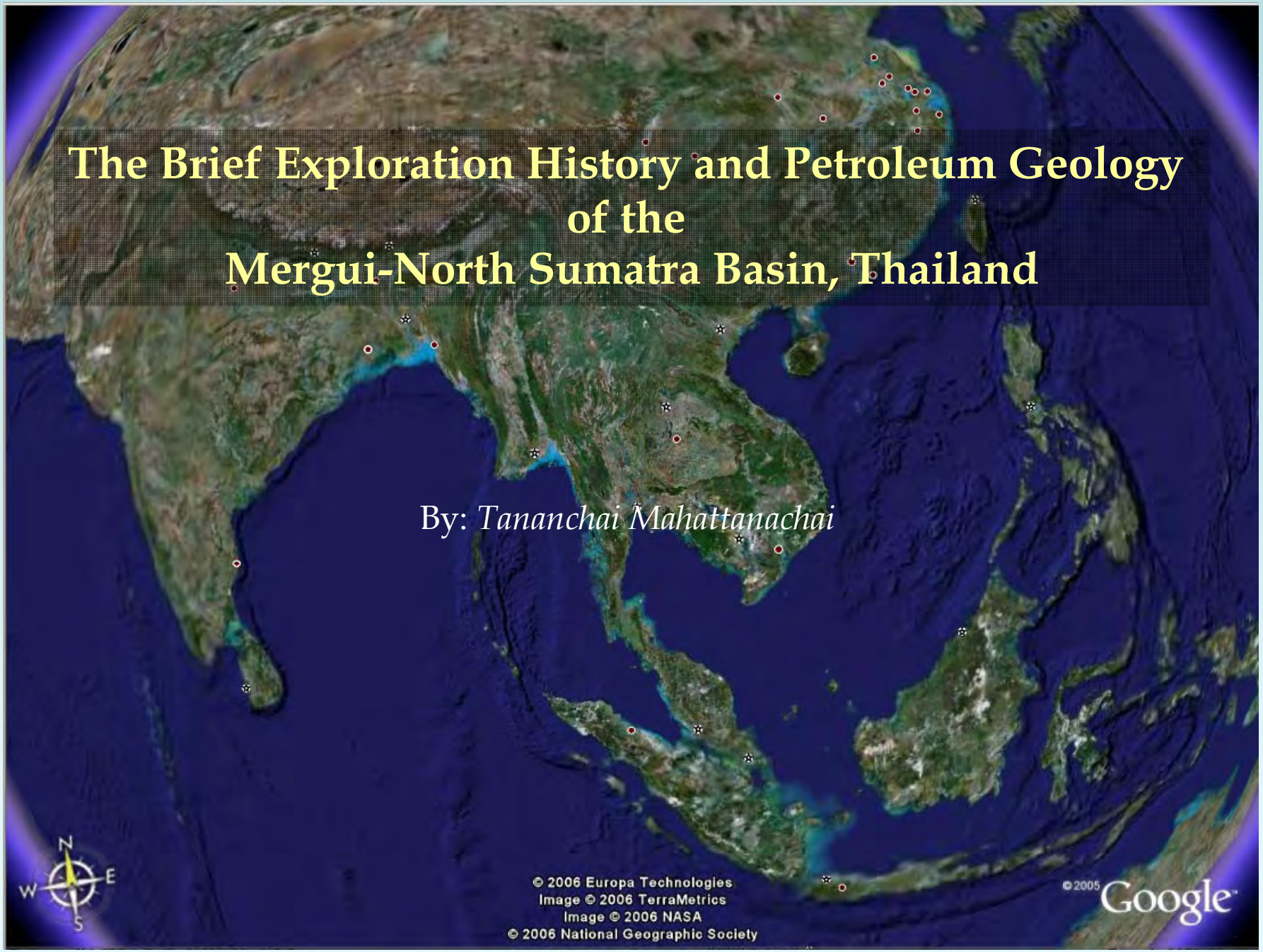
The Brief Exploration History and Petroleum Geology of the Mergui-North Sumatra Basin, Thailand



