

# New Exploration Insights from the Latest MultiClient 3D in Offshore Sarawak, Malaysia

by: Tad Choi (PGS), Nicolas Hand (TGS) and Ching Tu (SLB)





## Outline of talk

---



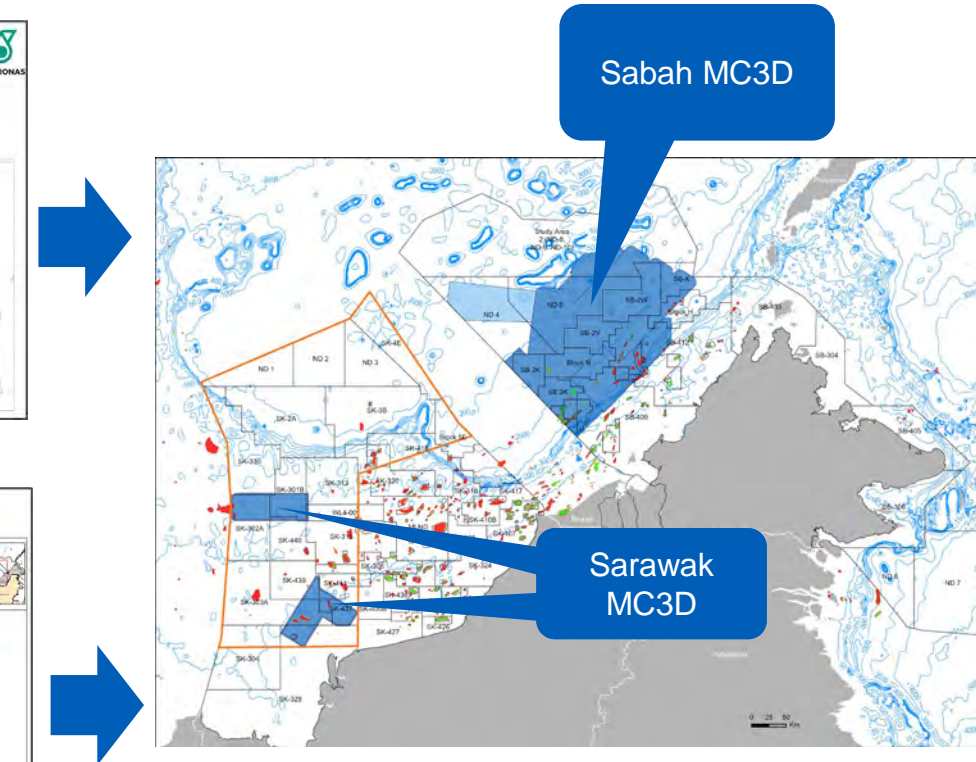
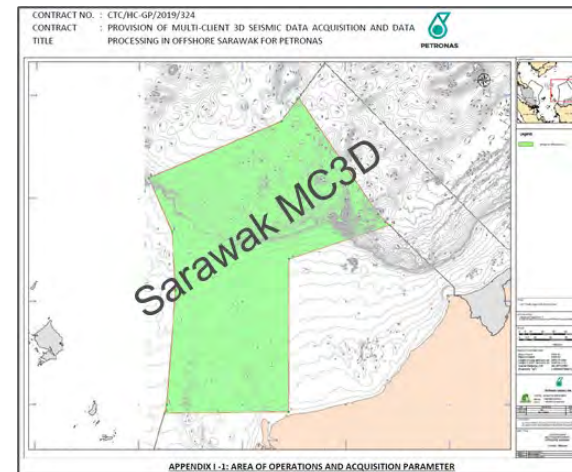
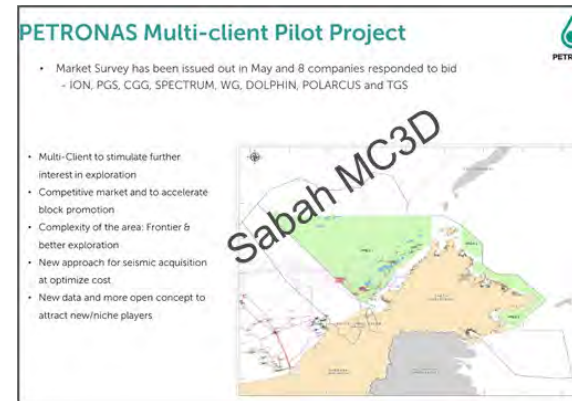
- 3-way JV collaboration - MultiClient in Malaysia (NW Borneo) – where we are today
- Regional context
- Geological insights from the new Sarawak MC3D
- Future activities
- Summary
- Acknowledgments



