



NORWEGIAN PETROLEUM
DIRECTORATE



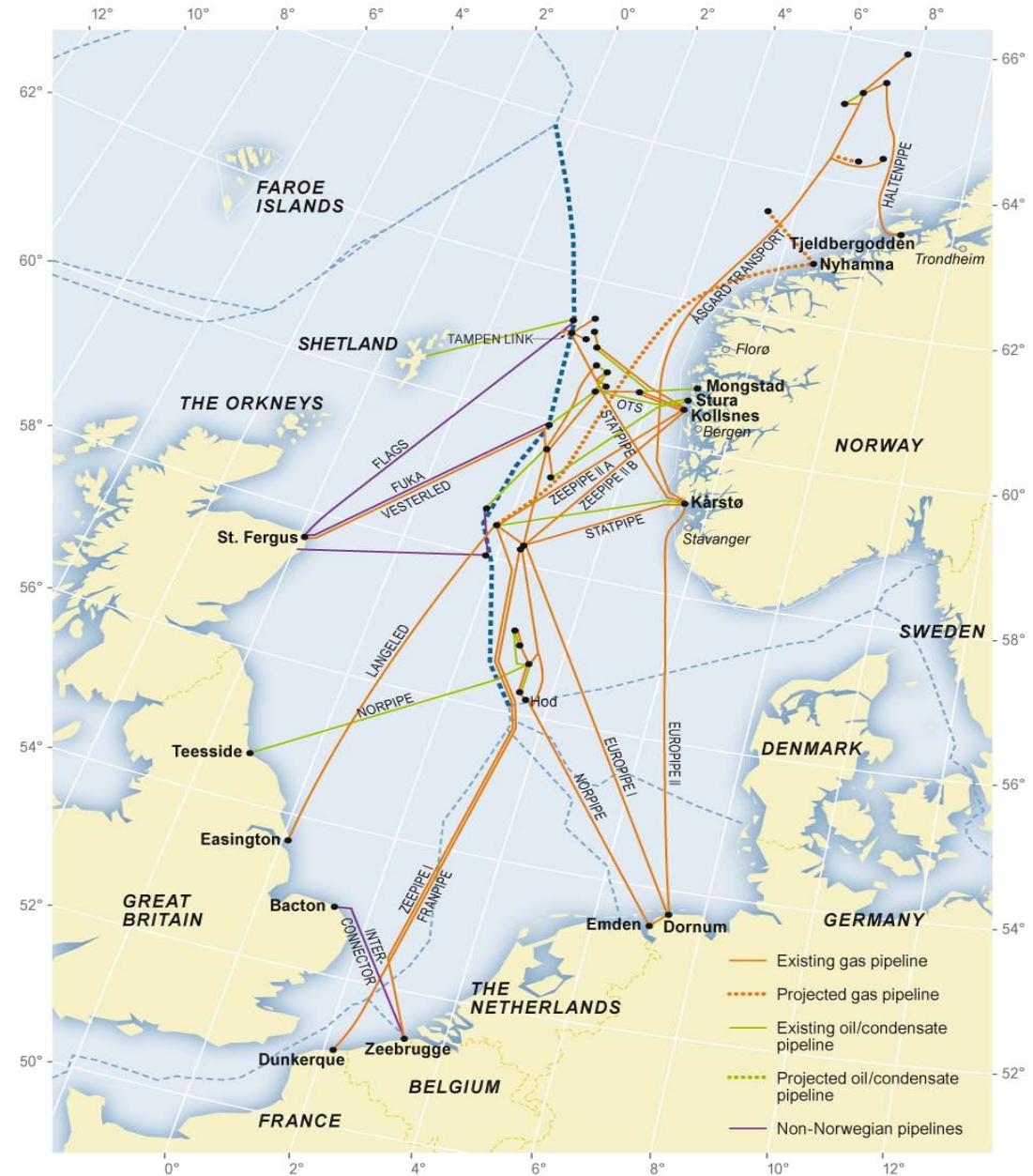
Border issues Norway UK

Knut Henrik Jakobsson

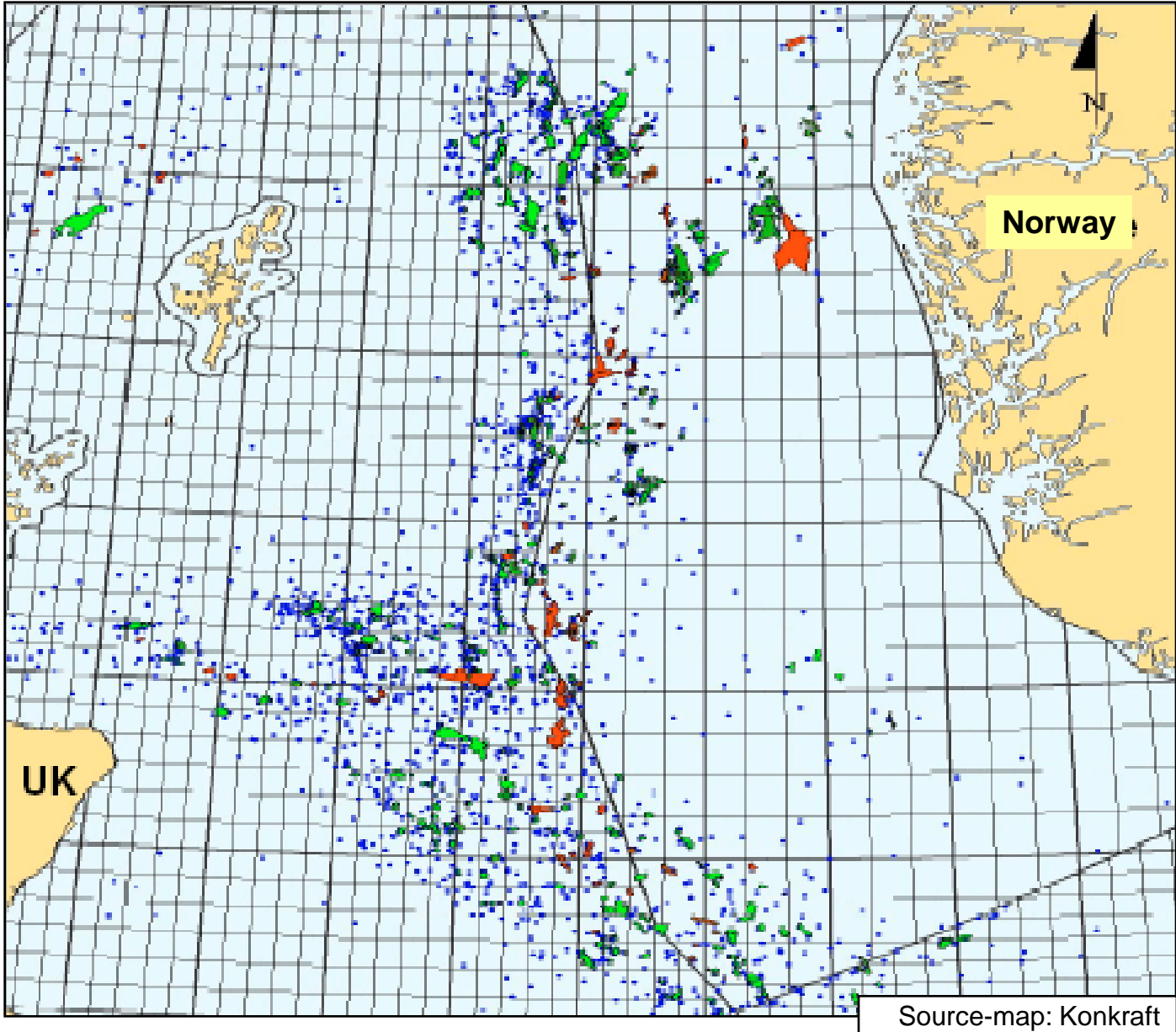
CCOP Krabi May 2009

Outline of Talk

- Petroleum resources
- Licensing system
- Beyond the median line



The North Sea: Exploration wells UKCS and NCS





The Norwegian King
