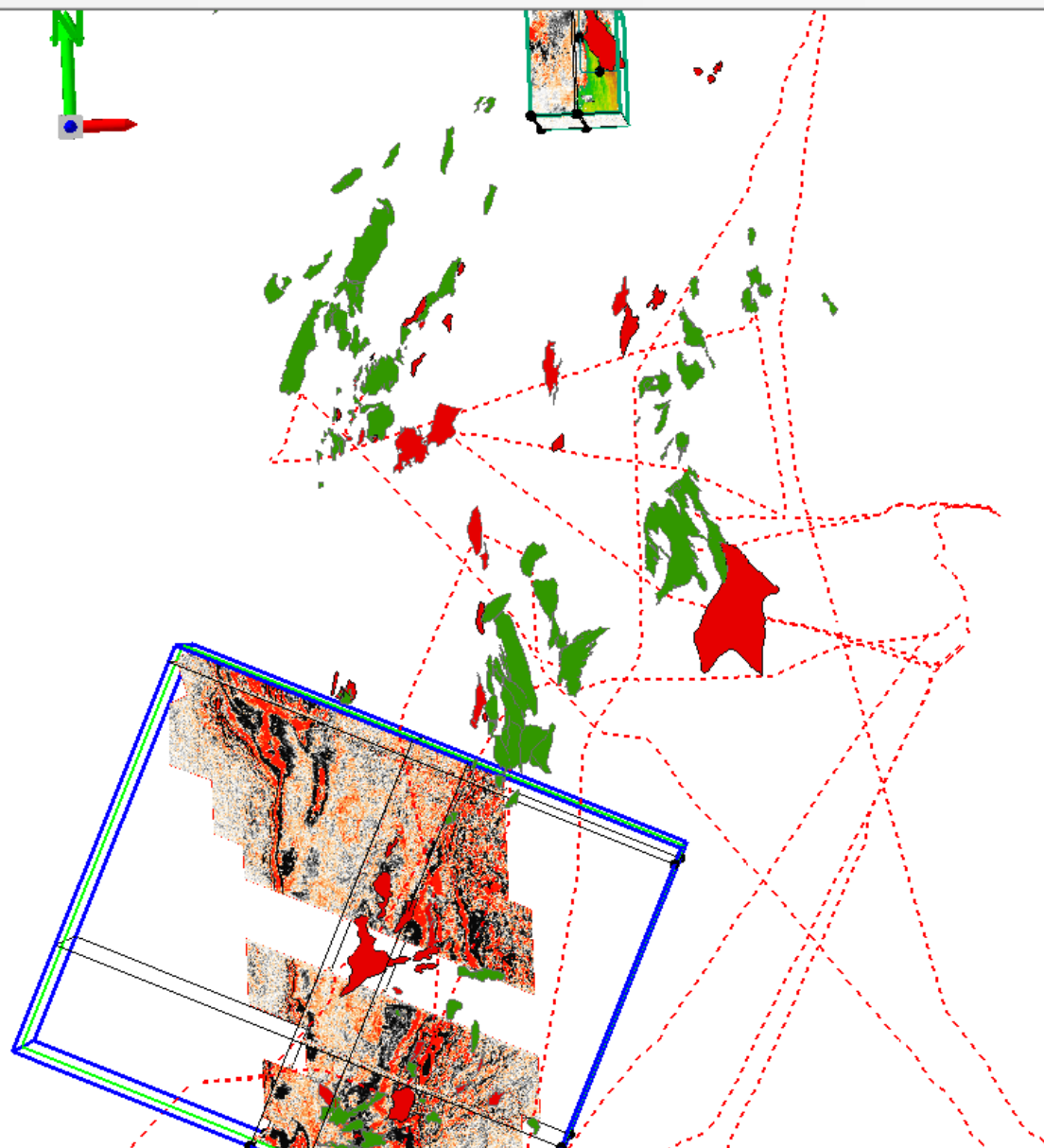
File Edit View Bookmarks Selection Geoprocessing Customize Windows Help

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Scene layers

- ☐ Scandinavia Land and Seafloor Map
- ☐ NCS Seafloor Contours - 100m
- ☒ NCS Discoveries and Fields from NPD
- ☒ NCS Pipelines from NPD
- ☐ NCS Licenses from NPD
- ☐ NCS 2D Survey Lines from NPD
- ☐ NCS Wells from NPD
- ☐ NCS 3D Seismic Megasurvey -Outline
- ☒ NCS 3D Seismic Cube Megasurvey(500GB)
- ☐ Peon 3D Seismic Survey - Outline
- ☒ Peon 3D Seismic Cube (15GB)
- ☐ Peon 3D Seismic Subcubes Outlines
- ☐ Peon 3D Seismic Subcubes
- ☒ Peon Field 3D Seismic Subcube 1 (<200MB)
- ☐ Peon SouthWest 3D Seismic Subcube (<200MB)
- ☐ Peon West 3D Seismic Subcube (<200MB)
- ☐ Peon Discovery Seismic Random Line through 3 Cub
- ☒ Peon Field Seismic Interpretation Maps
 - ☒ Depth
 - ☐ AMP
 - ☐ RMS
- ☐ Peon Horizontal Well #1
- ☐ Seafloor Map from Mareano Survey (Bag grid)





Scandinavia Land anc

Peon 3D Seismic Cube (15G Timeslice 740 40 Commands

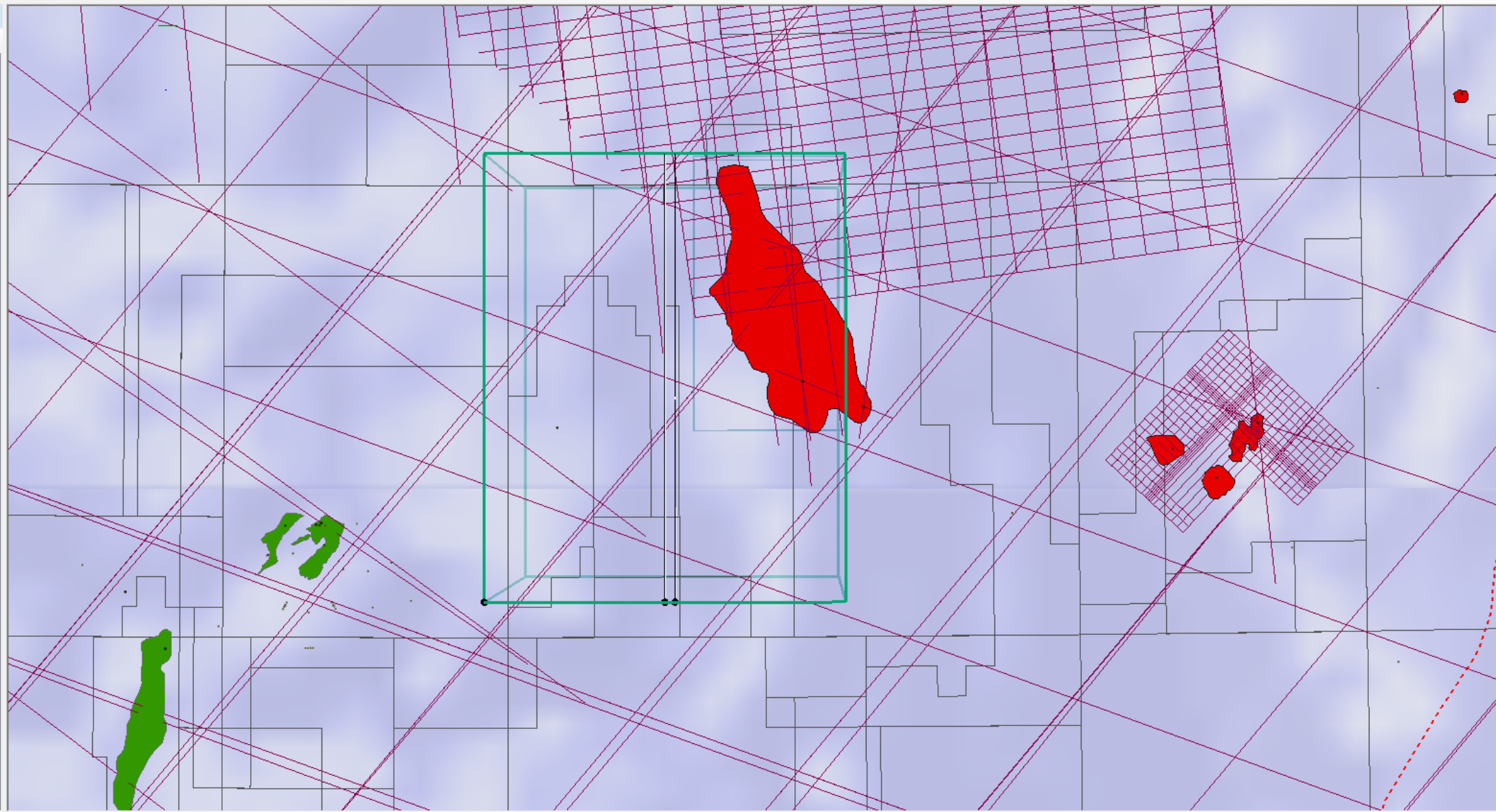
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- ☐ Peon SouthWest 3D Seismic Subcu
- ☐ Peon West 3D Seismic Subcube (<
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- ☒ Depth
- ☐ AMP
- ☐ RMS
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- ☐ Seafloor Map from Mareano Surve