By: *Tananchai Mahattanachai*

Contents of Presentation

1. Exploration History
2. General Geology & Hydrocarbon Potential
3. Current Activities
4. Challenges
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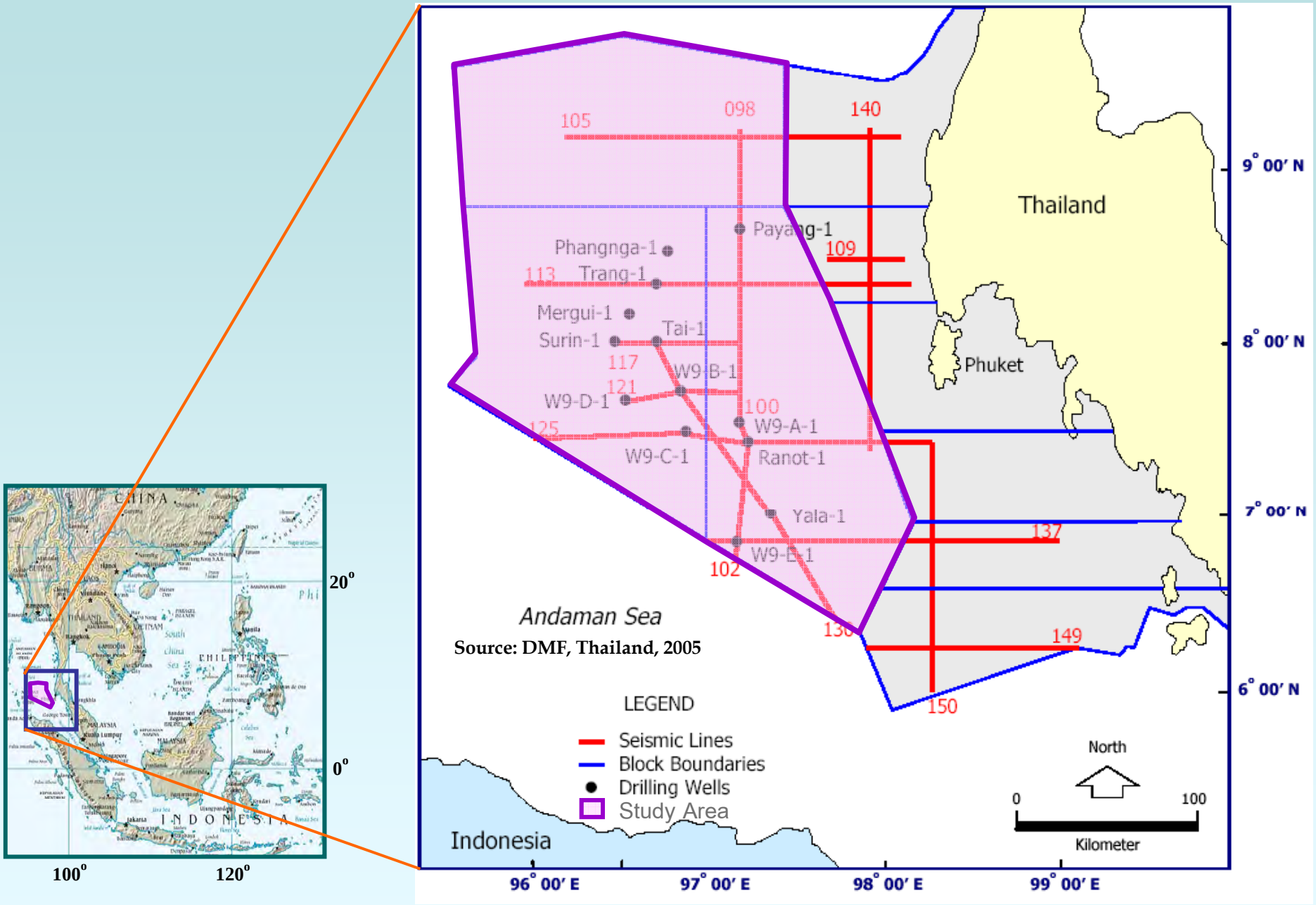
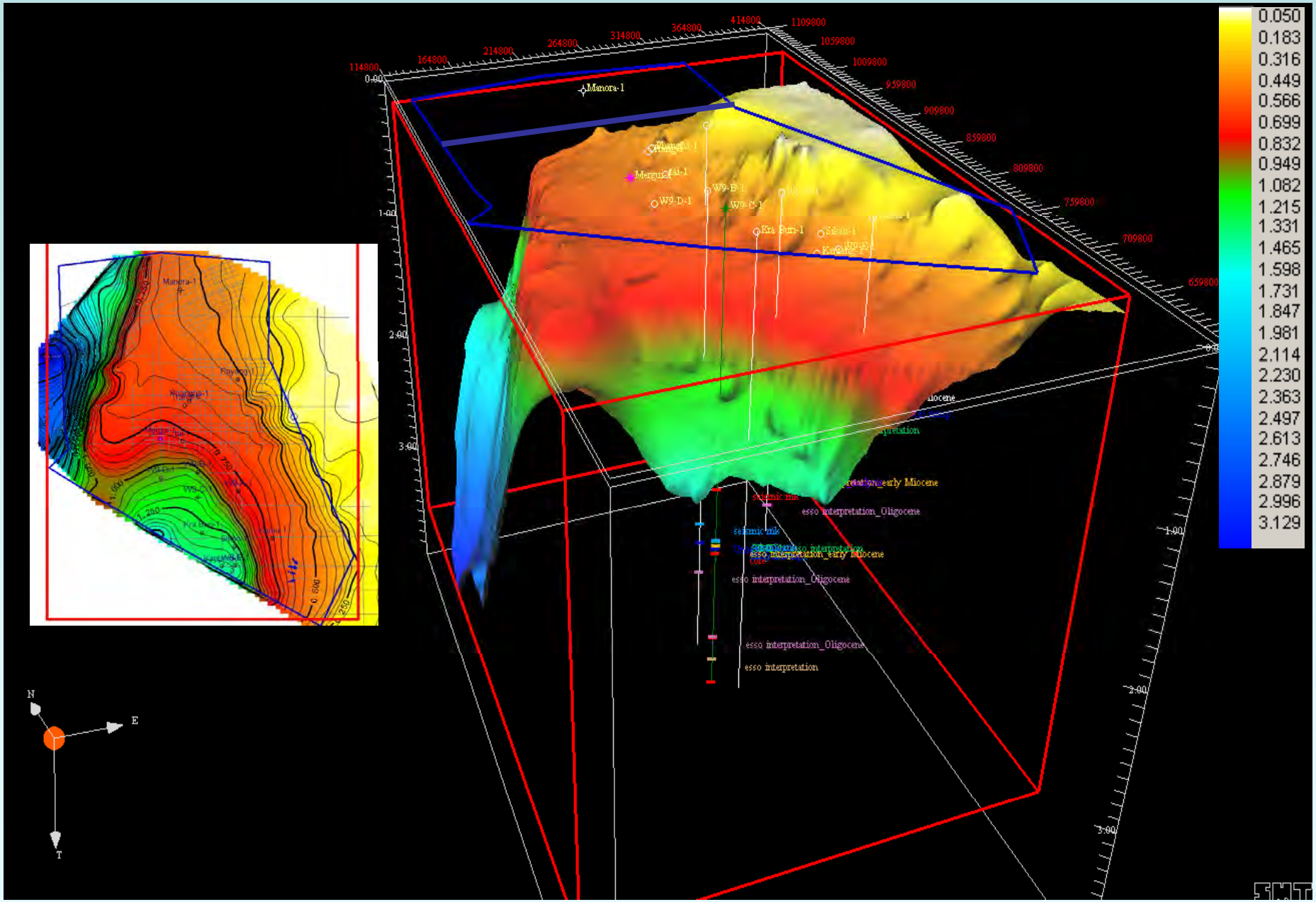
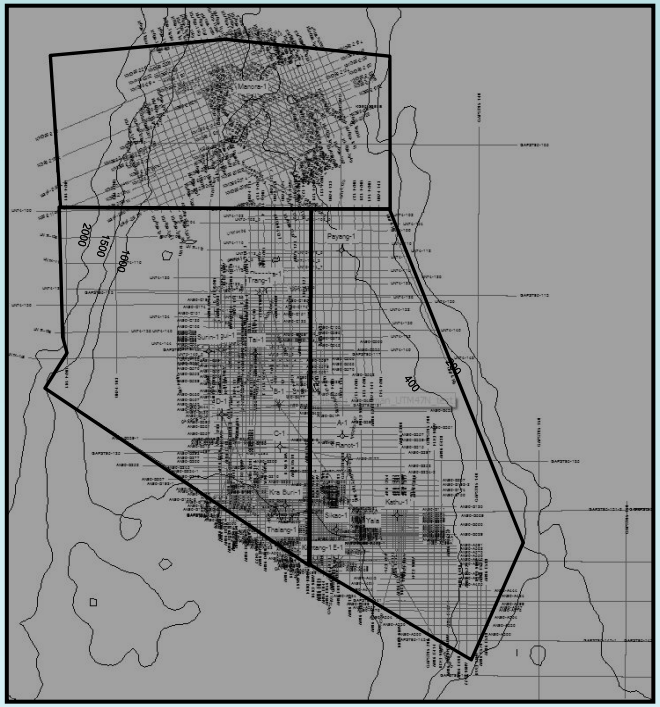
Location Map of the Study Area



Seafloor Geometry



Exploration History



Seismic Data

The seismic data consist of more than 1,000 seismic lines, with total length of about 45,000 km. covering the area of Block W7/38, W9/38 and A4/43 (W8/38).

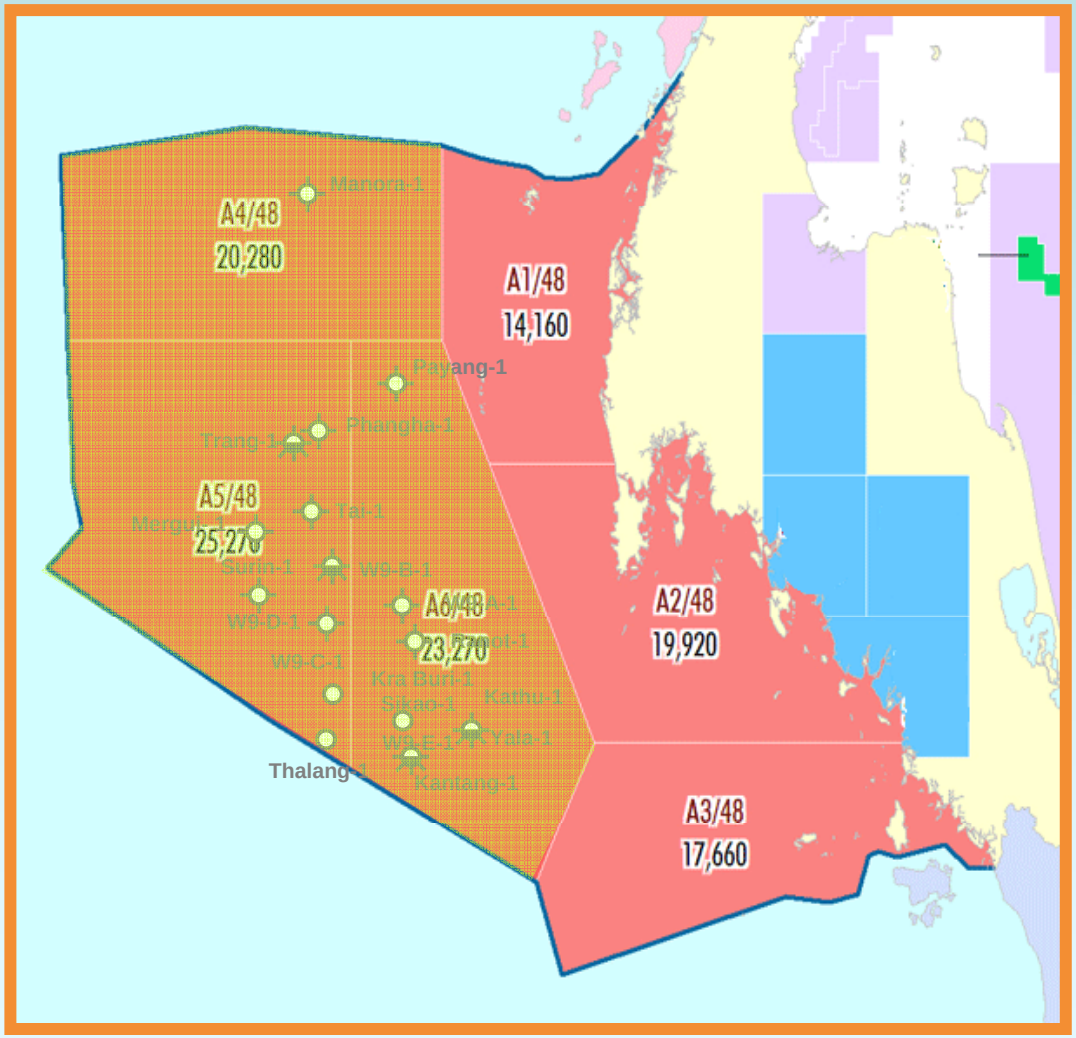
Seismic Surveys in the Andaman Sea			
Operator	**Block**	**Duration**	**2D (km)**
Amoco	W2	1974	**452.00**
DMR	Andaman Sea	28 Apr-23 May 1995	**3,298.00**
ESSO	W9	1974-1975	**11,785.00**
Kerr-McGee	W7/38	19 Apr - 10 May 1998	**3,875.50**
		9-19 Feb 1999	**1,332.30**
Oceanic	W7	1974	**2,097.00**
Pan Ocean	W3,W4	1970, 1972	**1,390.00**
Placid Oil	W8	1985	**834.00**
Union Oil	W8	1973	**7,163.00**
Unocal	W8/38, W9/38	29 Nov 1996-11 Feb 1997	**11,737.00**
Weeks	W1	1973	**910.00**
Shell			
Total			**44,873.80**