Olav V inaugurates the
Frigg field 8 May 1978

YOU ARE NOW
- LEAVING THE BRITISH SECTOR
- ENTERING THE NORWEGIAN SECTOR



Agreements between Norway and the United Kingdom



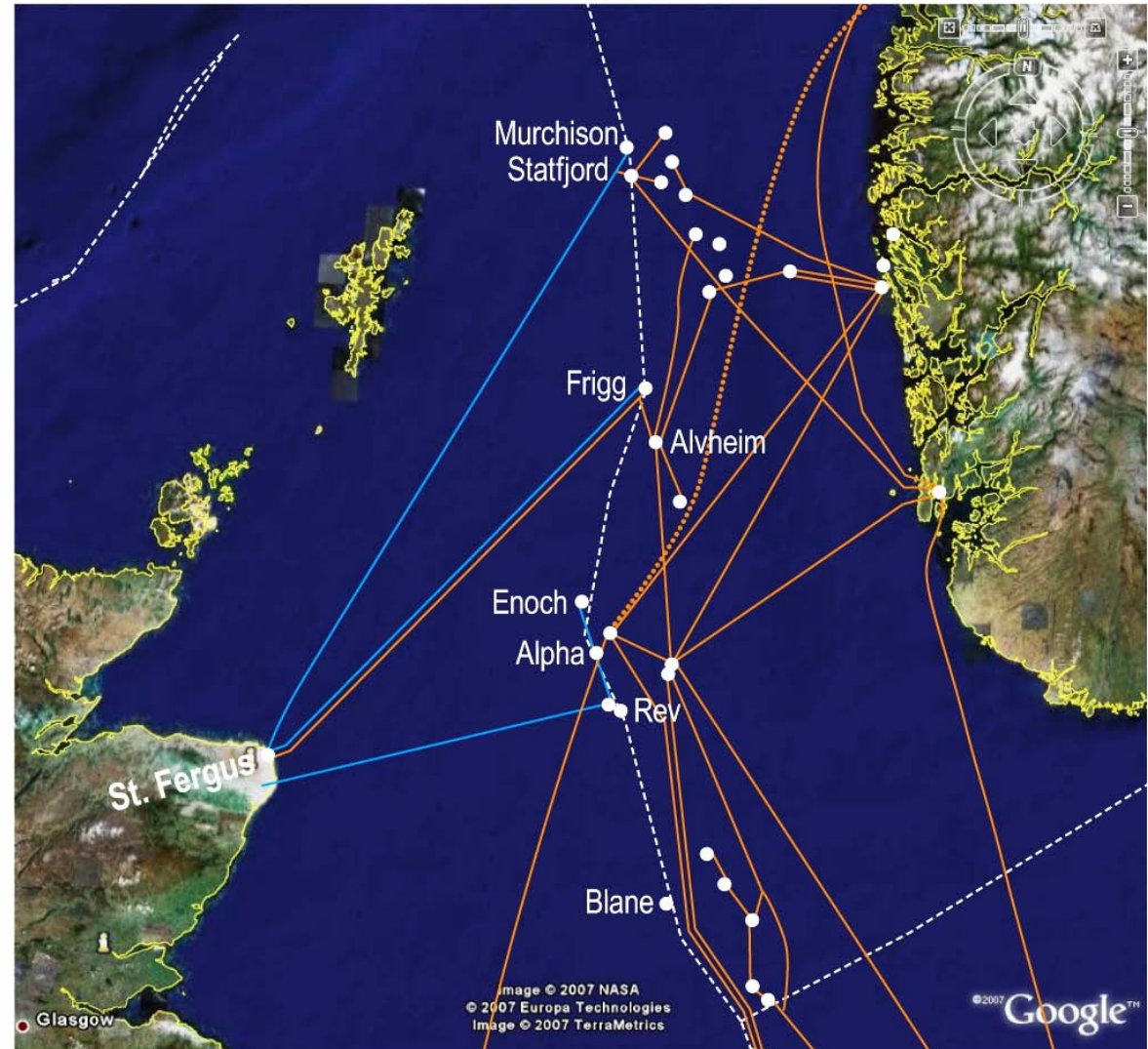
Agreements per field and transport system:

Frigg 1973,
Statfjord 1979,
Murchison 1979,
Ekofisk (Norpipe) 1973,
Heimdal (Vesterled) 1985