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Peon 3D Seismic Cube (15G Timeslice 740 40 Commands

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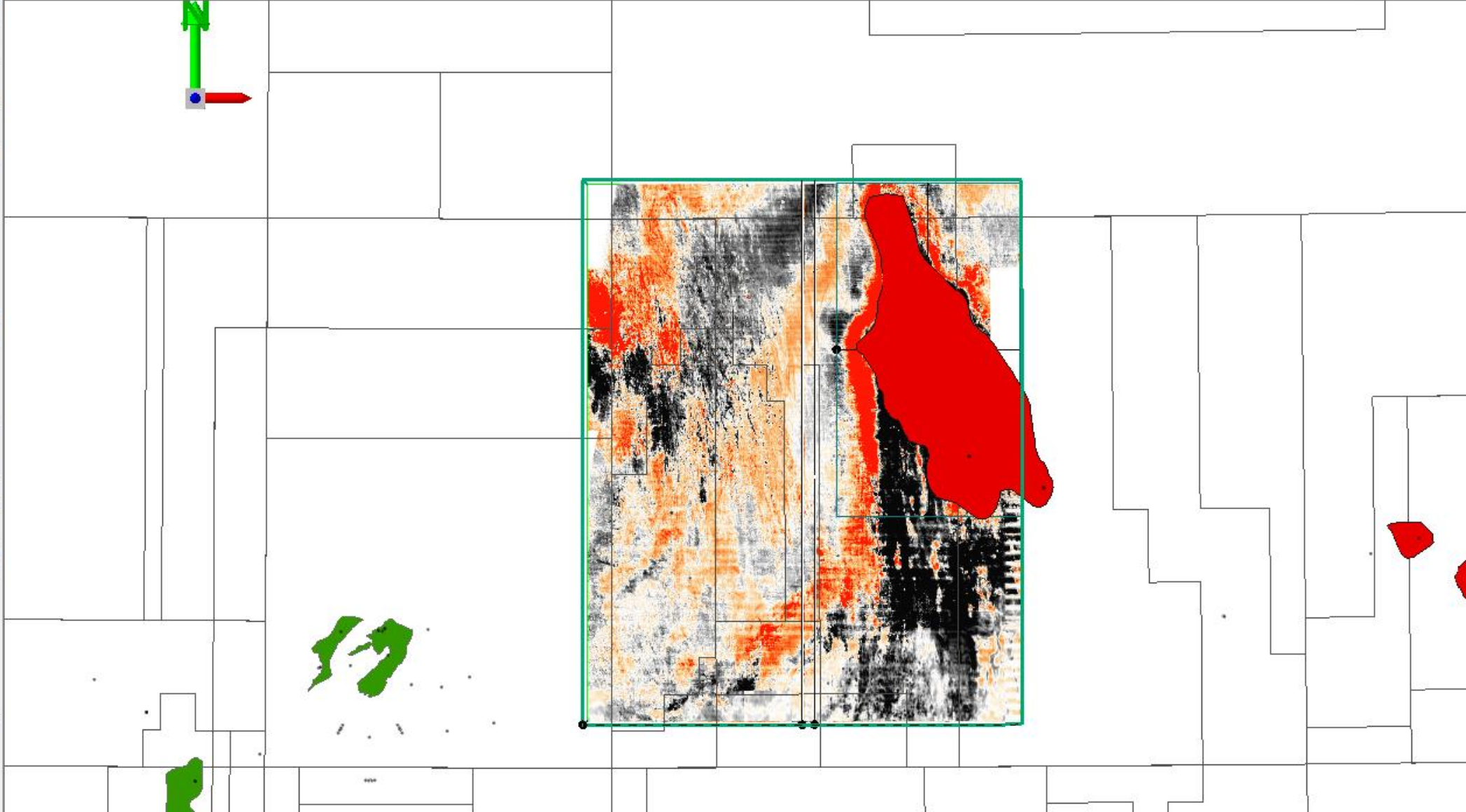
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- ☐ AMP
- ☐ RMS
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- ☐ Seafloor Map from Mareano Surve





Scandinavia Land anc

Identify Results

Layers: NCS Licenses from NPD

NCS Licenses from NPD

318

Field	Value
OBJECTID	809
SHAPE	Polygon
LICENCE_NAME	318
LICENCE_ID	2786586
TYPE	Historical Petroleum Licence
ACTIVE	ACTIVE
LAST_OPERATOR_SHORT_NAME	STATOIL PETROLEUM AS
AREA_POLY_STRATIGRAPHICAL	NO
AREA_POLY_VALID_FROM	19.07.2010
AREA_POLY_VALID_TO	27.12.2012
COUNTRY	Norway
CURRENT_AREA	INACTIVE
GRANTED	18.06.2004
LAST_OPERATOR_LONG_NAME	Statoil Petroleum AS
LAST_OPERATOR_NPDID	17237817
LICENSING_ACTIVITY_NAME	<null>
SOURCE	Norwegian Petroleum Directorate
AREA_POLY_FROM_Z_VALUE	0
AREA_POLY_TO_Z_VALUE	100
AREA_POLY_VERTICAL_LIMIT_EN	
AREA_POLY_VERTICAL_LIMIT_NO	
SOURCE_ENTITY_ID_NAME	NPDID_Licence
STRATIGRAPHICAL	NO
SOURCE_HREF_01	http://factpages.npd.no/FactPages/default.aspx?factid=17237817
LOAD_DATE	01.10.2013 12:36:48
MODIFIED_BY	aurora_batch_runner

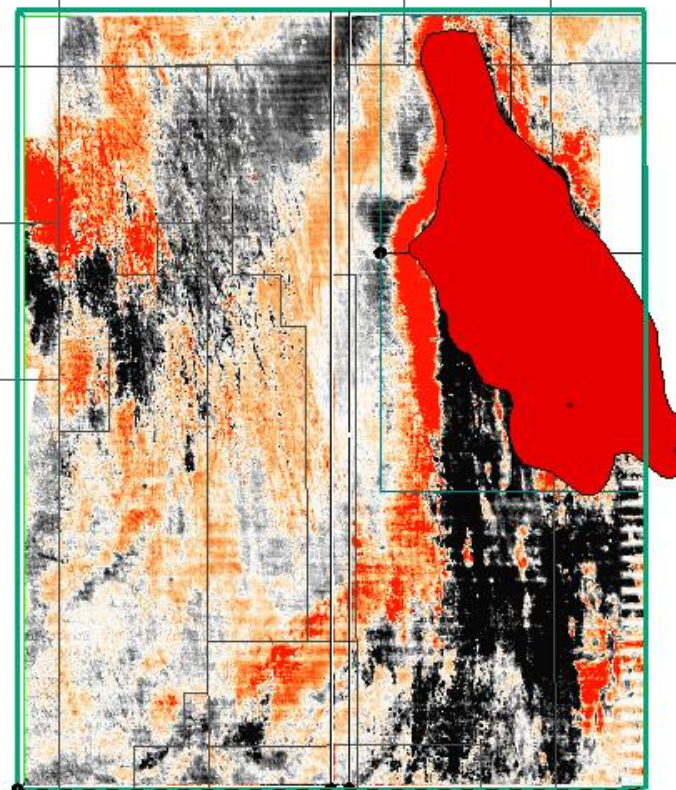
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Scandinavia Land anc

