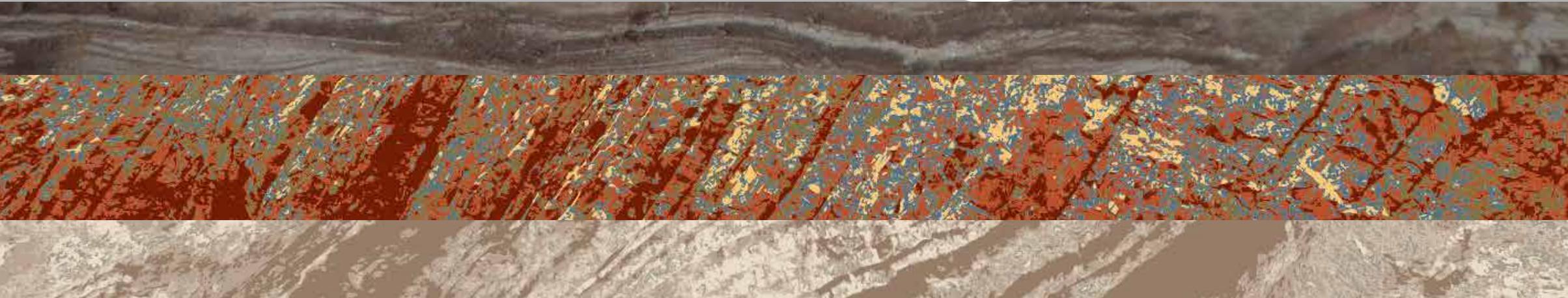




NORWEGIAN PETROLEUM
DIRECTORATE

CO₂ STORAGE ATLAS



NORWEGIAN CONTINENTAL SHELF

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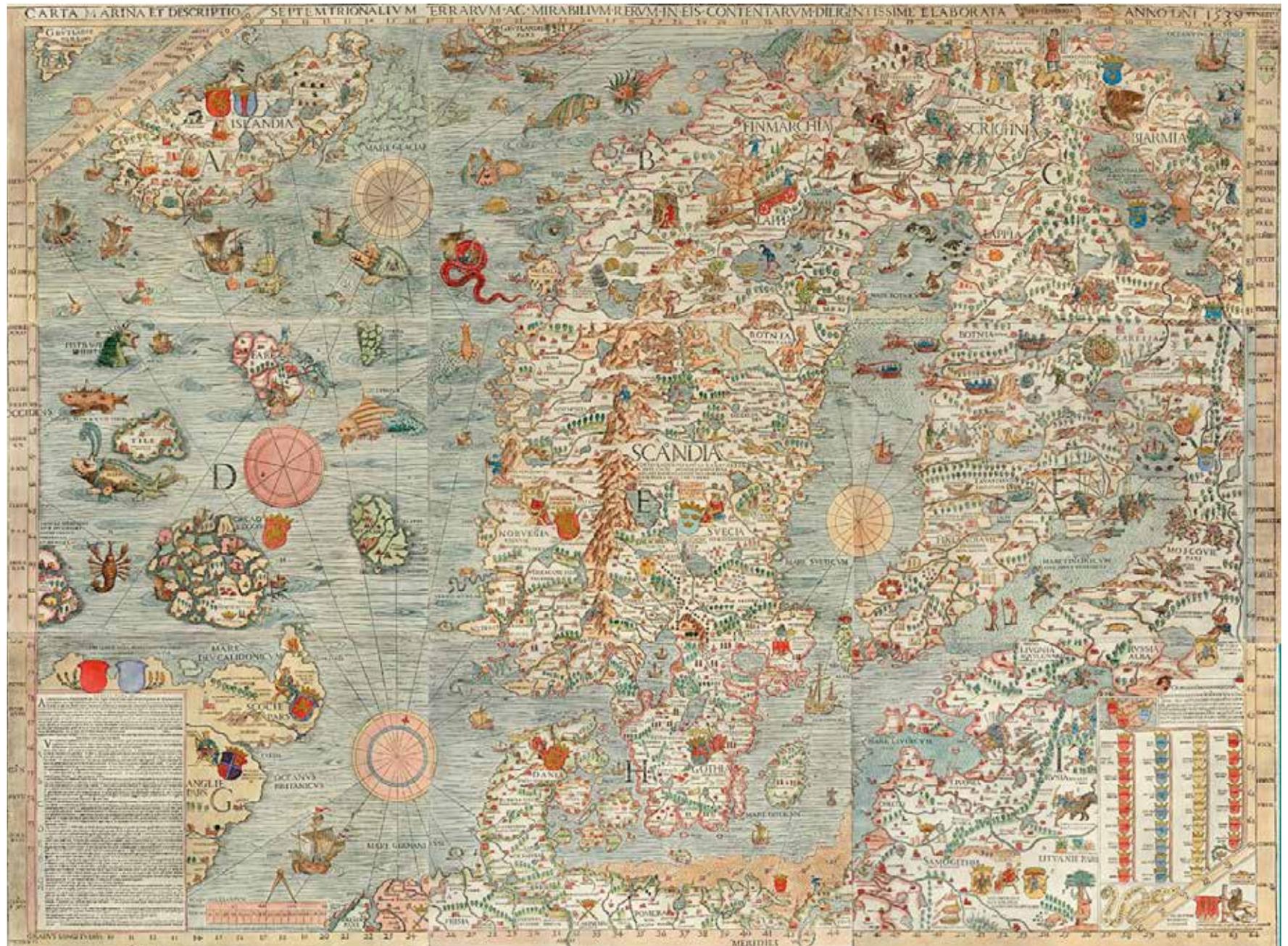
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Norway's (Scandinavia's) first resource map, Olaus Magnus, 1539