Framework Agreements

Inter-connecting
Submarine Pipelines 1998

Cross-boundary Petroleum
Cooperation 2005



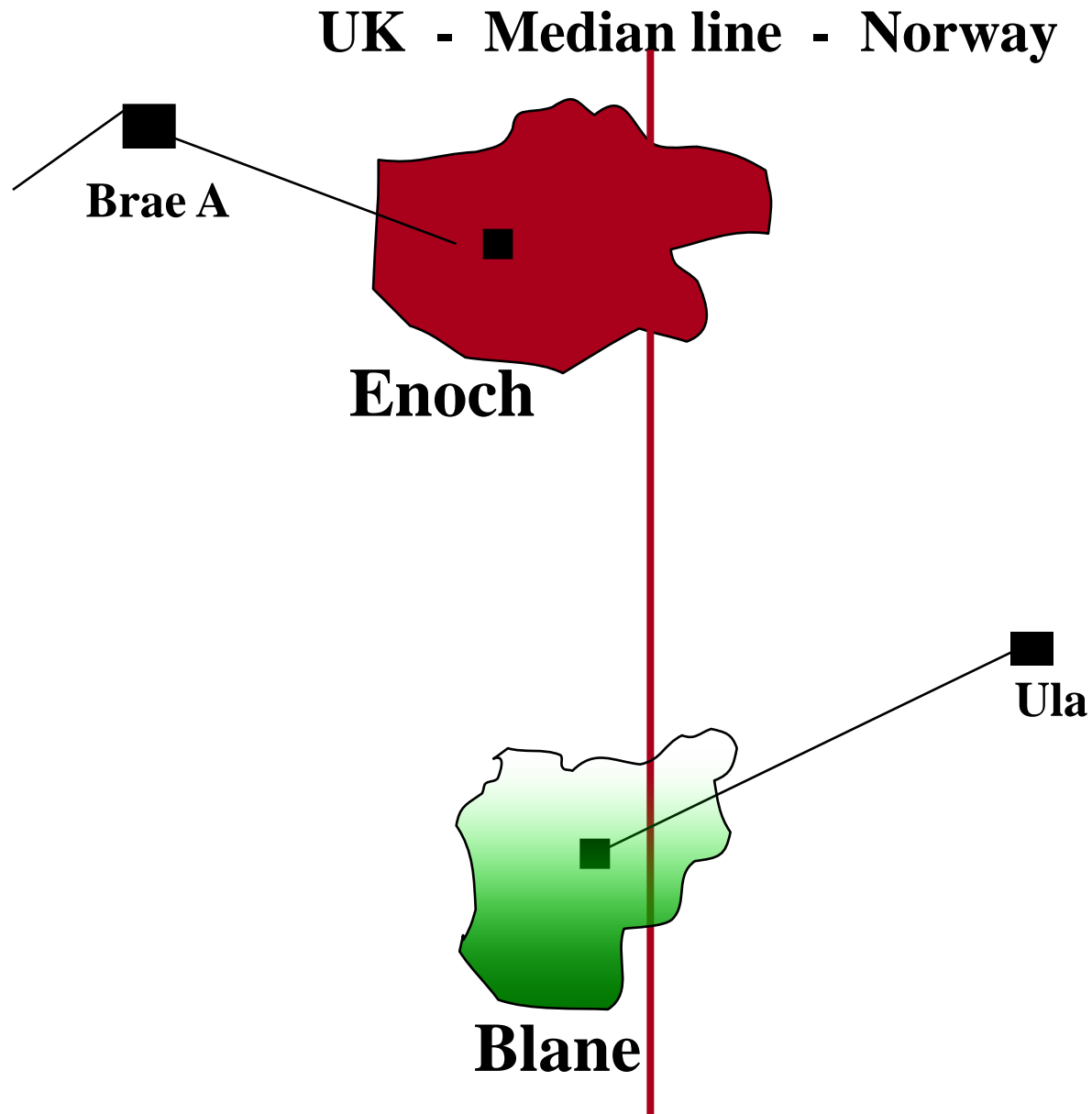
Framework agreement 2005

Cross-boundary Petroleum Cooperation

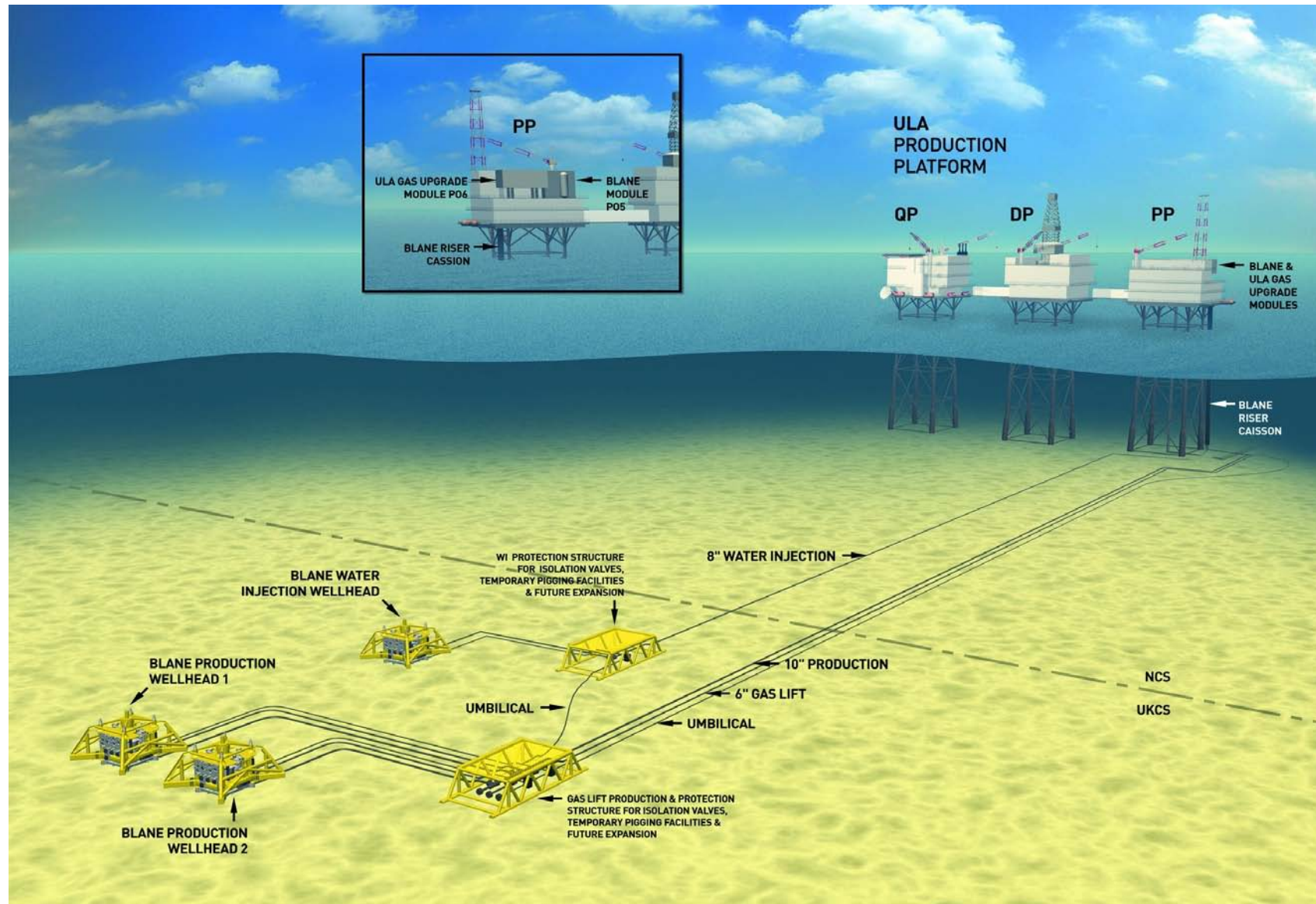
- The common interest is in ensuring good management and commercial development of the respective petroleum resources of the two countries.
- The framework agreement of 2005 covers all new cross-boundary projects which are not already included in existing agreements. This agreement will facilitate and promote new projects and further strengthen the bilateral co-operation between Norway and the UK.



Cooperation across the boundary



Blane Field Development Plan



Status-2009

- Large areas yet to be explored
- Several mature fields
- From Giants to smaller fields
- Newcomers show increasing interest in the NCS
- Norwegian shelf is less mature compared to the UK shelf
- The new 2005 Framework agreement will strengthen the bilateral co-operation between Norway and the UK.
- Revision of agreements ongoing in 2009

Cross border cooperation

- ◆ **1. Joint exploitation of trans-boundary deposits**
 - ◆ **1.1 Initial steps, entering into agreements, etc.**
 - ◆ If, as a result of geological/geophysical mapping, it is suspected that a petroleum structure extends across the delimitation line and the licensees want to start development then the operating company, acting on behalf of their co-licensees, will inform the authorities of its home country. The authorities will inform and hold meetings as necessary, to advise the authorities of the other country of the potential extension.

Regulatory framework Norway-UK

- ◆ The Unit Operator will be appointed by agreement between the licensees and will require the approval of both Governments. Any change of operator must be approved in advance by the authorities of both countries. The Unit Operator will be responsible for coordinating contacts with both Governments for the purposes of the development.
- ◆ If the licence area on one side of the delimitation line has not been awarded, the relevant authorities will represent that licence area in the technical and commercial meetings until such time as the area is awarded. All reasonable efforts will be made to award the area quickly