Peon 3D Seismic Cube (15G Timeslice 740 40 Commands

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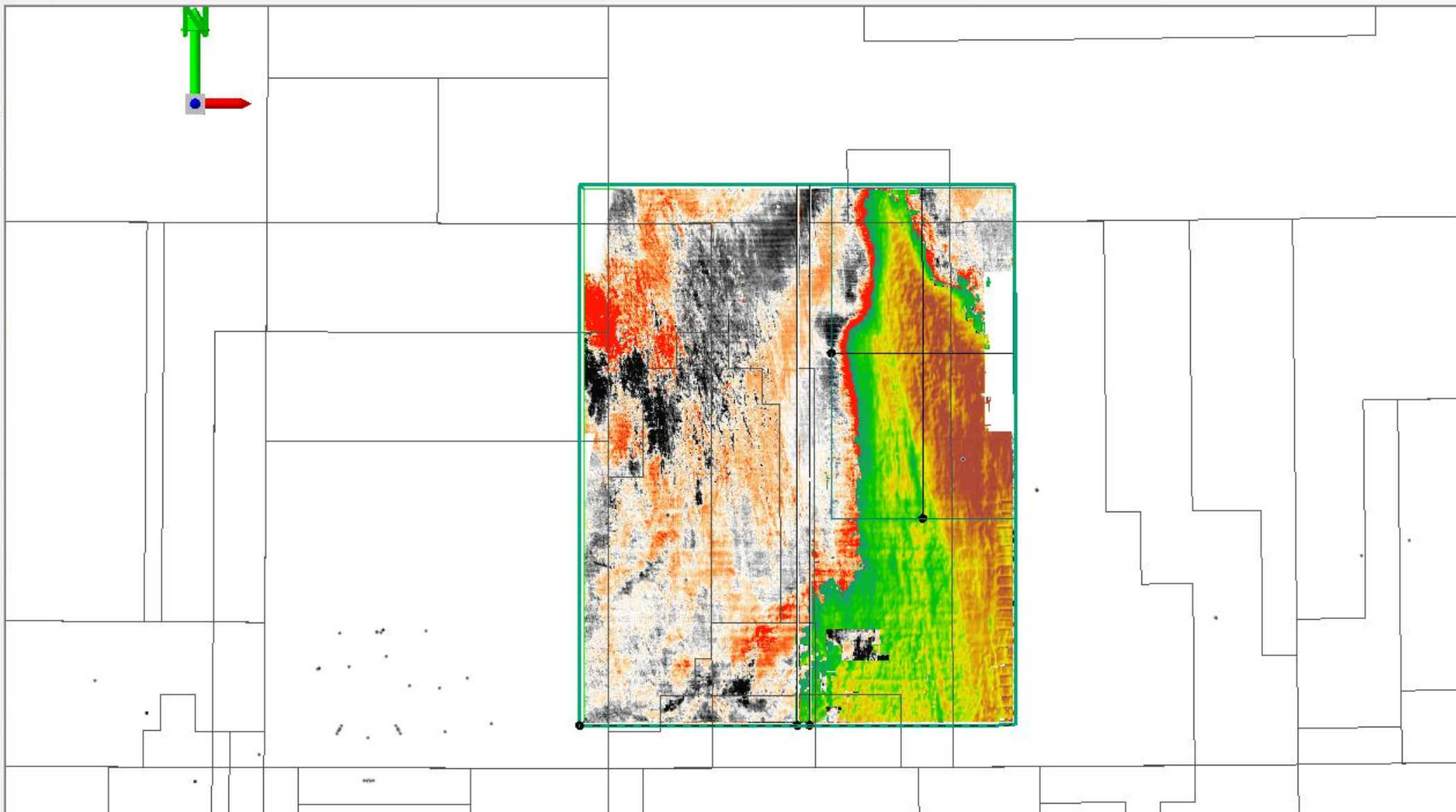
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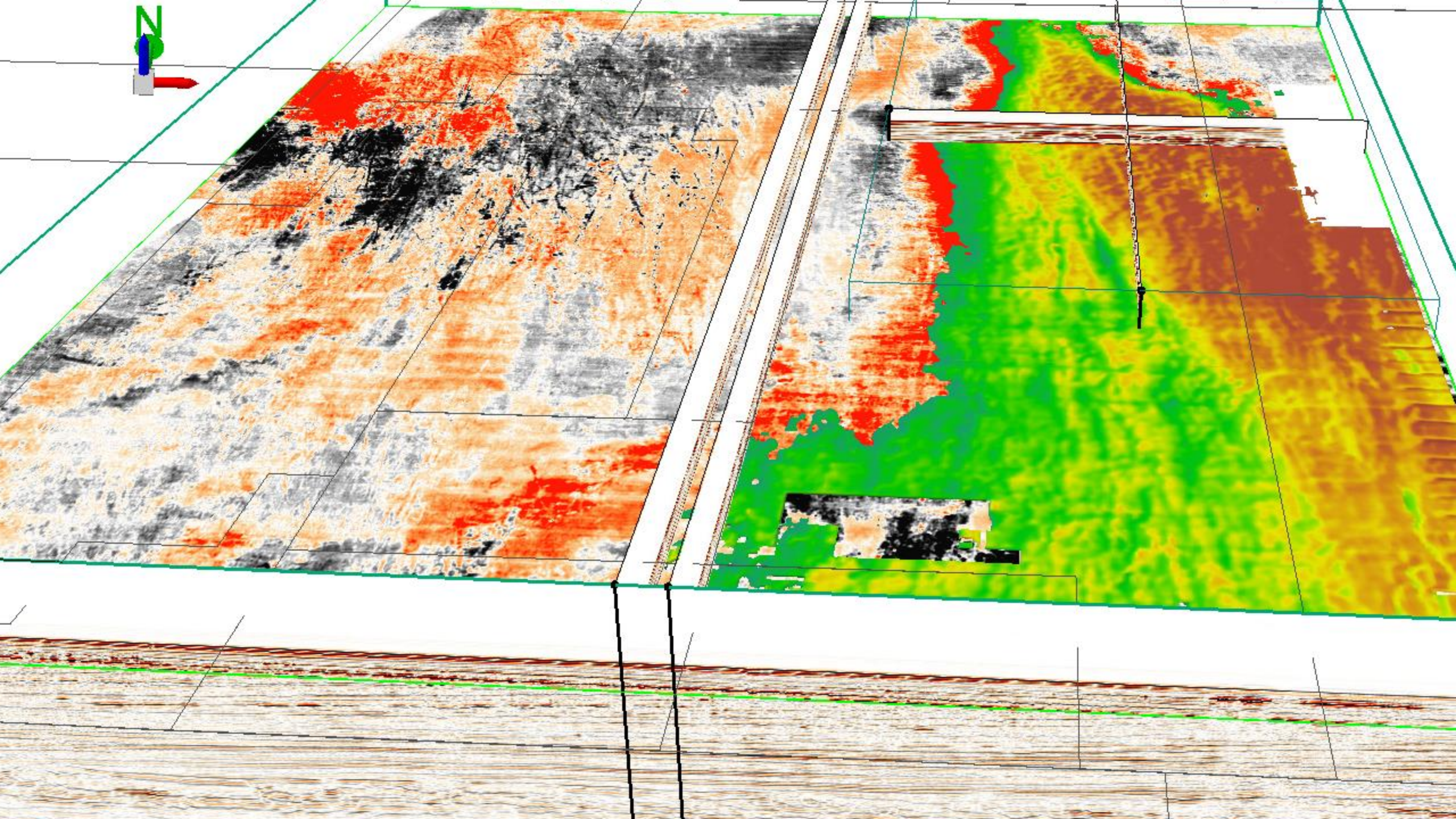
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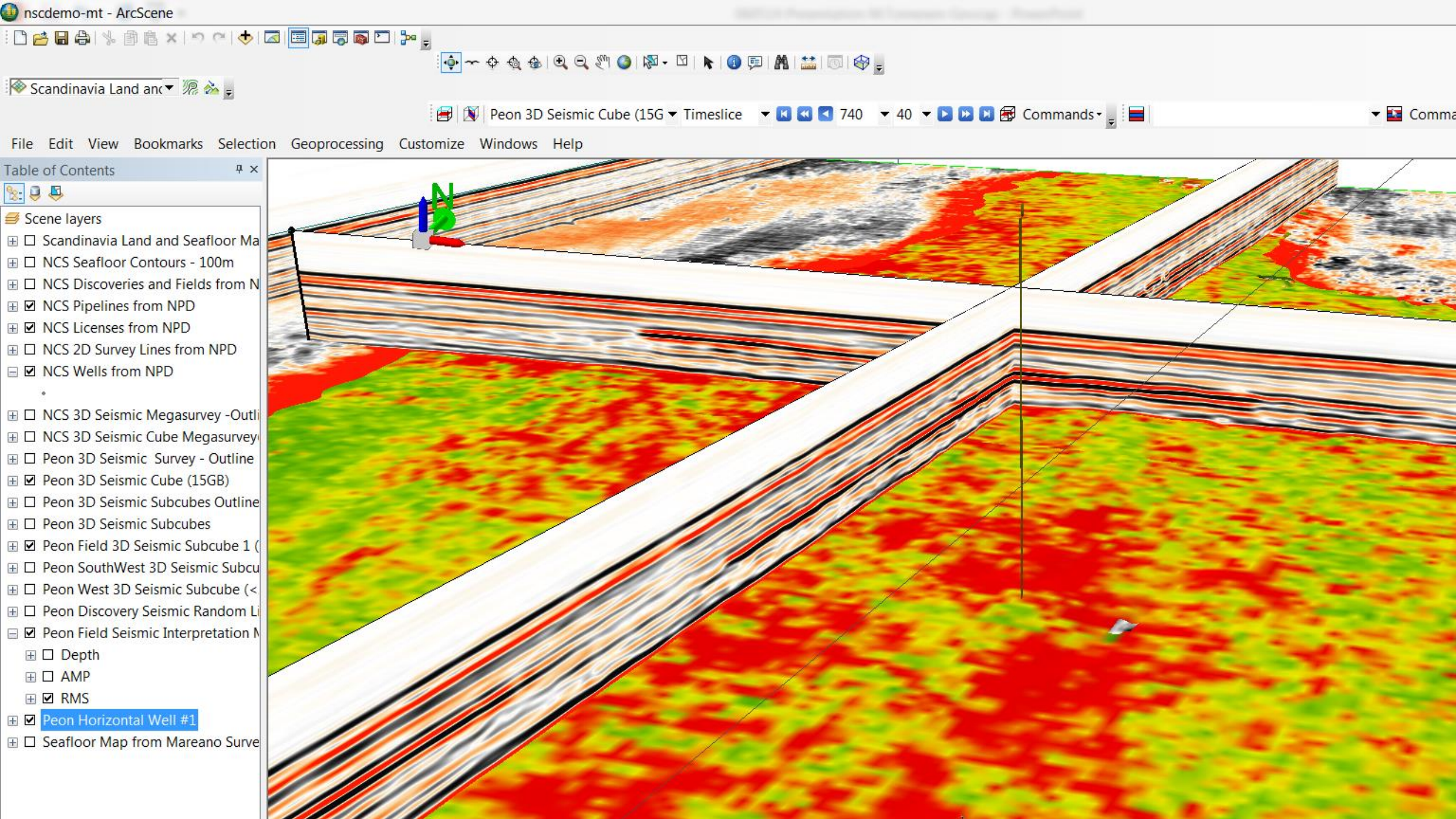