Magnetic Survey in the Andaman Sea			
Kerr-McGee	W7/38	1998	**3,820.40**

Exploration History

OPERATOR	WELL NAME	BLOCK	SPUD DATE	RELEASE DATE	RESULT
ESSO	W9-A-1	W9	15-Dec-75	01-Mar-76	DRY
ESSO	**W9-B-1**	W9	04-Mar-76	22-Mar-76	GAS&OIL SHOWS
ESSO	W9-C-1	W9	01-Jun-76	01-Sep-76	DRY
ESSO	W9-D-1	W9	03-Aug-76	02-Sep-76	DRY
ESSO	W9-E-1	W9	05-Sep-76	13-Nov-76	DRY?
UNOCAL	**TRANG-1**	W8	11-Mar-76	28-May-76	GAS&OIL SHOWS
UNOCAL	TAI-1	W8	28-May-76	28-Jun-76	DRY
UNOCAL	PHANGHA-1	W8	30-Jun-76	13-Jul-76	DRY
UNOCAL	**MERGUI-1**	W8	16-Jul-76	02-Sep-76	OIL SHOWS
UNOCAL	PAYANG-1	W8	04-Sep-76	17-Sep-76	DRY
UNOCAL	SURIN-1	W8	20-Sep-76	02-Oct-76	DRY
UNOCAL	THALANG-1	W9/38	11-Oct-97	29-Oct-97	DRY
UNOCAL	KANTANG-1	W8/38	25-Oct-97	05-Nov-97	DRY
UNOCAL	KRA BURI-1	W9/38	06-Nov-97	23-Nov-97	DRY
UNOCAL	SI KAO-1	W8/38	05-Nov-97	03-Dec-97	DRY
UNOCAL	KATHU-1	W8/38	06-Dec-97	10-Dec-97	DRY
PLACID	**YALA-1**	W8	20-Sep-76	20-Oct-76	GAS SHOWS
PLACID	RANOT-1	W8	28-Jan8-7	18-Feb-87	DRY
KERR-McGEE	MANORA-1	W7/38	22-Feb-00	13-Mar-00	DRY

Exploration History



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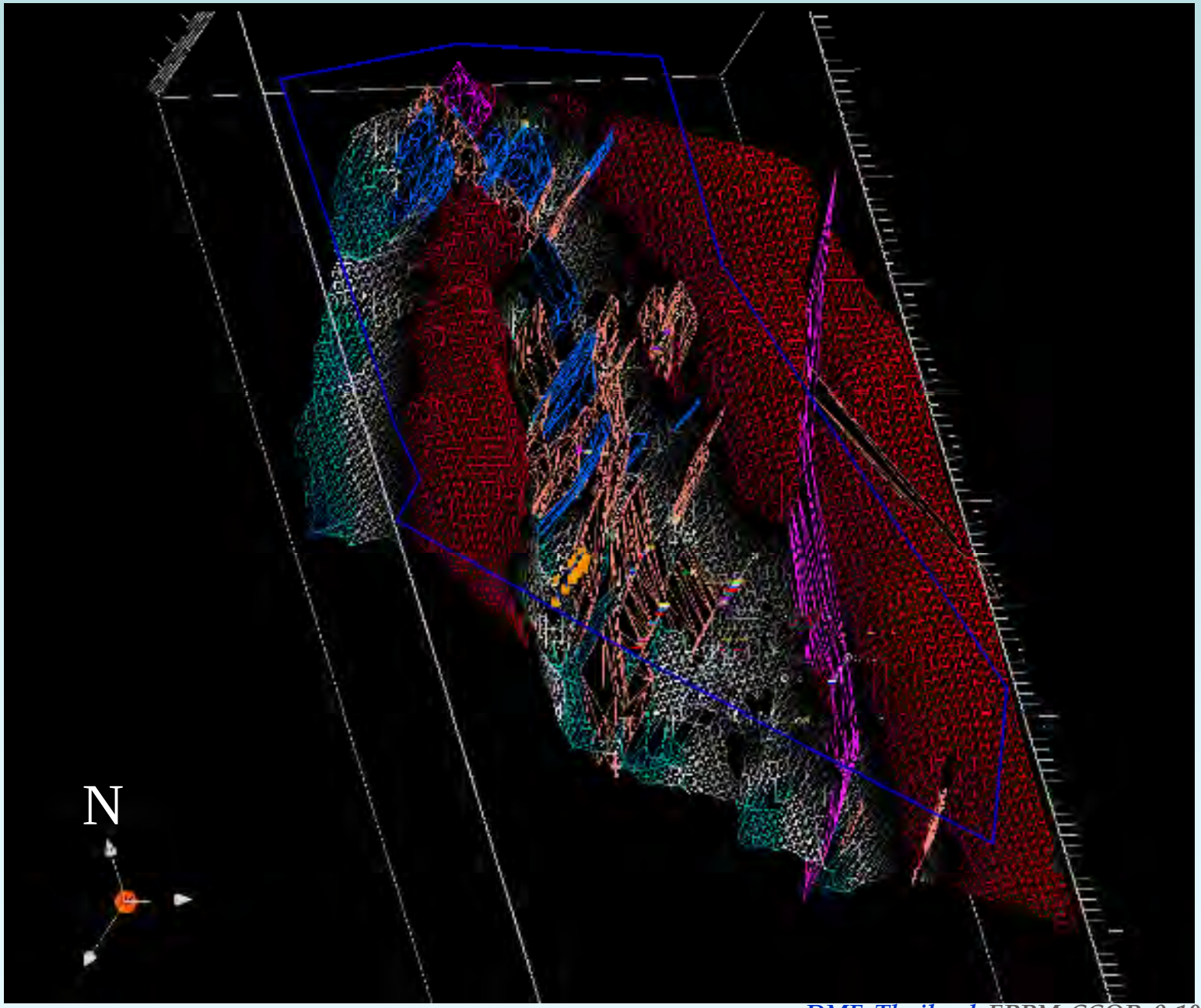
Basin Architecture