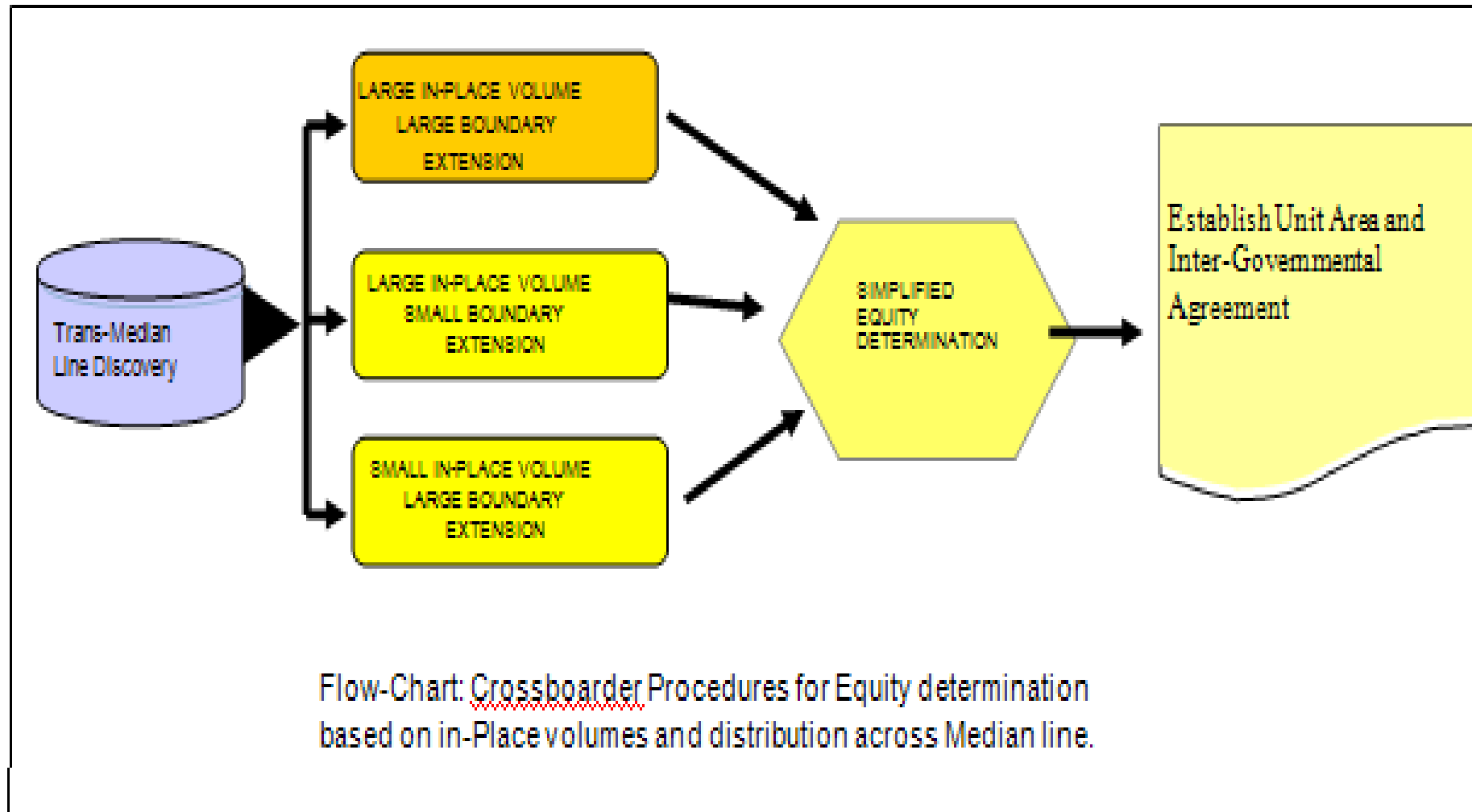


Re-determining procedures

- ◆ An important element of the Licensees Agreement needs to address determination of reserve. The Agreement should identify the limits of the petroleum structure and include proposals for determining the extent of the proposed field, the hydrocarbons initially in-place, the method of calculation, and the distribution between the parties. Methods for determining and re-determining reserves and their distribution will be needed and the Licensees Agreement should include the process for resolving disputes.



Work flow



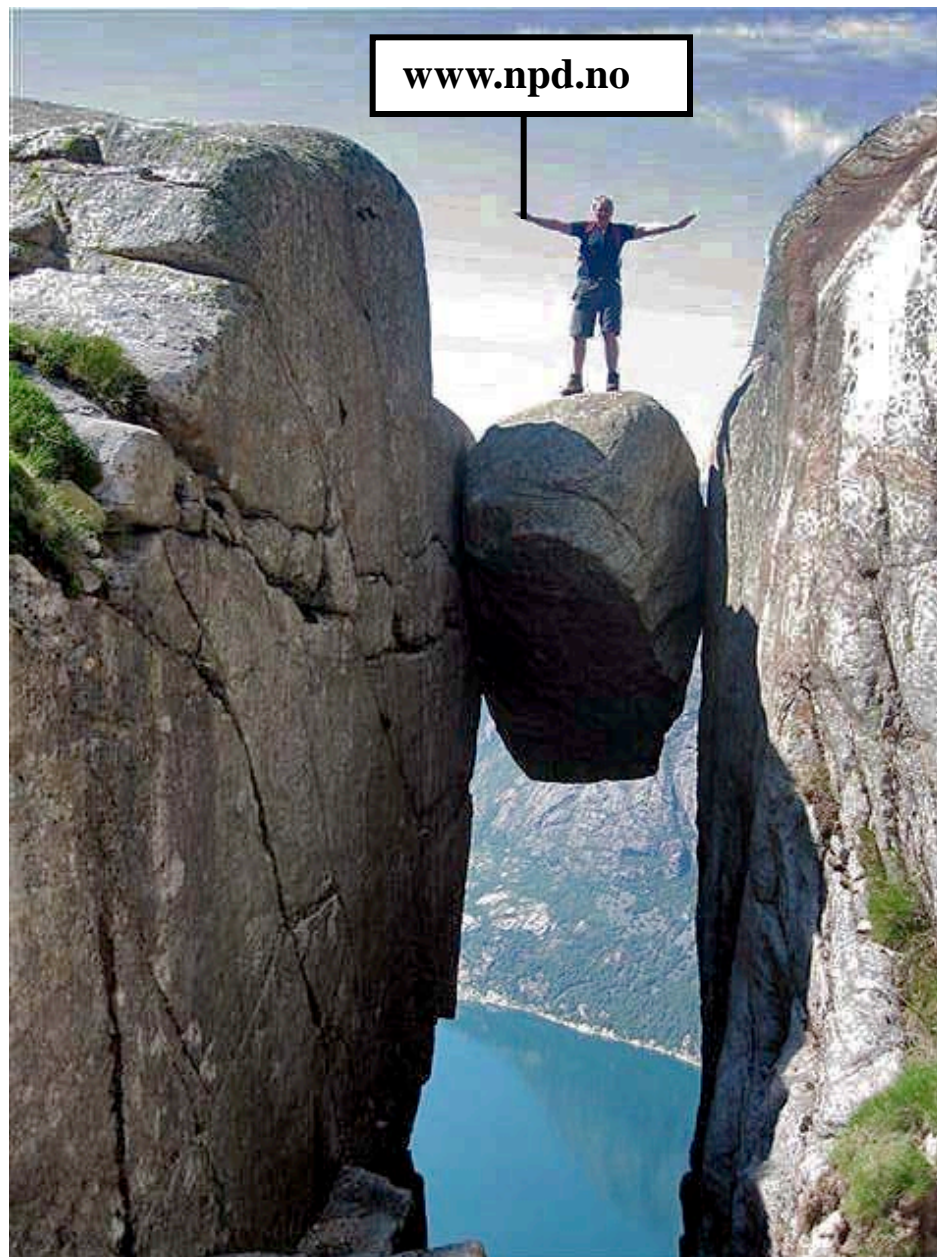
Conclusive remarks

- ◆ Cross border studies rely on trust
- ◆ Agree common database
- ◆ Agree project scope and goals
- ◆ Agree on the team (people and location)
- ◆ Ensure legal access to all parties
- ◆ Produce a final report
- ◆ Present the results