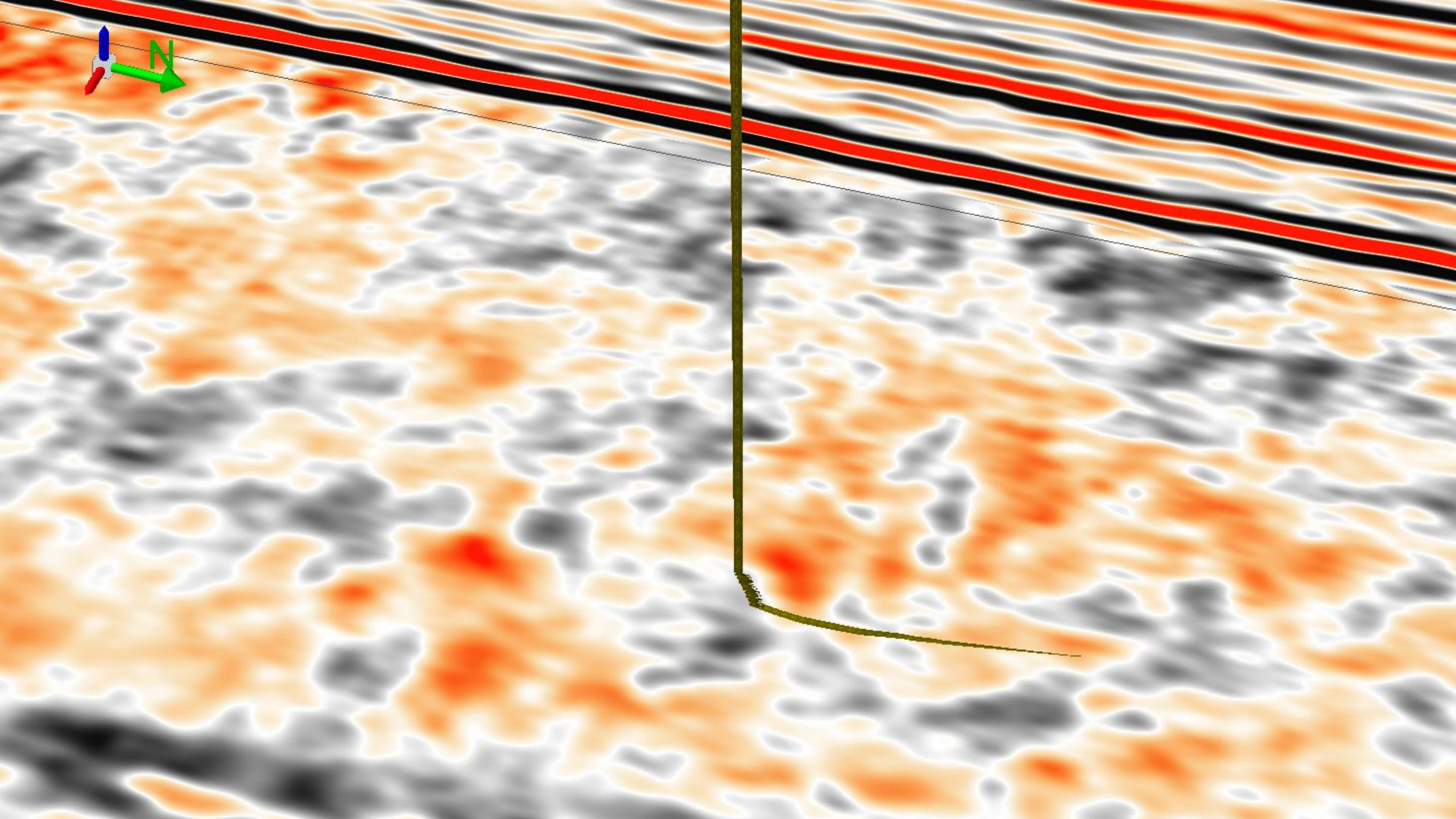
Scene layers

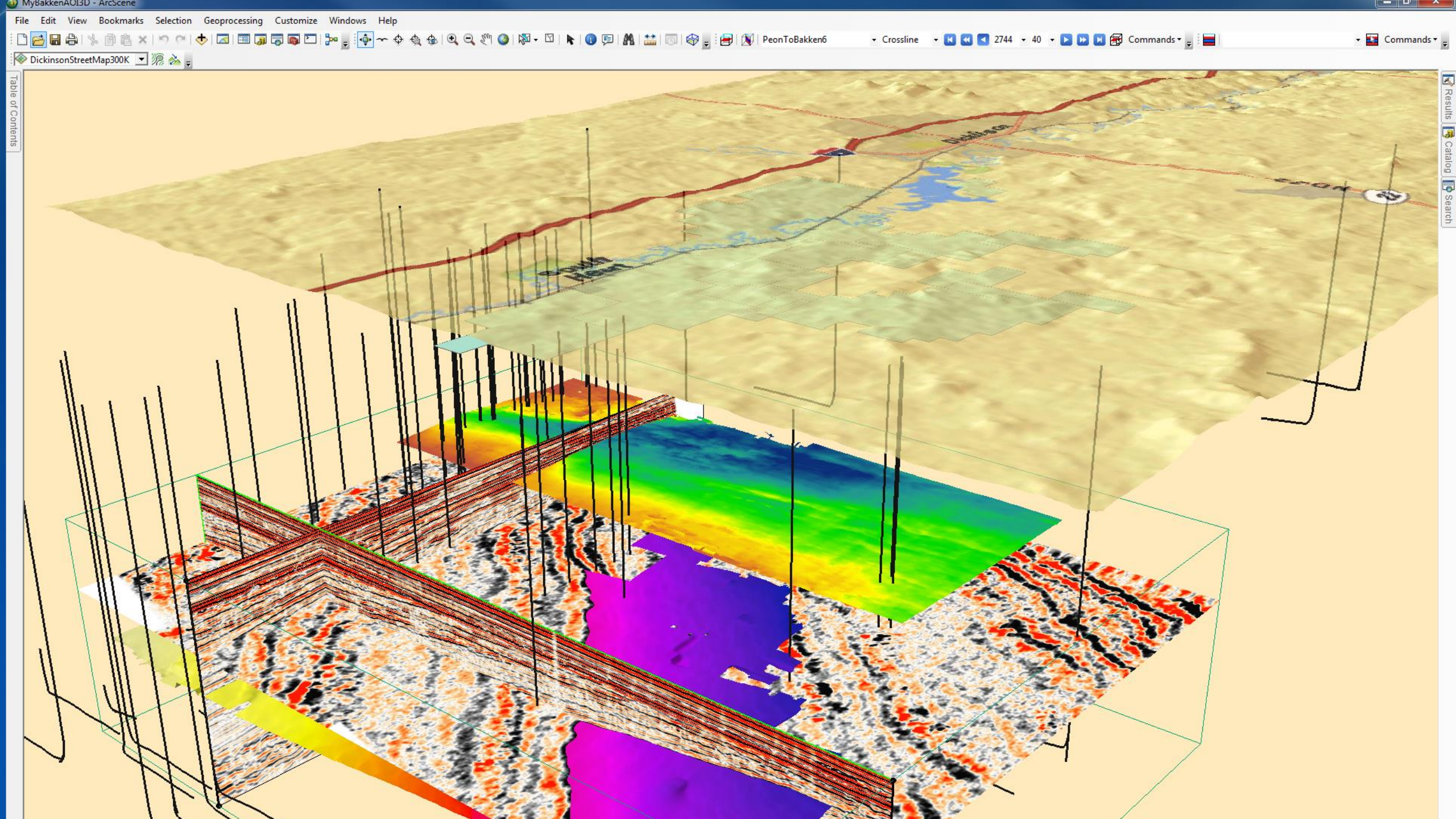
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