The CO₂ Storage Atlas of the Norwegian Continental Shelf has been prepared by the Norwegian Petroleum Directorate, at the request of the Ministry of Petroleum and Energy. The studied areas are located in parts of the Norwegian Continental Shelf (NCS) which are opened for petroleum activity. The main objectives have been to identify safe and effective areas for long-term storage of CO₂ and to avoid possible negative interference with ongoing and future petroleum activity. The atlas is based on knowledge from more than 40 years of petroleum activity and from the ongoing CO₂ storage projects on the NCS (Sleipner and Snøhvit).

Valuable knowledge has also been gained through the Norwegian R&D and Demo project Climit, UNIS CO₂ Lab and several large EU projects on storage and monitoring. Additionally, seismic data and results from exploration and production wells form an extensive database essential for the evaluation and documentation of geological storage prospectivity.

Geological formations have been individually assessed, and grouped into saline aquifers. The aquifers were evaluated with regard to reservoir quality and presence of relevant sealing formations. Those aquifers that may have a relevant storage potential in terms of depth, capacity and injectivity have been considered. Structural maps and thickness maps of the geological formations presented in the atlas were used to calculate pore volumes.

Several studies of the CO₂ storage potential in relevant aquifers, dry-drilled structures and mapped structures are hence provided, together with a summary of the CO₂ storage potential in oil and gas fields. The potential for CO₂ storage in enhanced oil recovery projects is also discussed.

The methodology applied for estimating storage capacity is based on previous assessments, but the storage efficiency factor has been assessed individually for each aquifer based on simplified reservoir simulation cases. The assessed aquifers have been characterized according to guidelines developed for the CO₂ Storage Atlas of the Norwegian North Sea (2011).

We hope that this study will fulfil the objective of providing useful information for future exploration for CO₂ storage sites. We have not attempted to assess the uncertainty range for storage capacities in this atlas, but we have made an effort to document the methods and main assumptions. The assessments described in this atlas will be accompanied by a GIS database (geographical information system). The database will be published on the NPD website www.npd.no.

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