Useful links

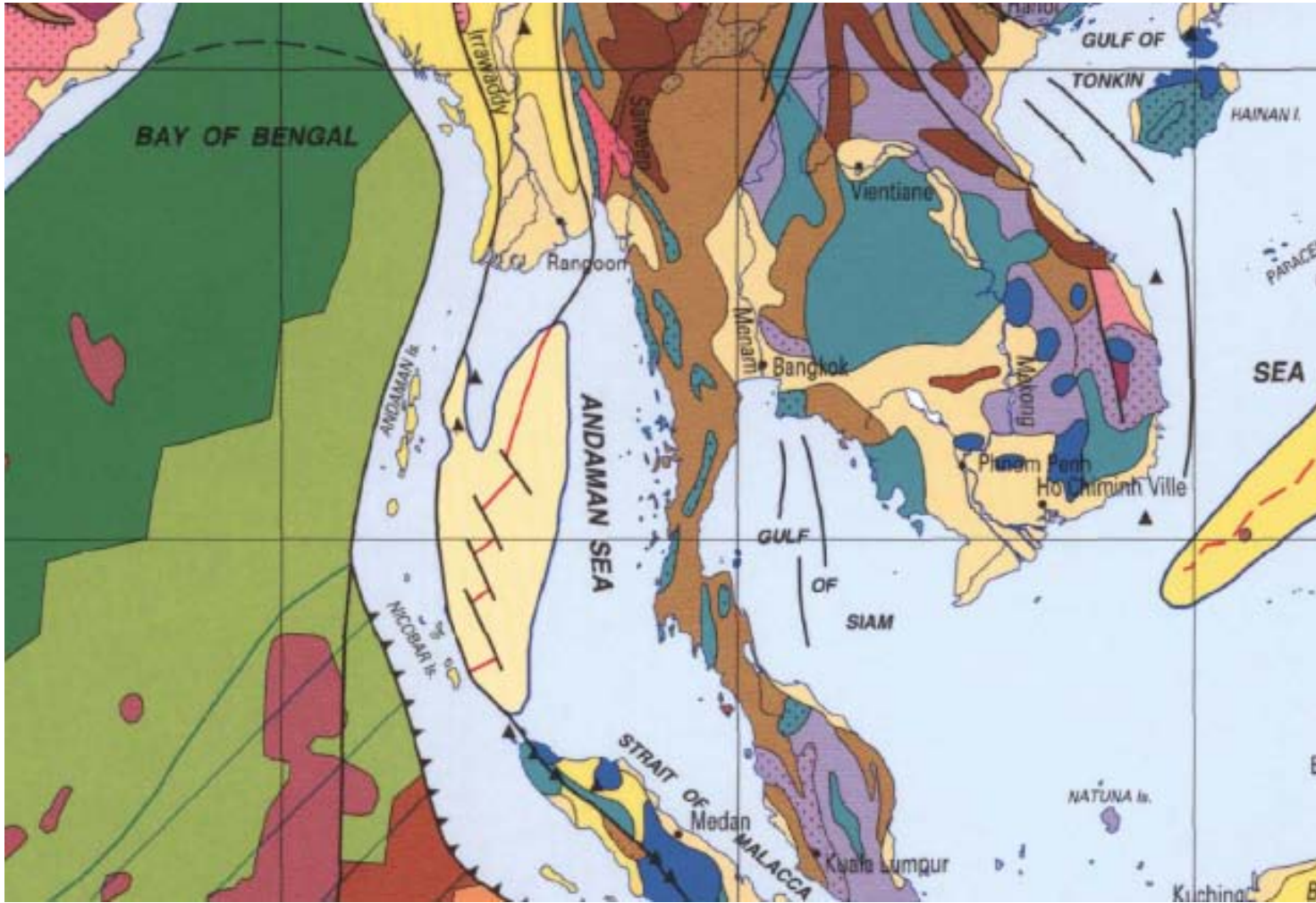
- ◆ <https://www.og.berr.gov.uk/regulation/legislation/index.htm>
- ◆ <https://www.og.berr.gov.uk/regulation/guidance/index.htm>
- ◆ <https://www.og.berr.gov.uk/environment/index.htm>
- ◆ https://www.og.berr.gov.uk/environment/environ_leg_index.htm
- ◆ <https://www.og.berr.gov.uk/regulation/pons/index.htm>
- ◆

Thank you for your attention



Mergui data slides

- ◆ Misc. public figures

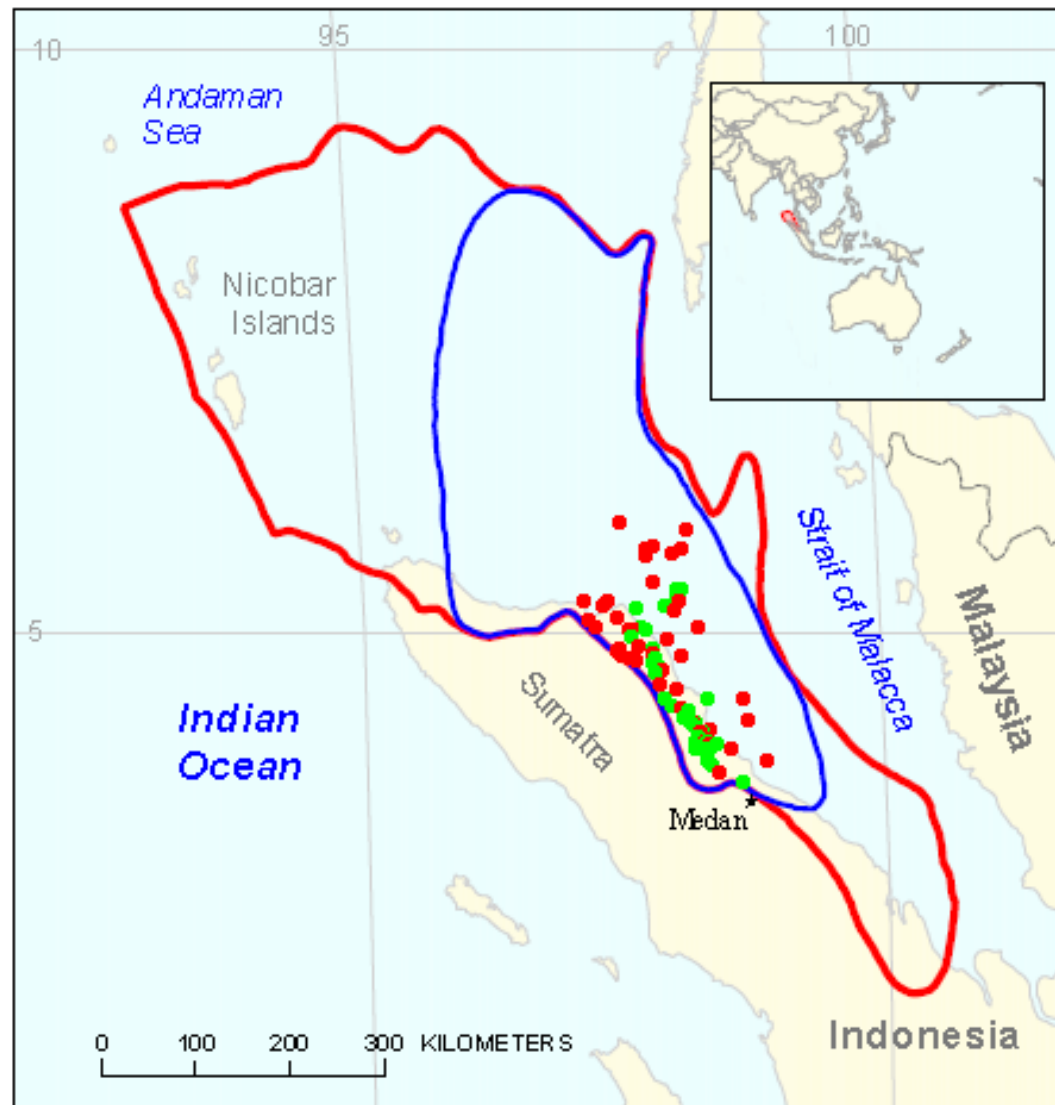




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North Sumatra Basin Geologic Province 3822