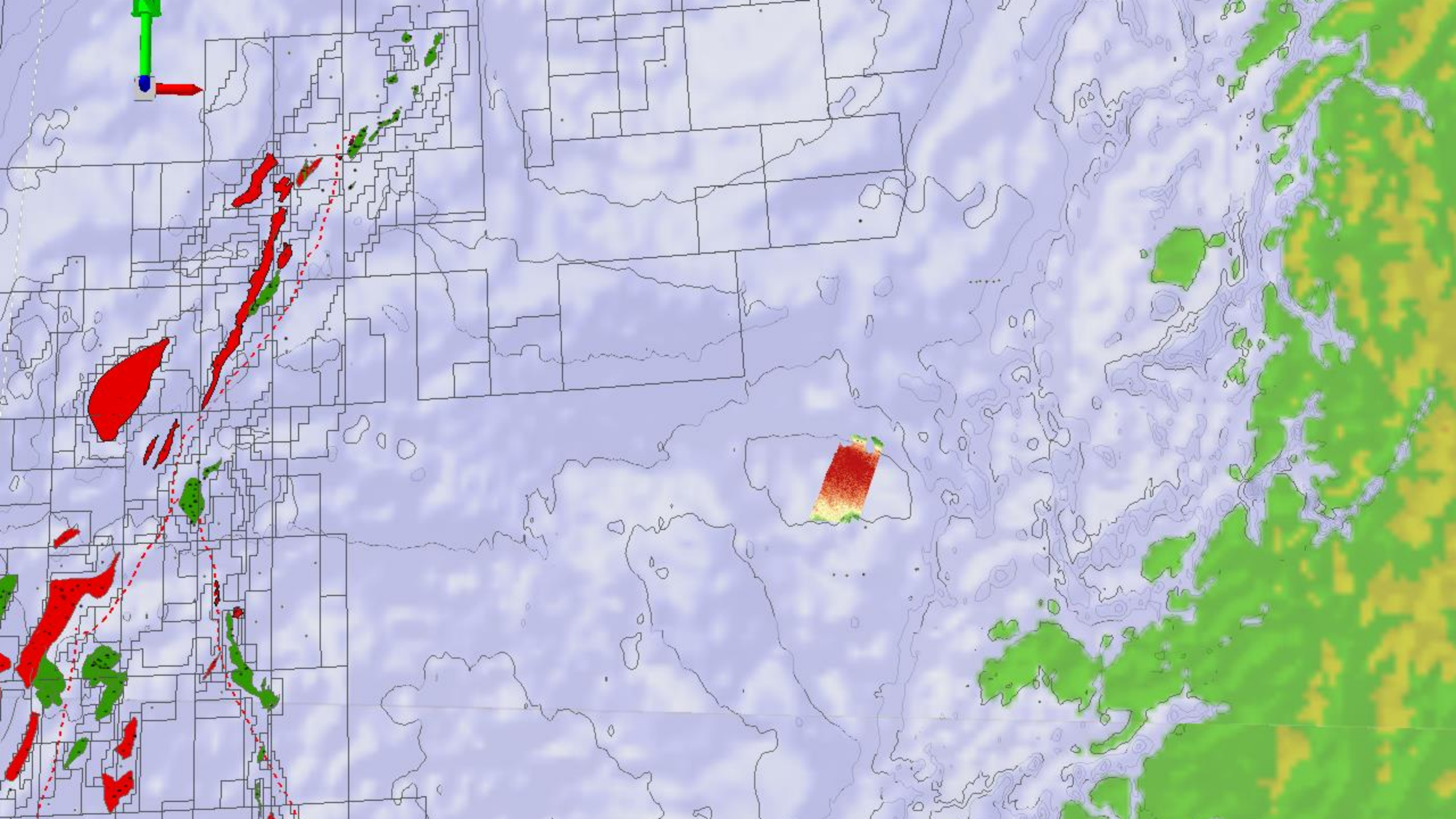


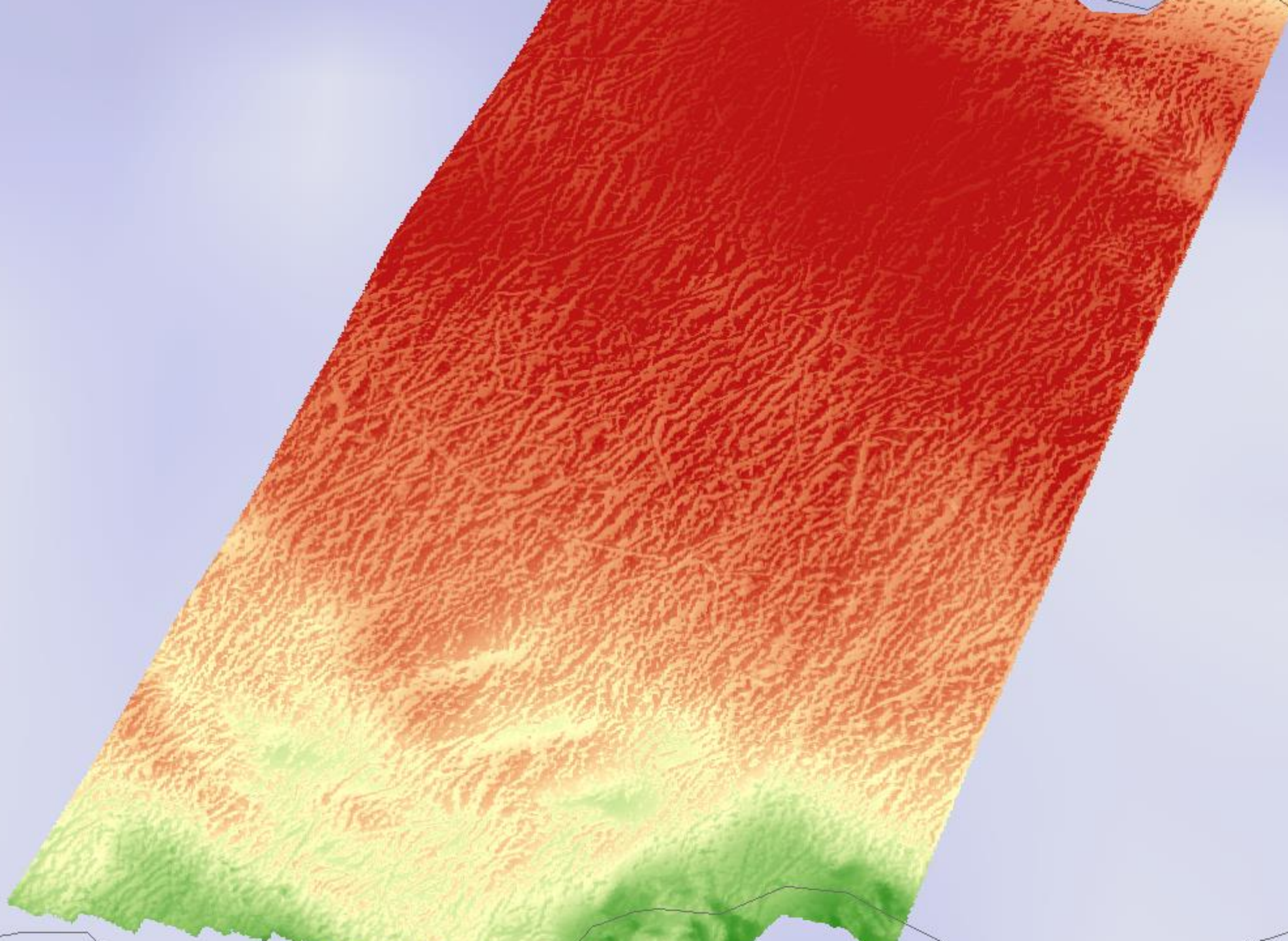
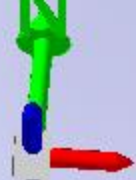