Stratigraphic Correlation of the Mergui and N-Sumatra Basin

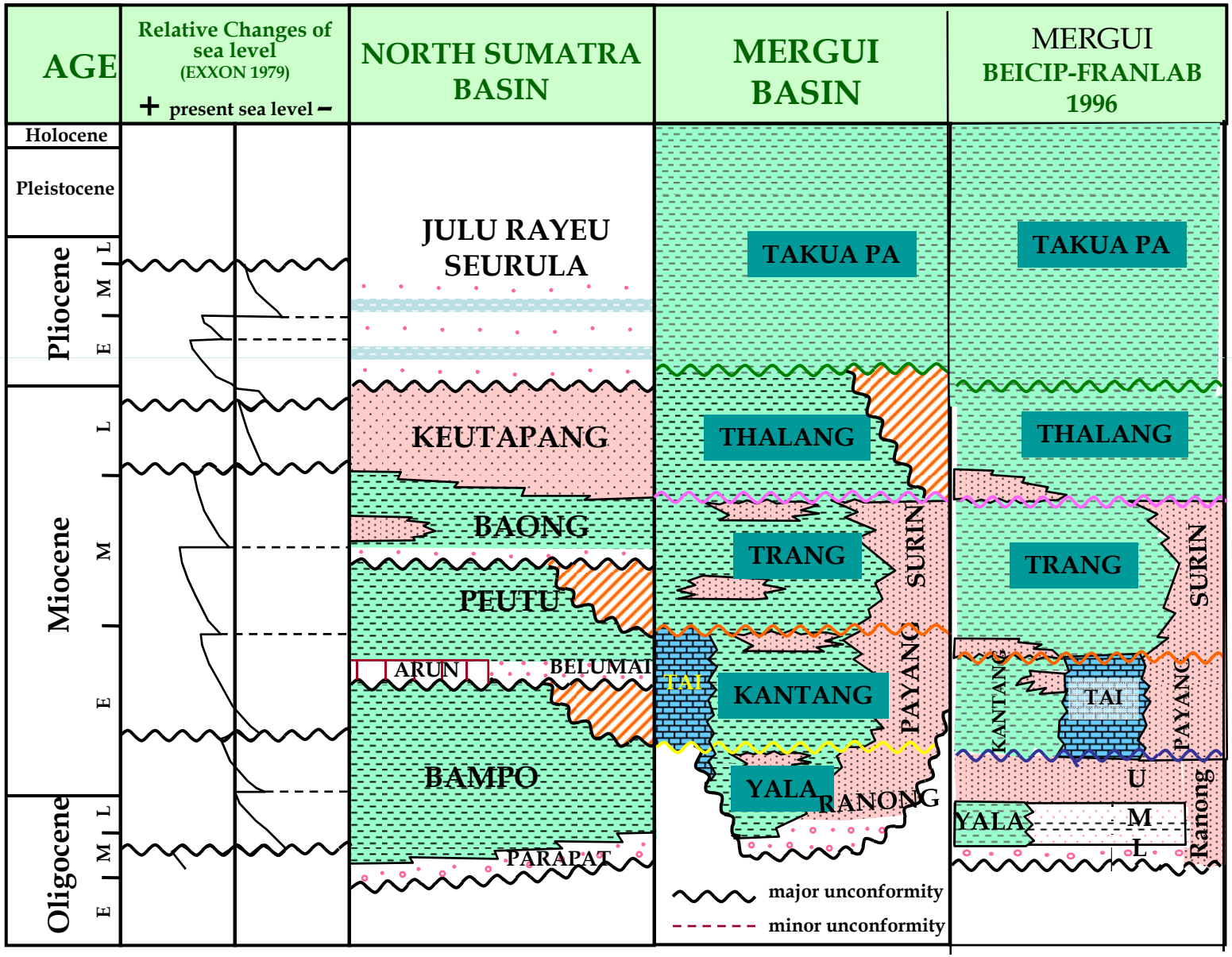
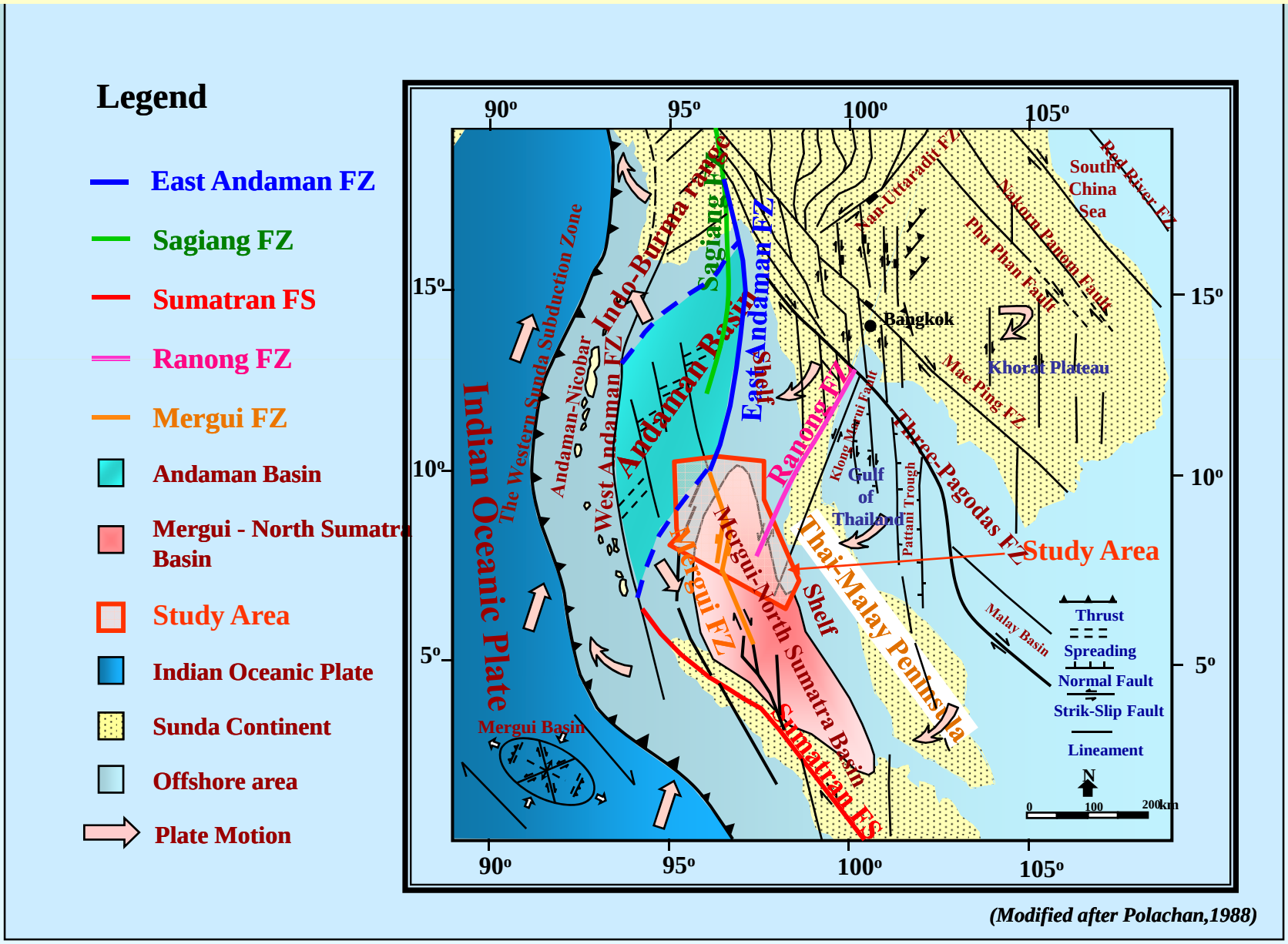
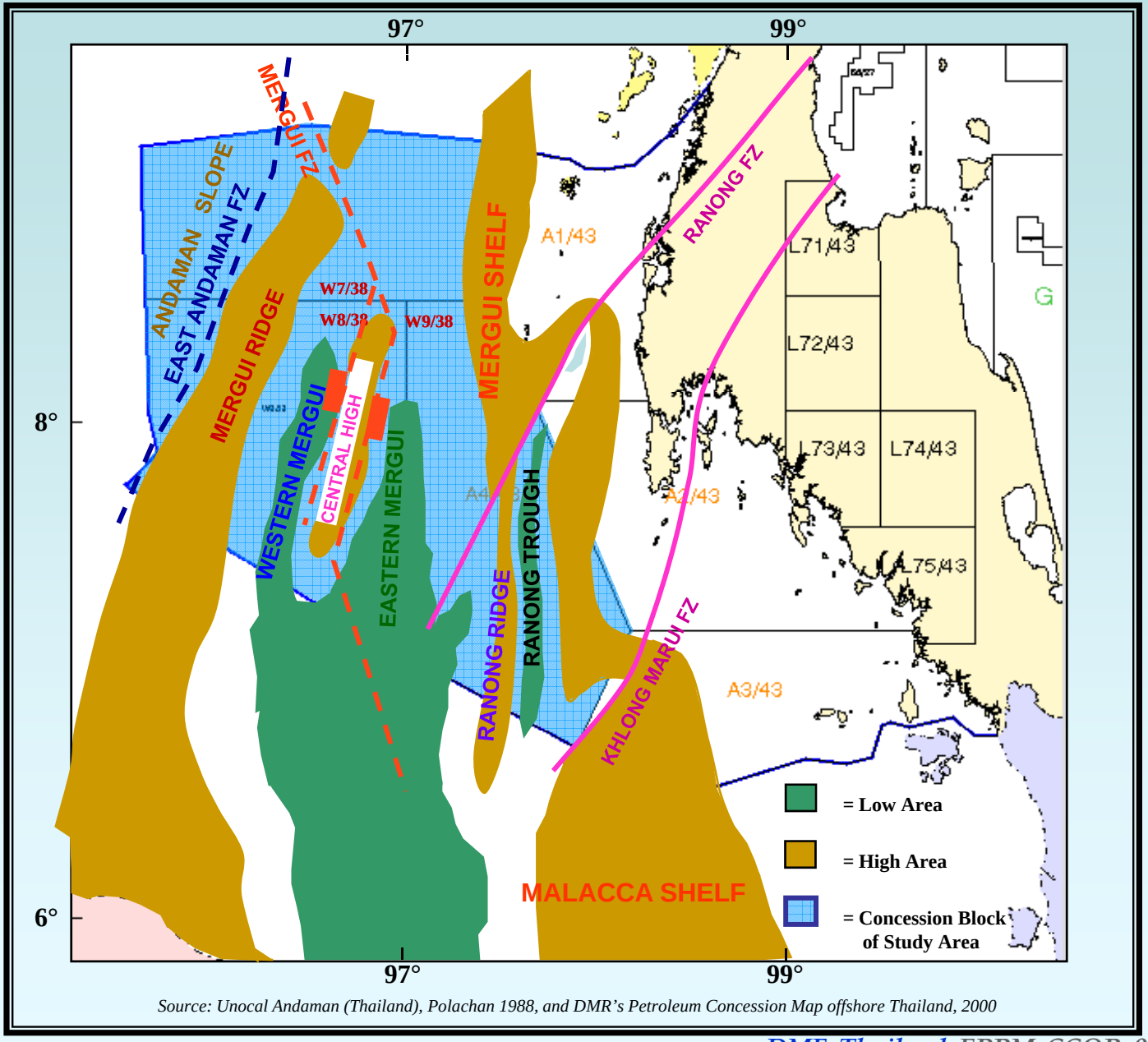