Province Assessment
Output Summary

Undiscovered Field Size
Distributions

Total Petroleum Systems

 Bampo-Cenozoic
Total Petroleum System 382201

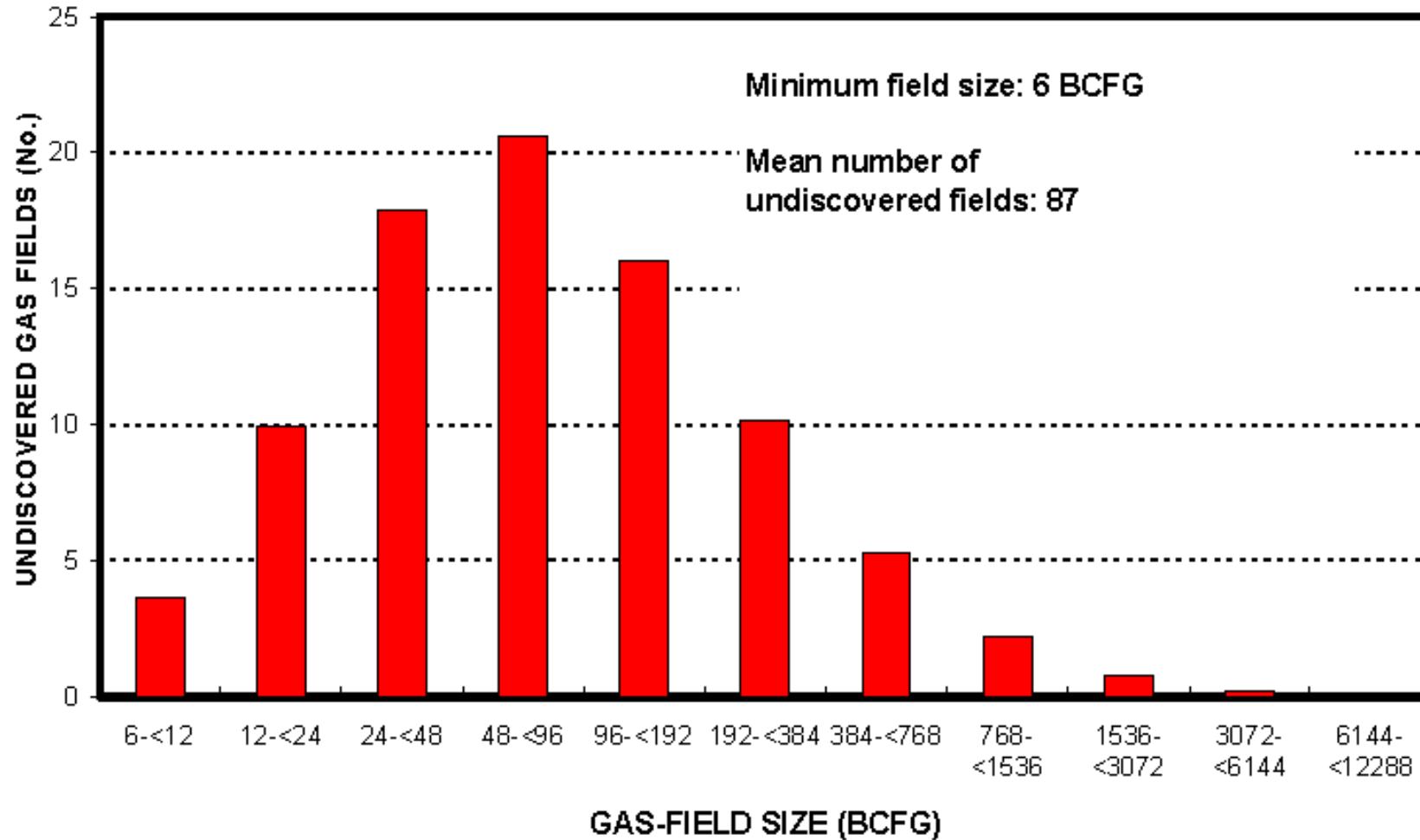
 Bampo-Cenozoic Total Petroleum System 382201
 North Sumatra Basin Geologic Province 3822



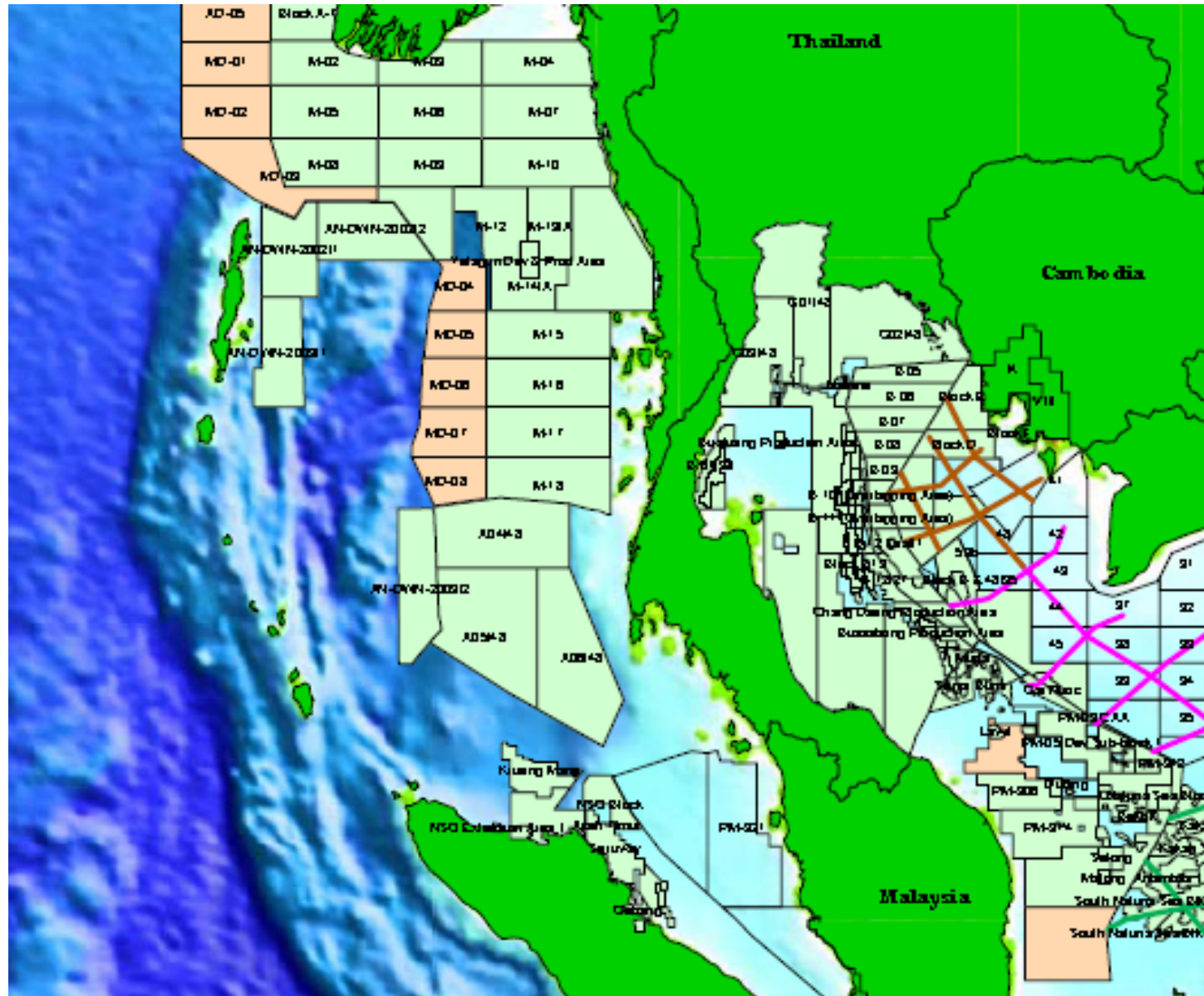
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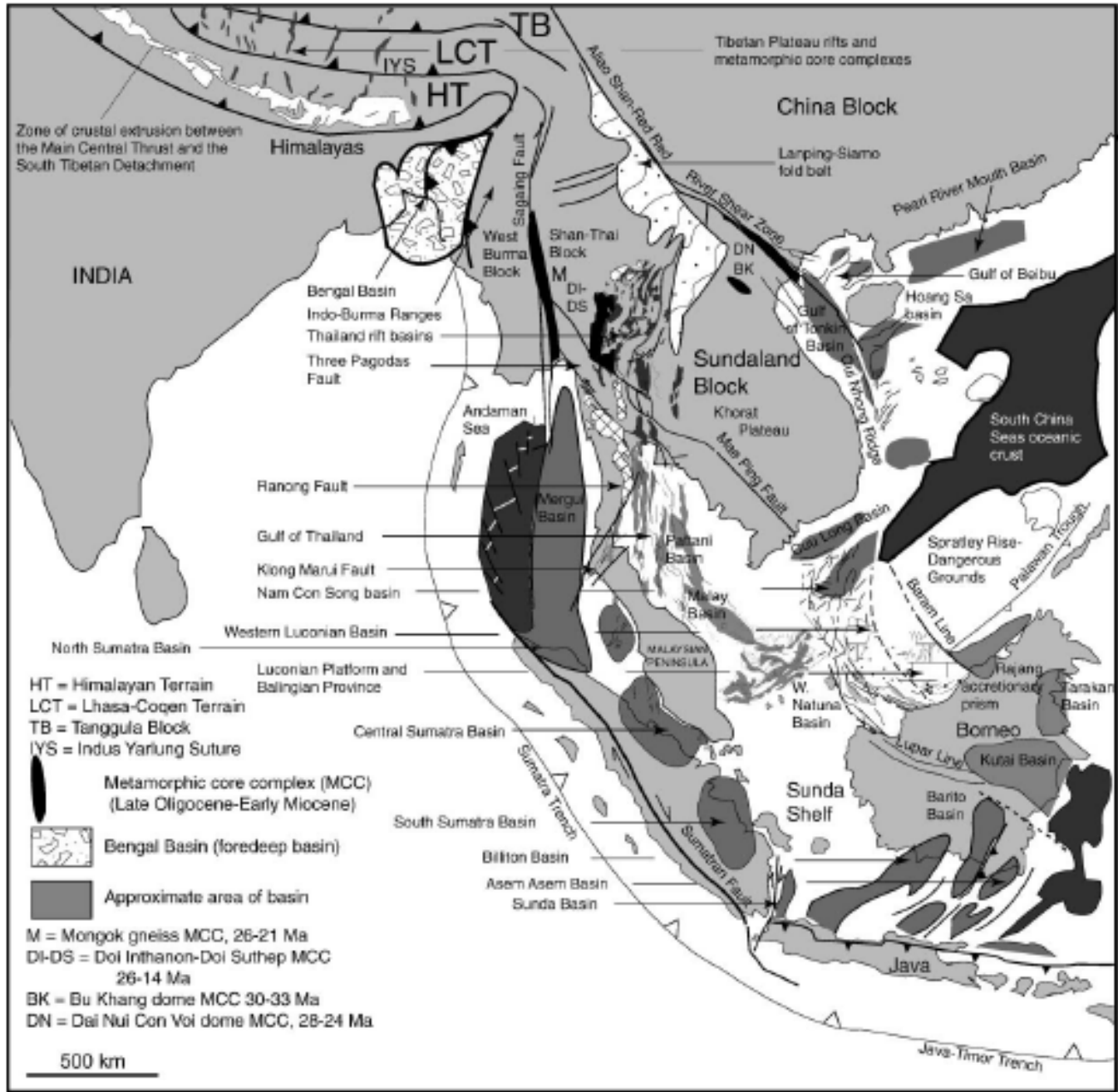