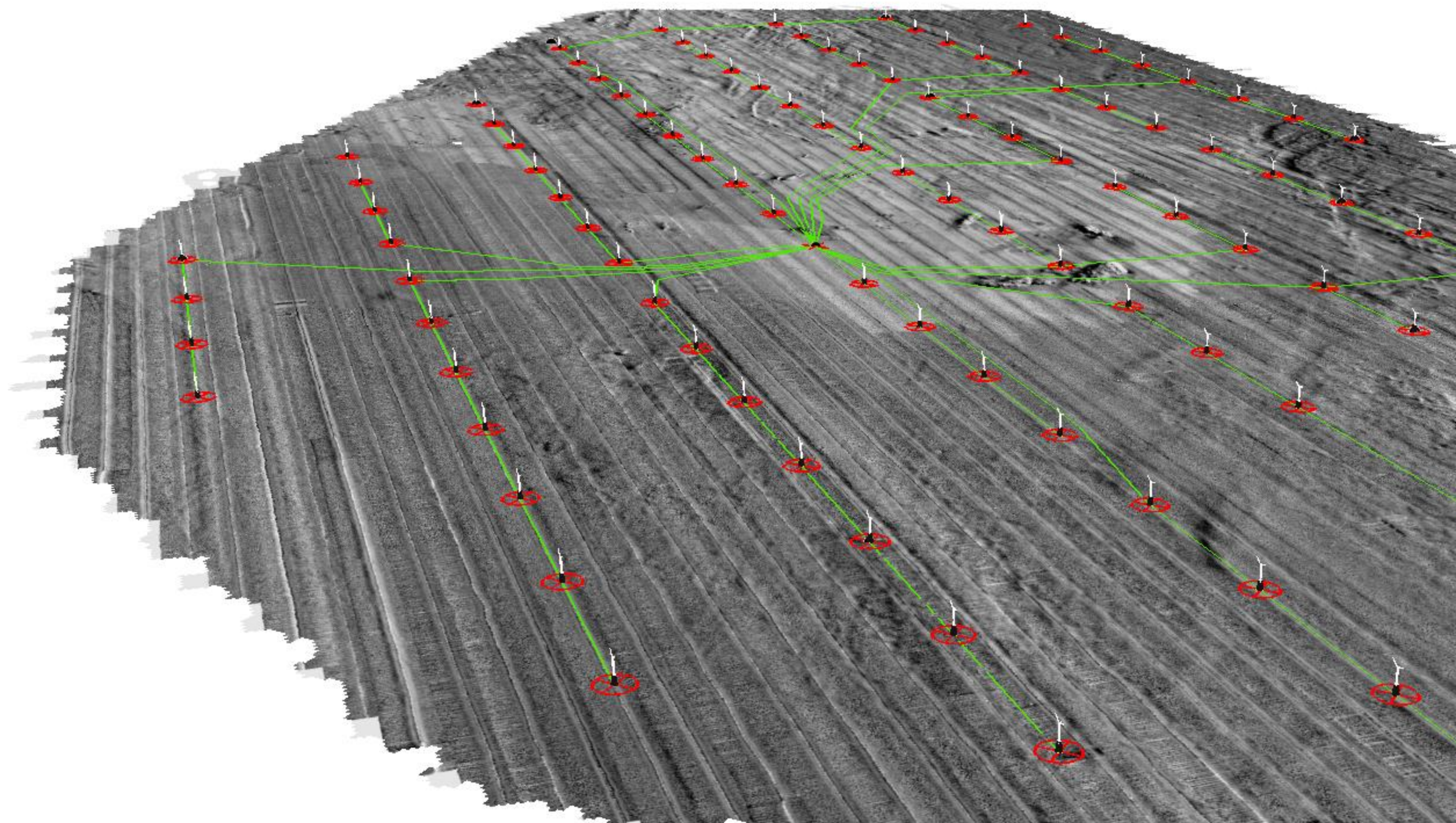


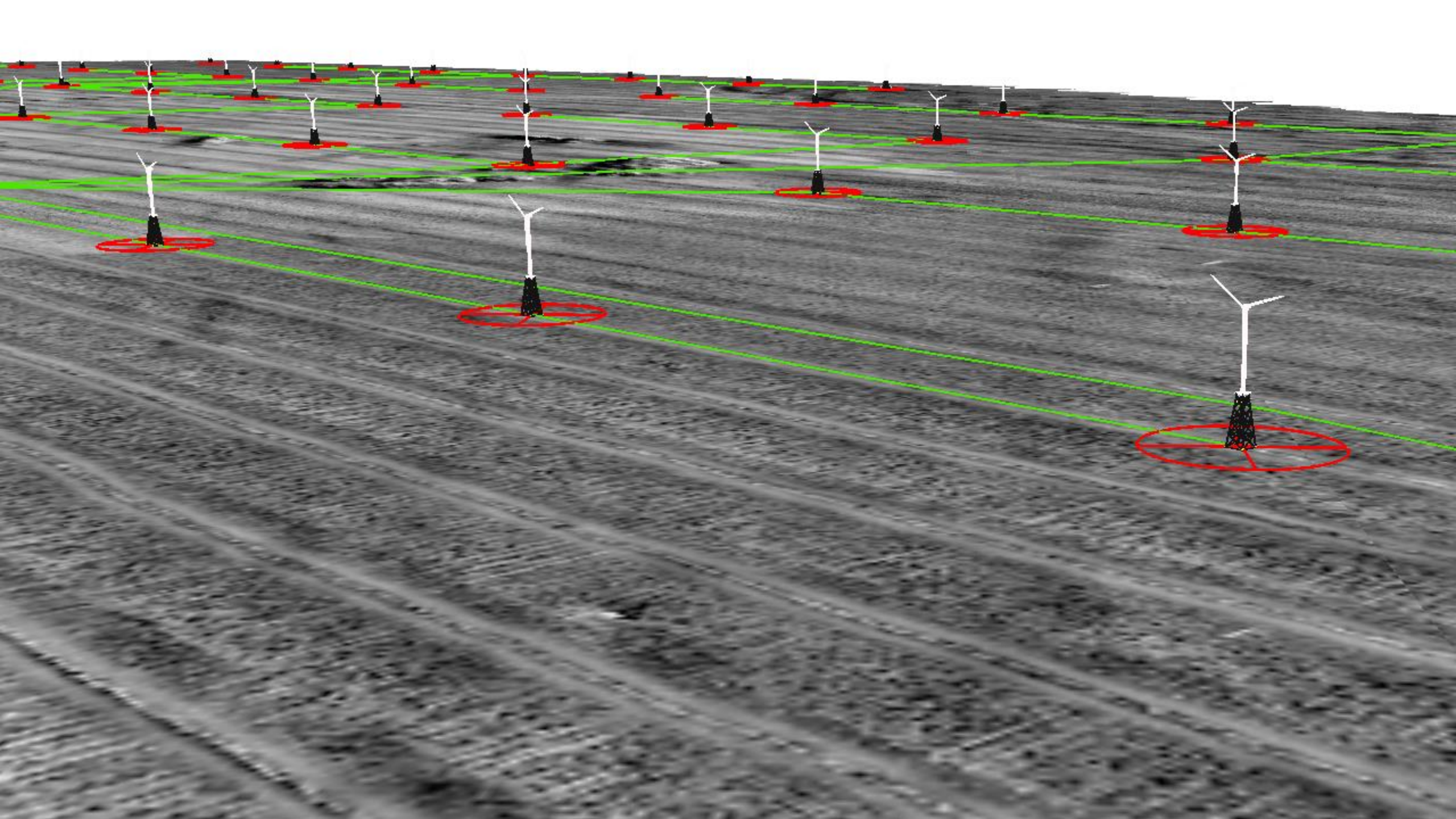






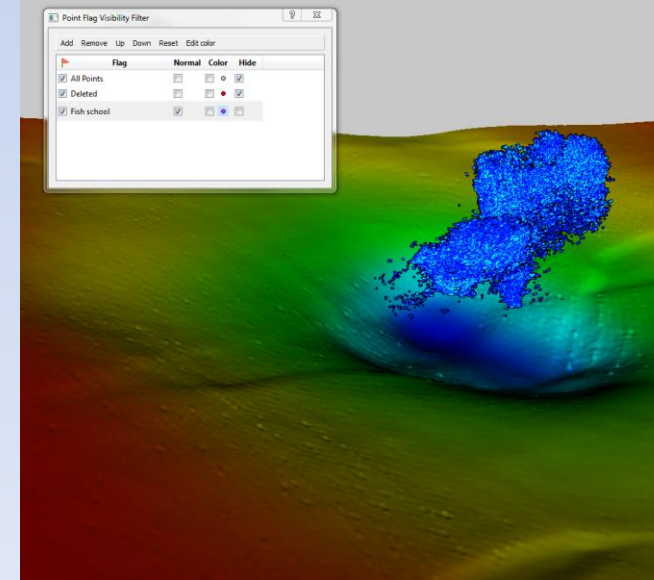
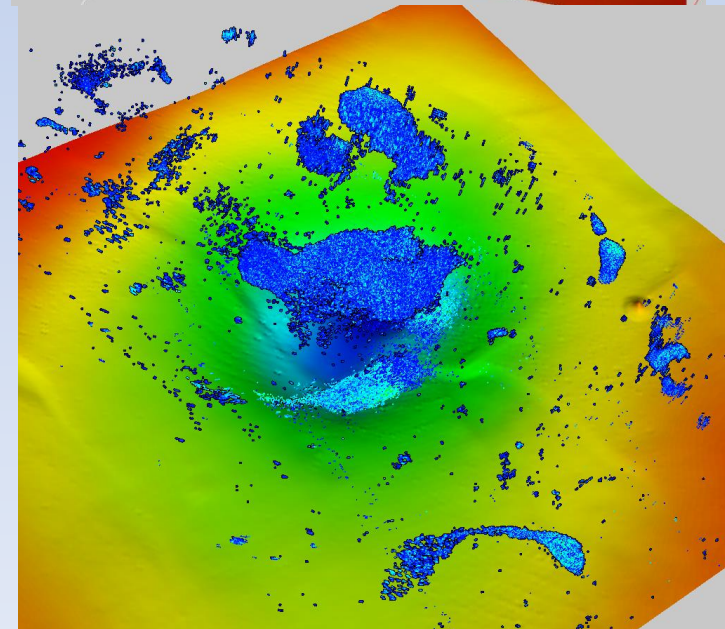
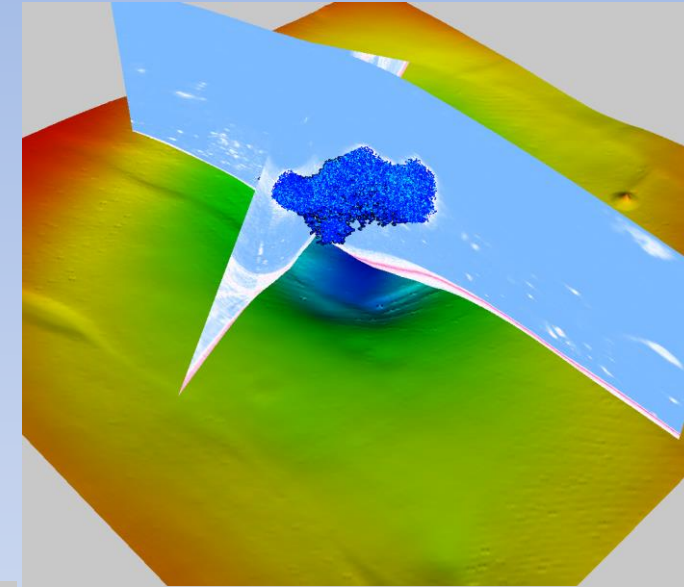
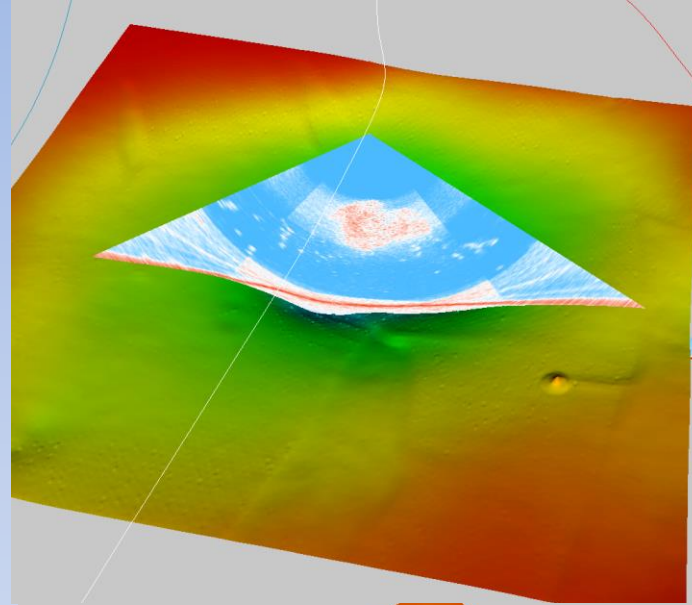






Water Column Explorer