Plate Motions and Simplified Structural Framework of Cenozoic Basins in the Gulf of Thailand and the Andaman Sea



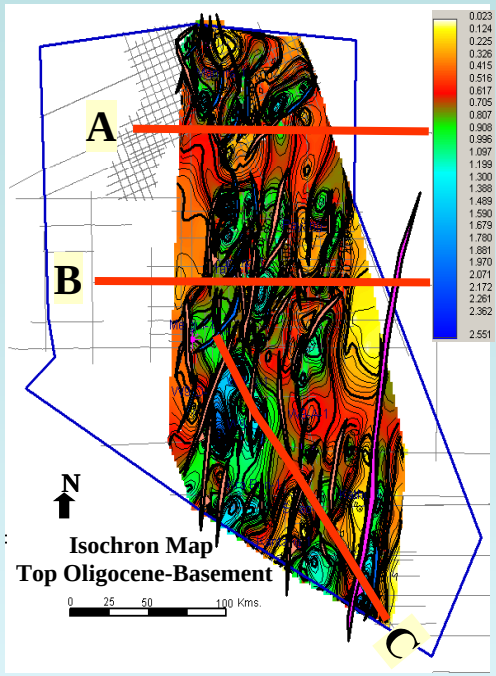
(Modified after Polachan,1988)

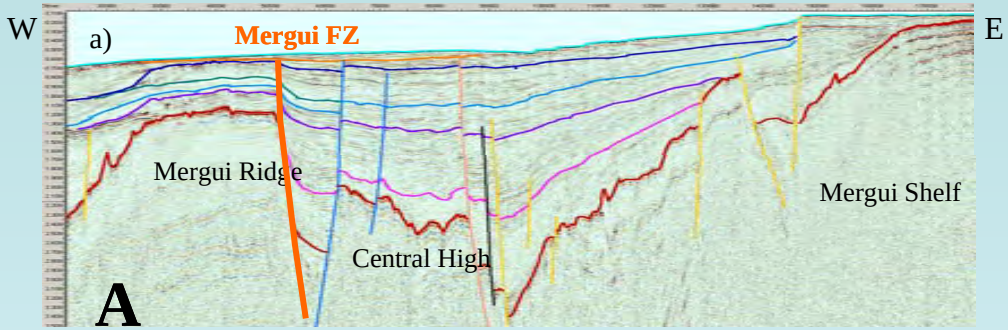
Physiographic Map of the Mergui Basin, Andaman Sea

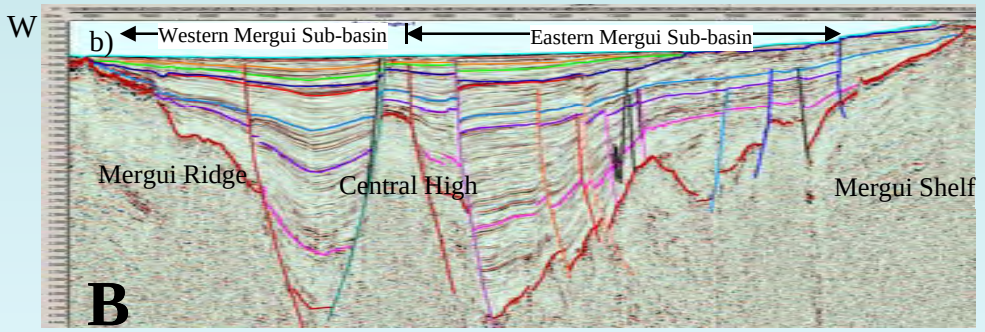


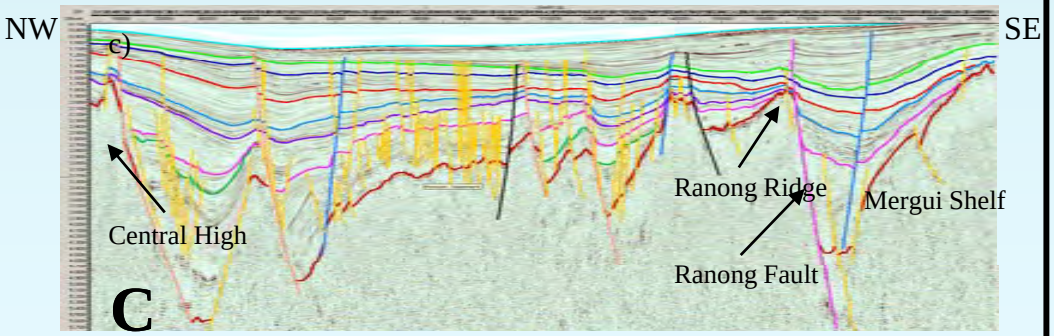
Source: Unocal Andaman (Thailand), Polachan 1988, and DMR's Petroleum Concession Map offshore Thailand, 2000

Seismic Vertical Sections across the Northern, the Central, and the Southern areas.