North Sumatra Basin, Province 3822 Undiscovered Field-Size Distribution

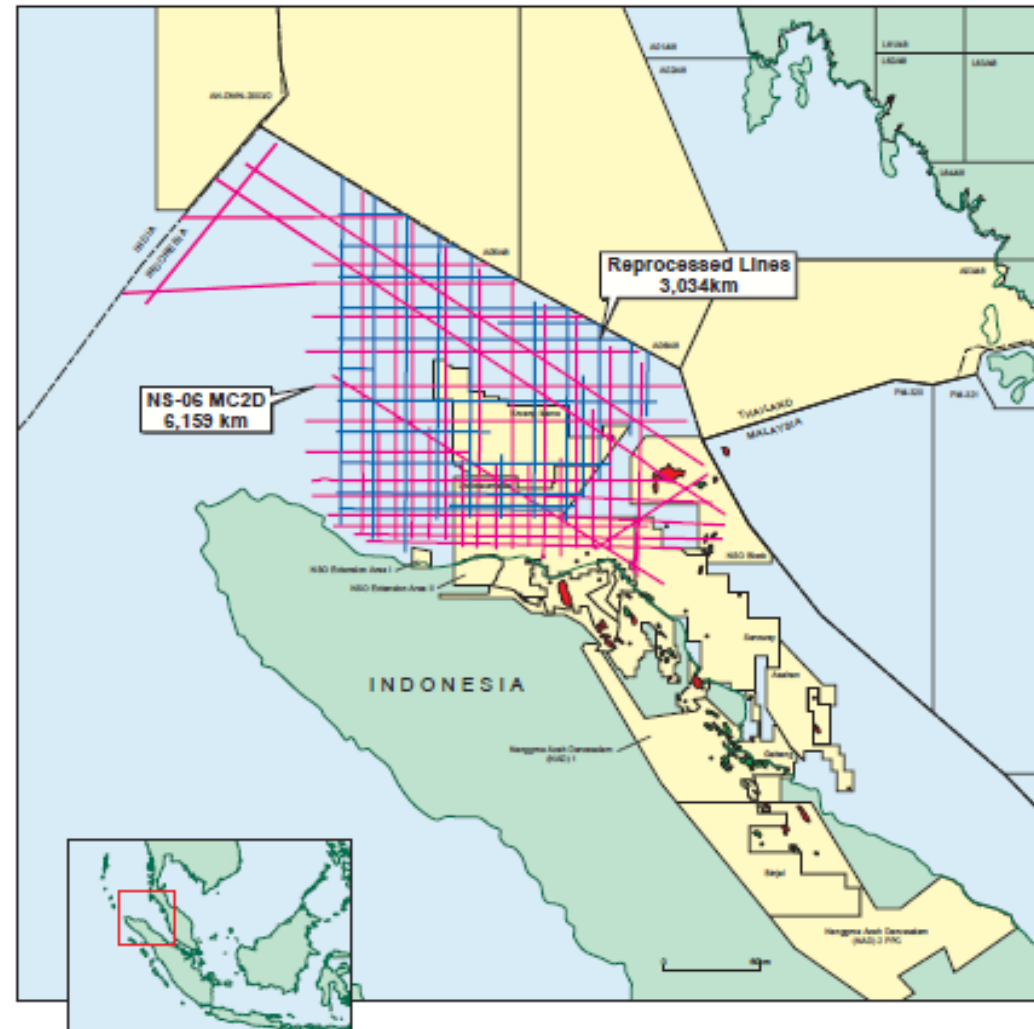


Anmdaman Sea-& Megui Area





PGS NS-06 MC2D



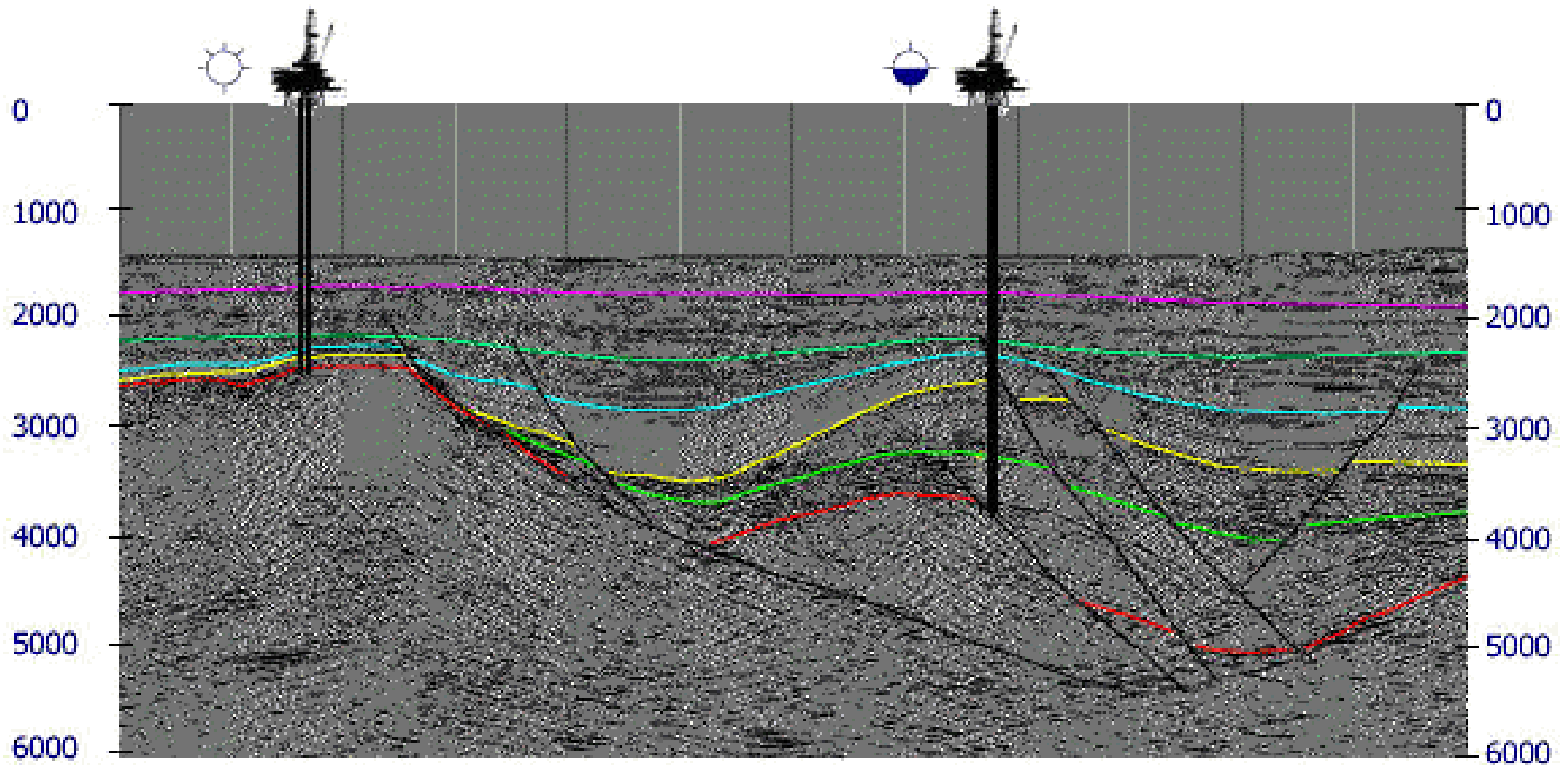
Total km 6159 km

Andaman Sea

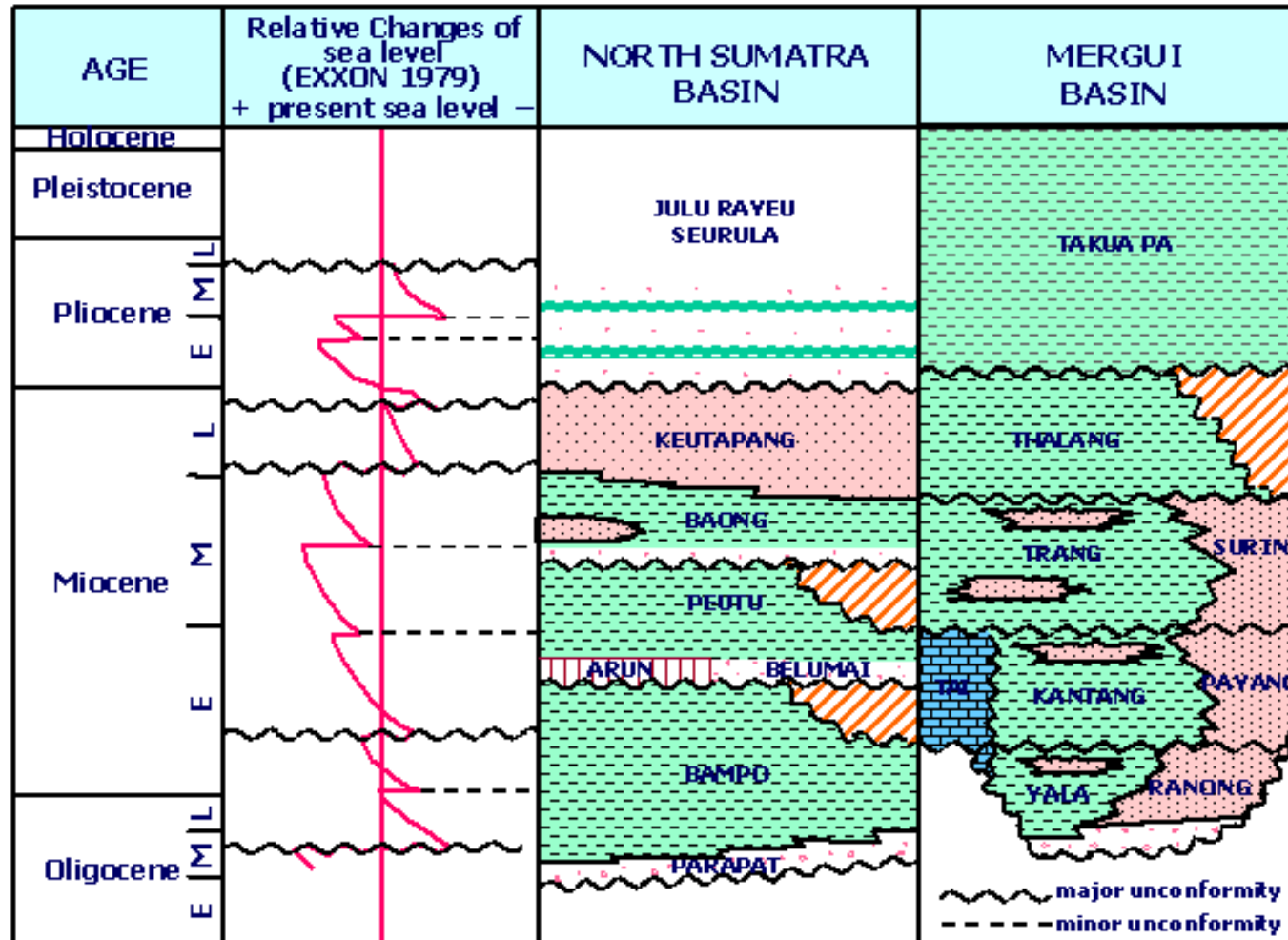
The Andaman Sea is located in the western Thailand. The region is divided into two parts by shelf margin, the shallow and deep water parts. The Mergui, the transtensional back arc basin, is situated mainly in the deep water. The basin is the northern extension of North Sumatra Basin. The Mergui Basin is the only one Tertiary basin of which sediments are truly marine origin. Two un-appraised gas prospects have been found and several gas show were encountered in the Oligocene sandstones. Early Miocene sandstones and carbonate build-ups formed on the horst and shelf margin are excellent in quality and would be potential reservoirs. Oligocene and Early Miocene shales with landplant-derived organic matters are potential source rocks. However, matured source rocks are mainly restricted in the deep part of the basin. A variety of play types can be found both structurally and stratigraphically. A number of structural traps presented are related to extensional and transtensional tectonics. The untested stratigraphic plays of Middle Miocene turbiditic sandstone and pinch-out of Oligocene sandstone against basement are the prime target for future exploration. Three shallow water blocks and one deep water block are available for bid.

X section The Mergui basin

Seismic Cross-Section of the Mergui Basin



Stratigraphy



Useful references

- ◆ Petroleum systems of Indonesia (Doust and Nobile, 2007)
- ◆ North Sumatra 3822 USGS
- ◆ Central Sumatra Basin 3808 USGS