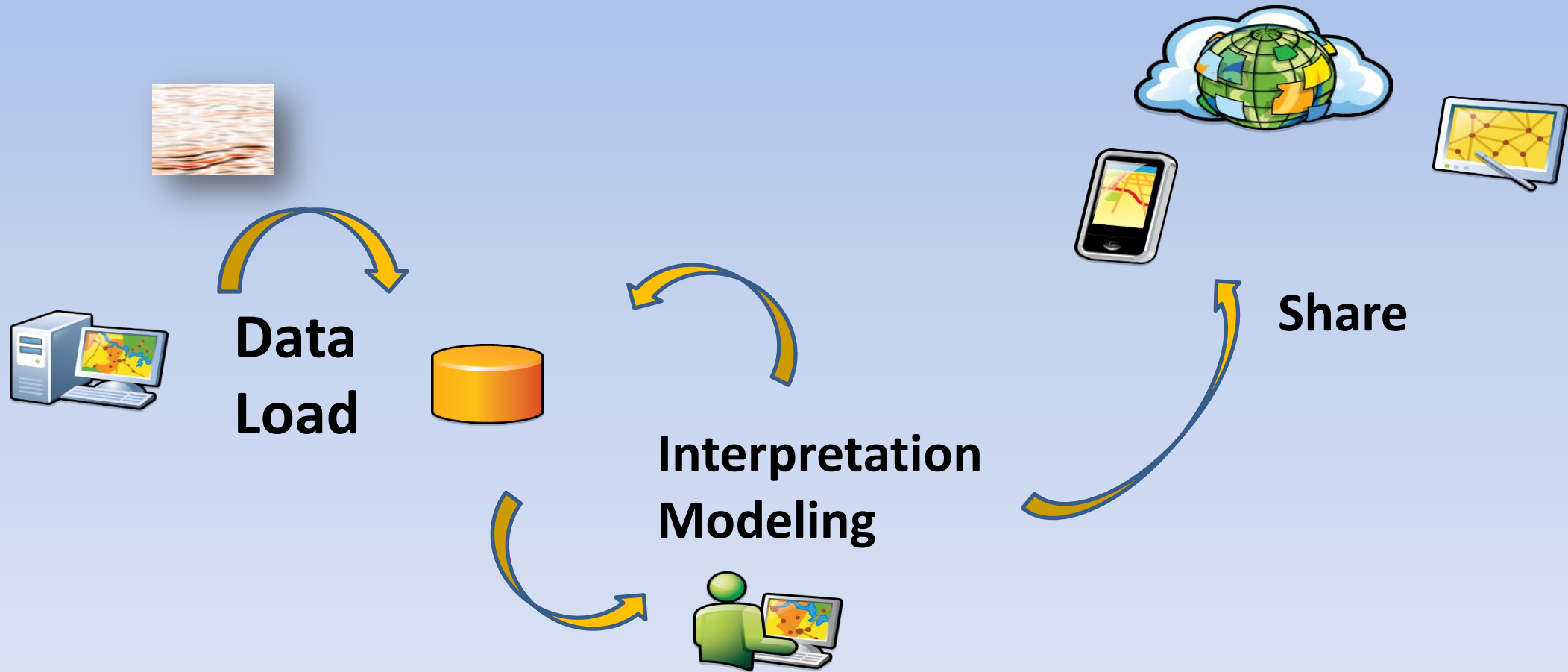
- Locate seabed leakages, e.g. gas seeps, fresh water seeps
- Wreck surveys, find details not visible on multibeam data
- Locate objects in water column i.e anchor chains
- Combine Watercolumn – Seafloor and Seismic Data