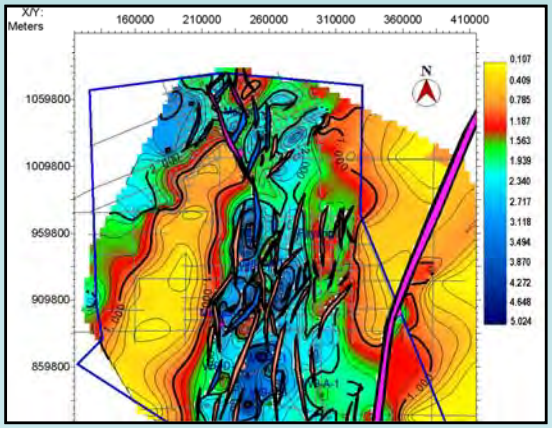


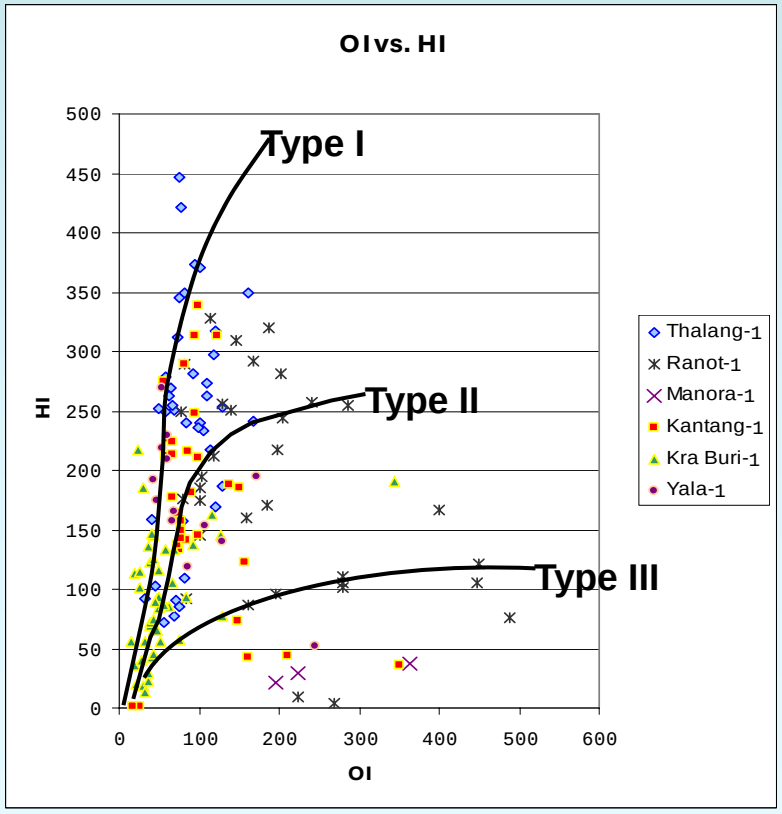


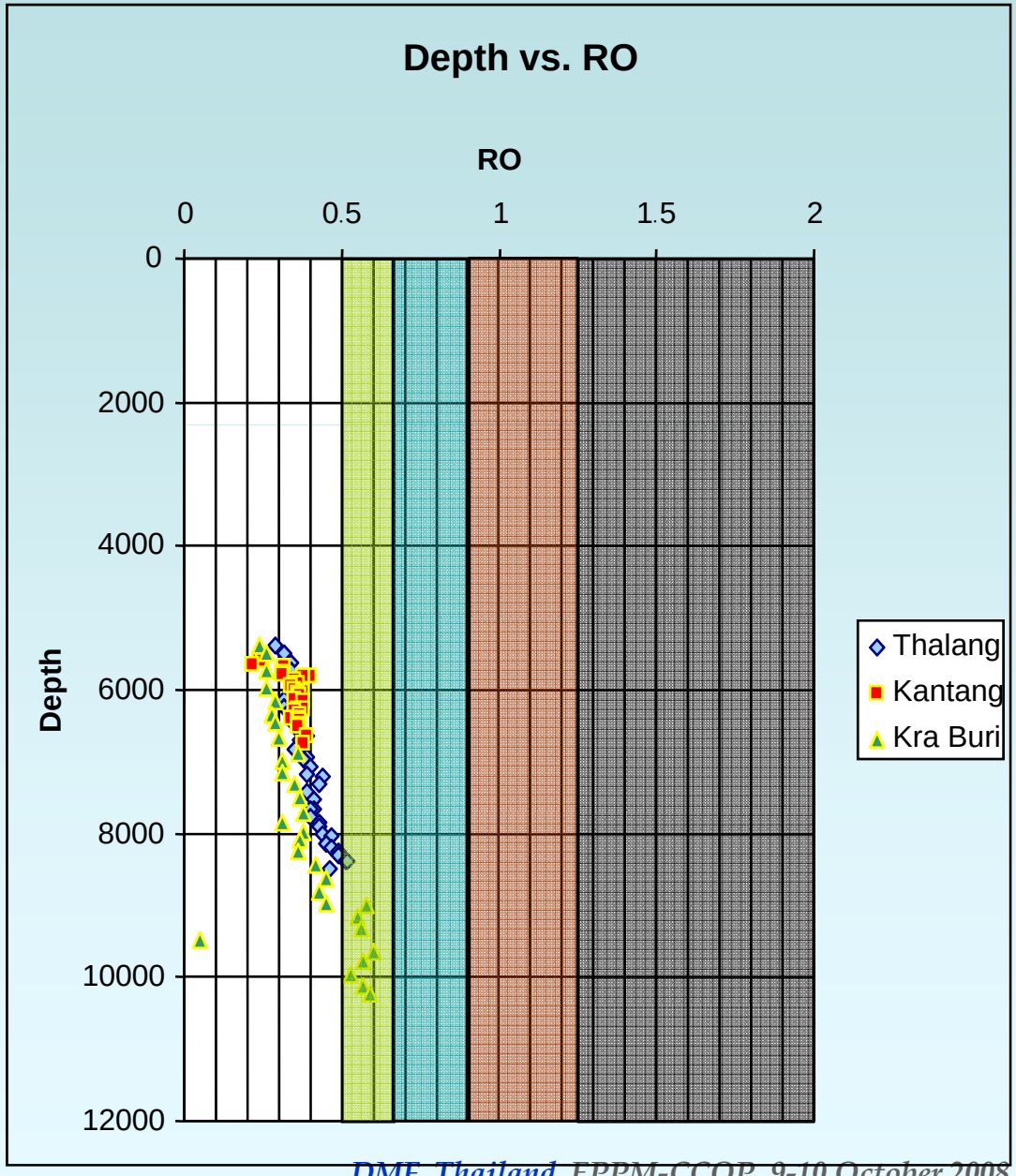


- Seabed
- Top Upper Miocene
- UMU
- SIMF2
- SIMF1_5
- SIMF1
- Seismic Basement

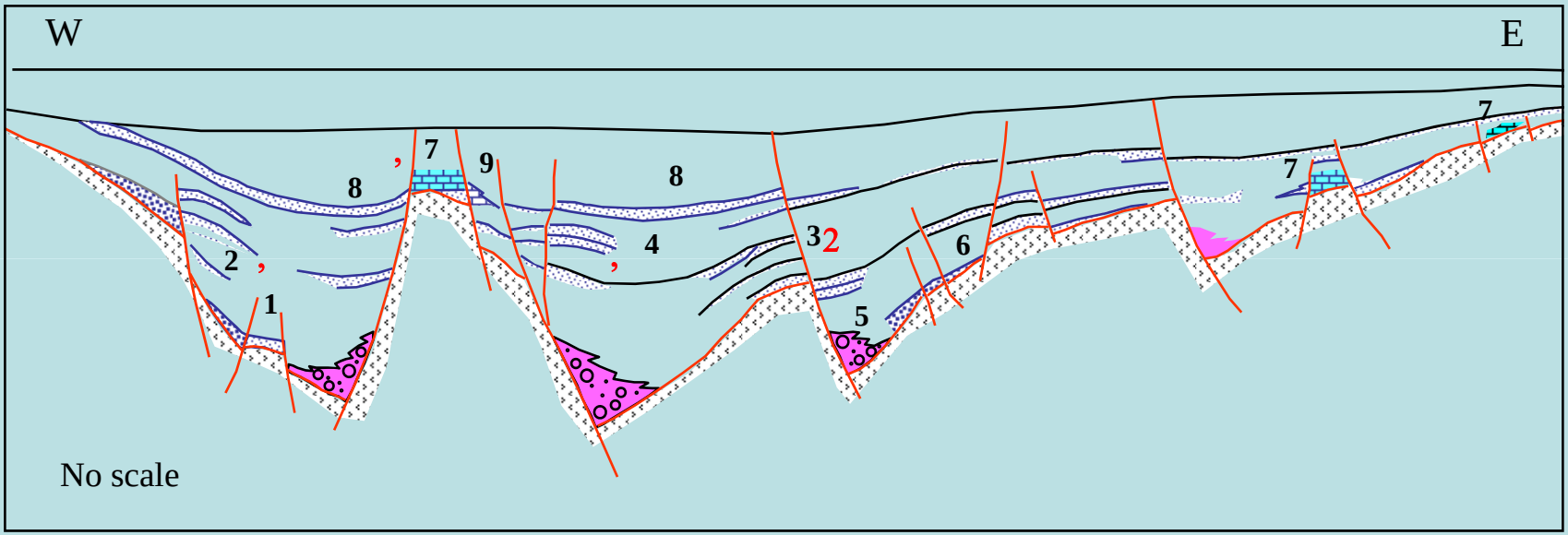
Petroleum Source Rocks







Conceptual Play Types in the Mergui Basin



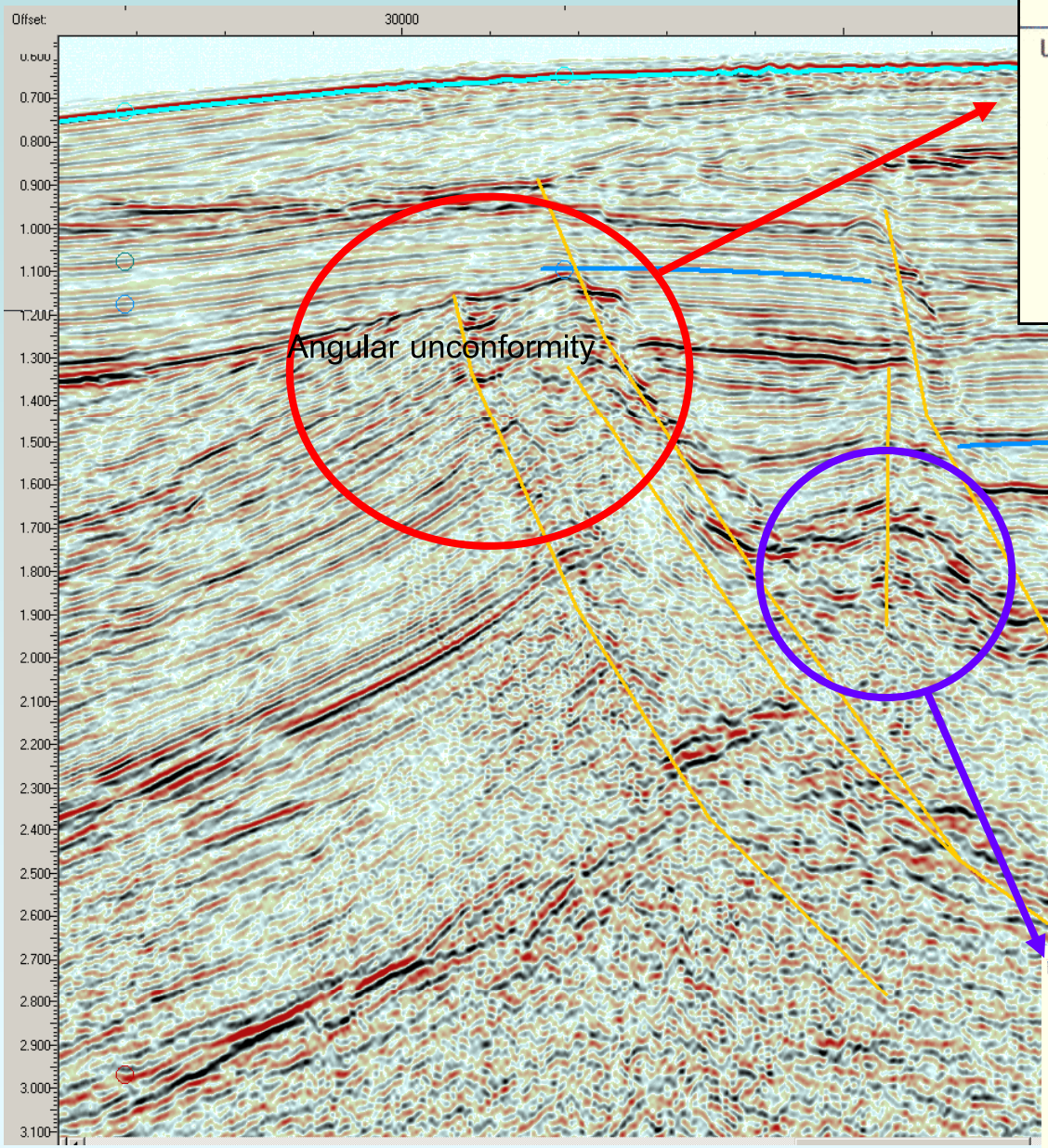
Structural Traps

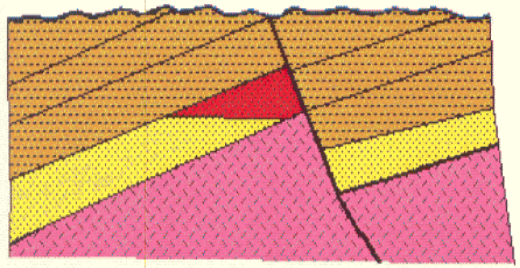
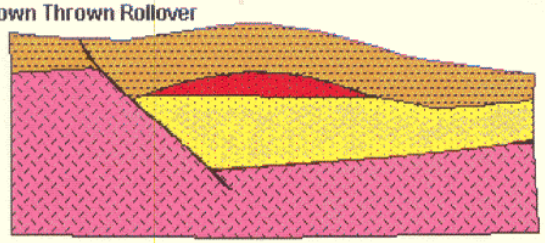
1) Drape over Basement High of Lower Oligocene Deltaic sand
