

# Integration and visualization of CSEM data in an exploration workflow

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## Objective

In order to meet the demand for a tool integrating CSEM data with other geologic and geophysical data, Blueback and EMGS have developed the Petrel plug-in Bridge. The focus in the presentation will be on visualization and integration of CSEM data done in Petrel and Bridge.

## The 2008 Troll 3D grid surveys

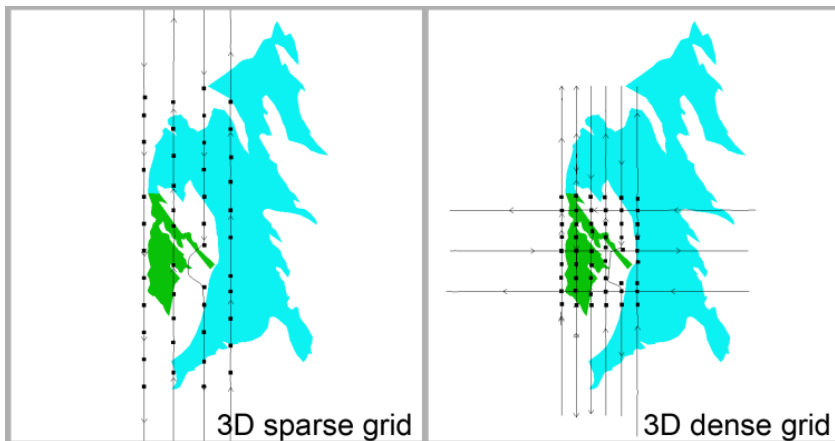


Figure 1: 3D grid surveys acquired over the Troll oil- and gas province.

The 3D sparse grid was intended for lead identification. The 3D dense grid was acquired for high resolution CSEM imaging of the identified lead, in this case the oil province.

The Troll 2008 surveys were conducted in order to test the different survey types and to test and develop our processing tools, like inversion. Likewise, the data provide an excellent dataset to test and demonstrate the Bridge plug-in.

## The presentation will cover

- 1. From raw CSEM data and navigation to Bridge importable ASCII file**
  - A short introduction of the background data used for CSEM analysis
- 2. Using Bridge and Petrel for early QC of the CSEM dataset**
  - Inspecting navigation and data quality and if there are needs for further processing
- 3. Using Bridge for reference selection and reference curve generation**
  - Methods, settings and considerations when making reference curves
- 4. Normalizing CSEM data based on the selected reference**
  - Normalization process and how do we display these data
- 5. Interpolating normalized data in 3D attribute cubes or area response maps**
  - Integrating normalized data in a geological setting

- Increase of the data coverage by using azimuth data

## 6. Import of CSEM inversion results

- CSEM integration results delivery formats
- Different types of CSEM inversions, benefits and requirements

## 7. Integration of CSEM inversion and attributes with traditional geologic data

- Visualization and integration of normalized CSEM data
- Visualisation and integration of inversion results and other depth domain information

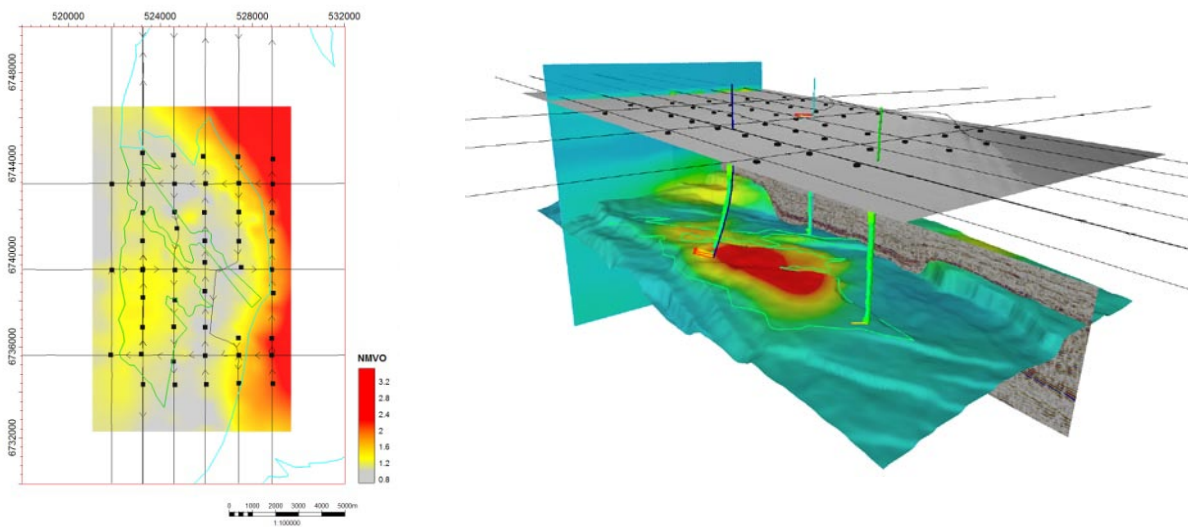


Figure 2: Normalized data represented as a response map (left). CSEM 3D inversion integrated with seismic intersection, top reservoir horizon and well-logs (right).

All data and images used in courtesy of StatoilHydro.