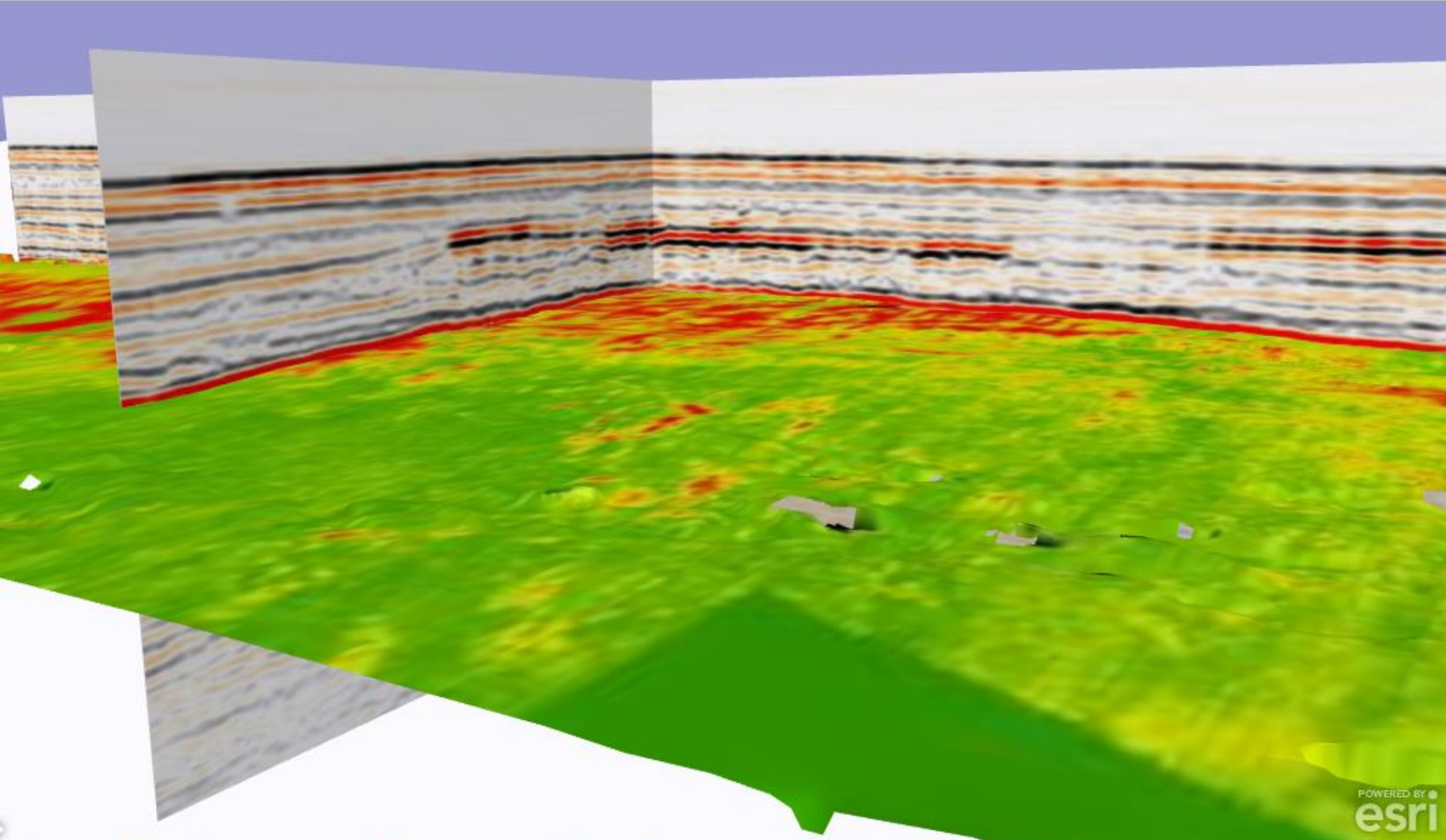


The Shared Earth Model in 3D – for Real



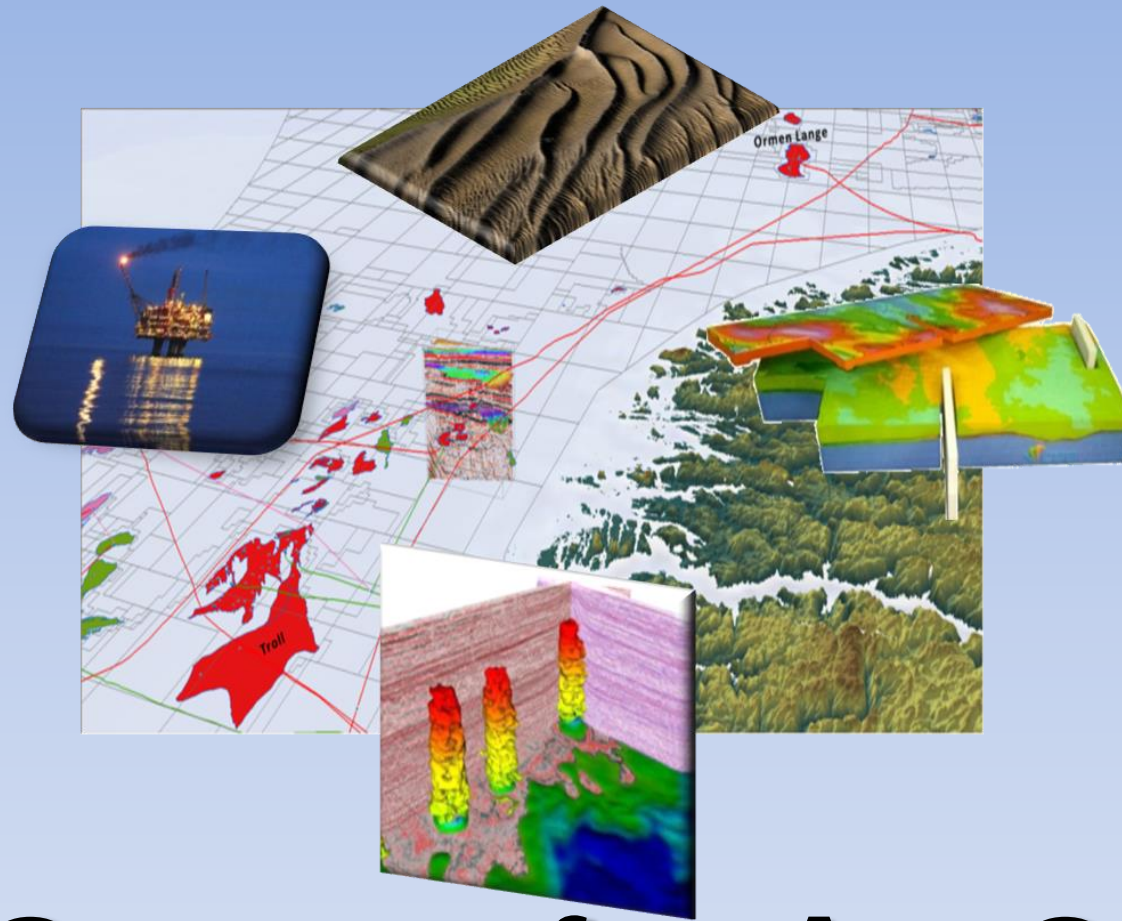
Enabling Sharing of Subsurface and Subsea 3D Data





Lag

- Peon_Seismic_multipatch
- __waterstorm
- Surface105
 - ☐ Depth
 - ☐ AMP
 - ☒ RMS
- SRTM_Norway
- MS97M_1_MP
- Kommentarer



Geocap for ArcGIS

www.geocap.no