2) Roll-over of Upper Oligocene sand
3) Crest of block of Oligocene sand
4) Drag fold of Lower Miocene sand

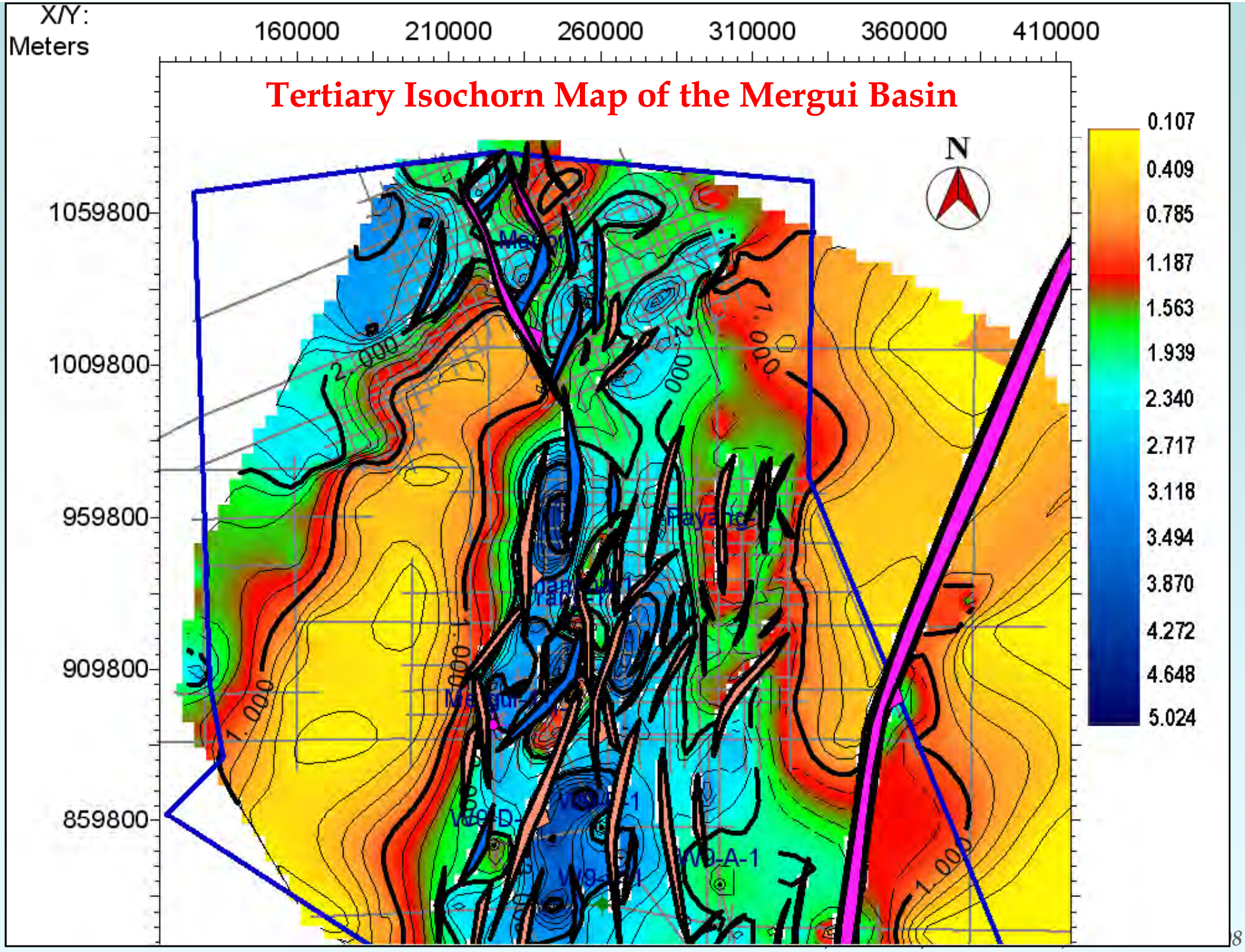
Stratigraphic Traps

5) Oligocene Basin Floor Fan
6) Pinch-out of Lower Oligocene Deltaic sand
7) Lower Miocene Carbonate Buildups
8) Mid-fan Turbidite of Lower Miocene sand
9) Miocene Conglomerate reef

Petroleum Play Type



Play Type	Example
Upthrown Fault Trap 	Myanmar Offshore Mergui Basin Block W7
Down Thrown Rollover 	Mergui Basin Natuna Sea Central Sumatra Block W7



Tertiary Isochorn Map of the Mergui Basin

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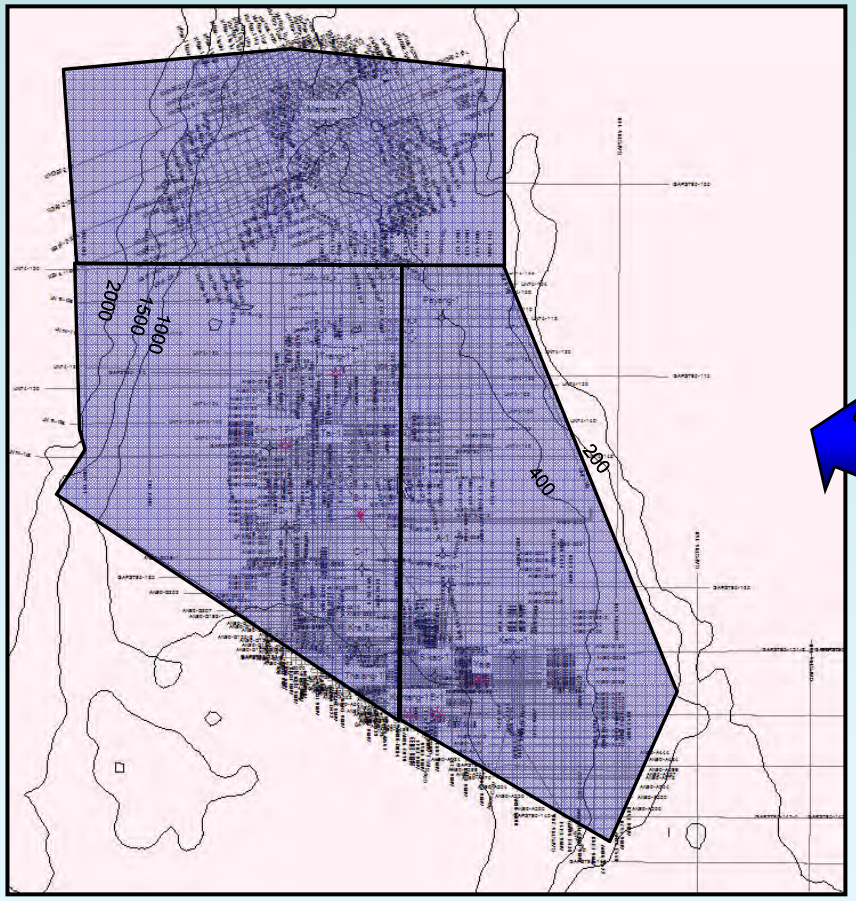
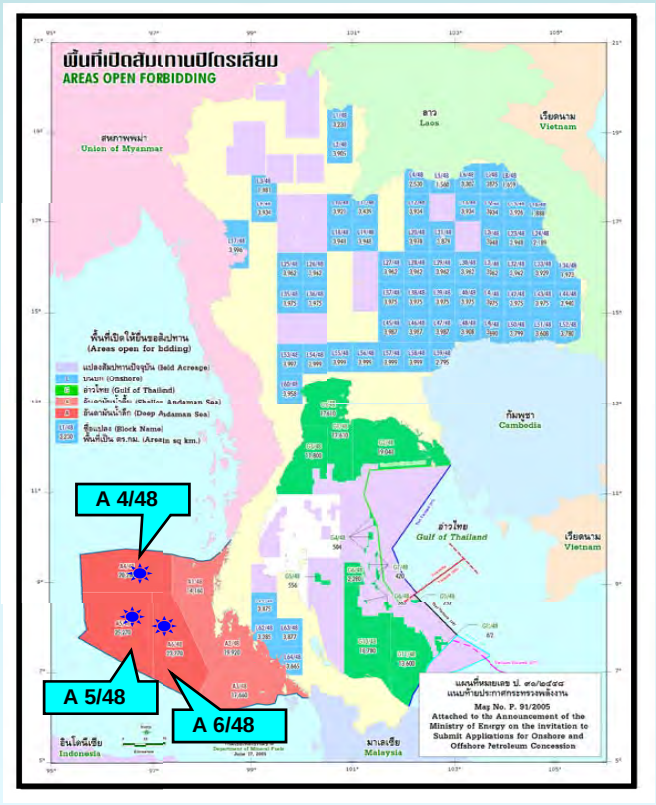
Exploration Activities Block A4, A5 & A6/48

- Acquiring 2D Seismic
- G&G studying
- Prospect area ranking

Block	Area (Km2)
A 4/48	20,280
A 5/48	25,270
A 6/48	23,270





- Feasibility Studying

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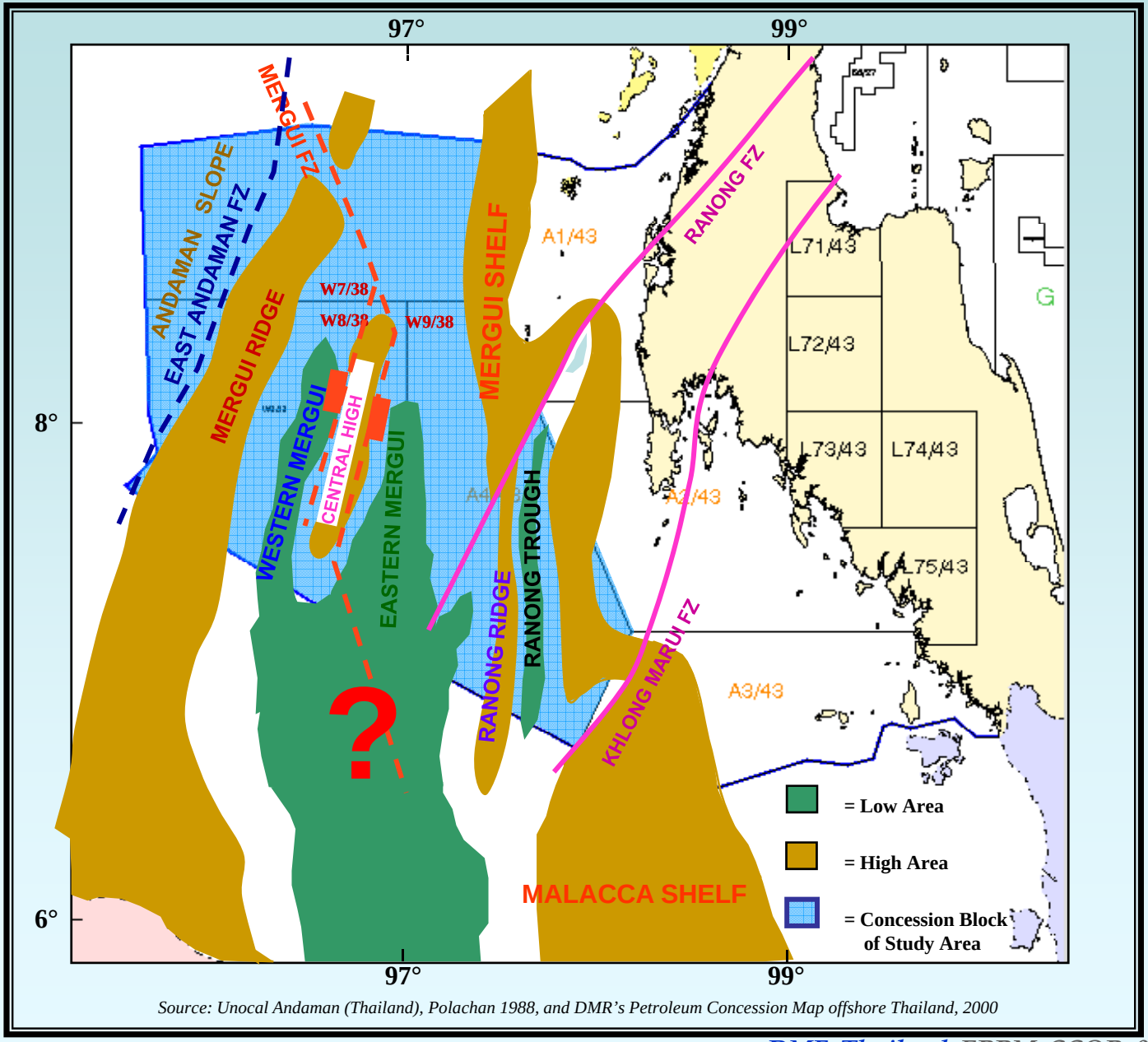

Source: Unocal Andaman (Thailand), Polachan 1988, and DMR's Petroleum Concession Map offshore Thailand, 2000

Challenges

1. Quantitative Petroleum potential assessment

2. Additional Resource in the north

3. Strengthen academic connection among geo-scientists

4. New exploration technology in deep water
   and New Oil Era

Conclusions

1. Reviewing of exploration history indicates petroleum potential in this area

2. Outstanding petroleum reservoir was noticed by amount of sedimentary supply

3. Petroleum charging from source to traps is expected and needed to be carried on the study

4. Challenging in petroleum field development