# MultiClient in NW Borneo

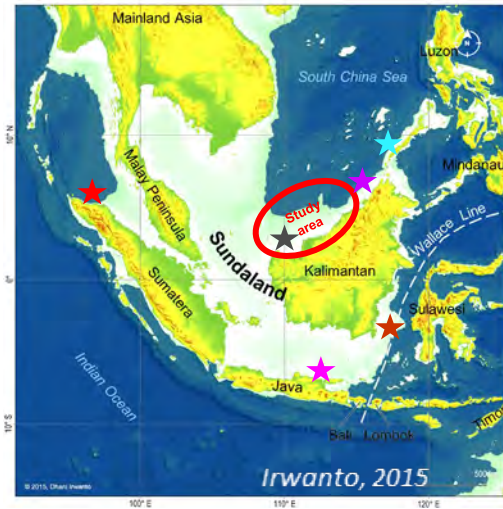


- In 2015 Malaysia opens to MultiClient Model and a Market Survey/Tender is issued for Sabah offshore area.
- Awarded in 2016 to **PGS, TGS, SLB consortium**.
- **First ever MultiClient survey kicked off in Sabah in late 2016**. The JV as of now has **completed over 47,000sqkm** of Multisensor 3D over the Sabah Basin. An **additional 3,500sqkm** being acquired now.
- The success of the Sabah MC3D led to another Market Survey/Tender in 2019 to expand Multiclient over the **Sarawak Basin**.
- The **same JV is awarded in 2020** and kicked off the MultClient campaign with first shot of **Sarawak MC3D Phase 1** in October 2021. 8,500sqkm of PSDM data available now. **Phase 2 to commence in Q2 2023**.



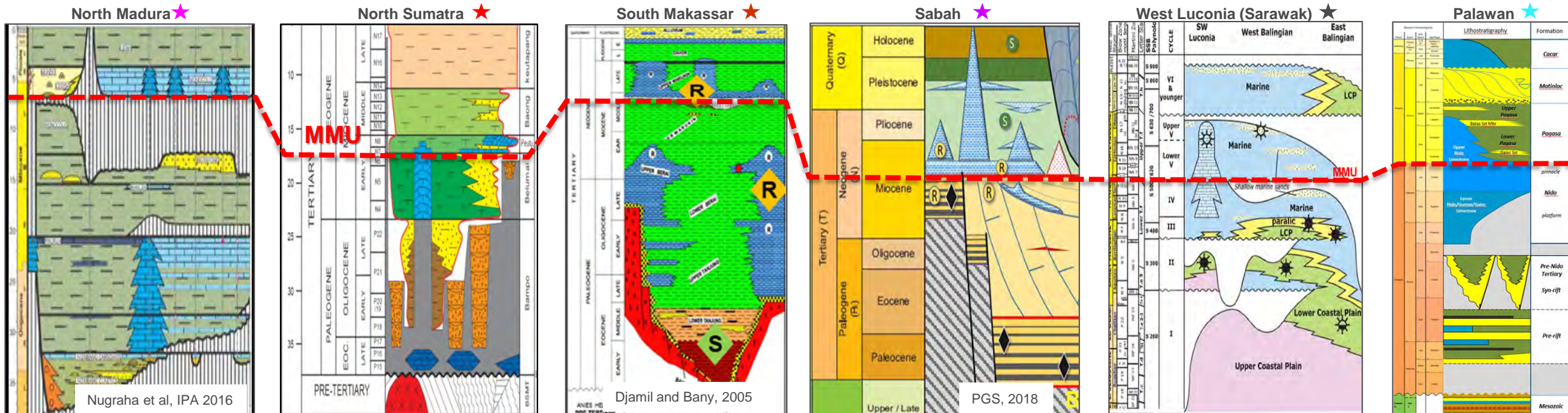


# Location of the Study area – regional context



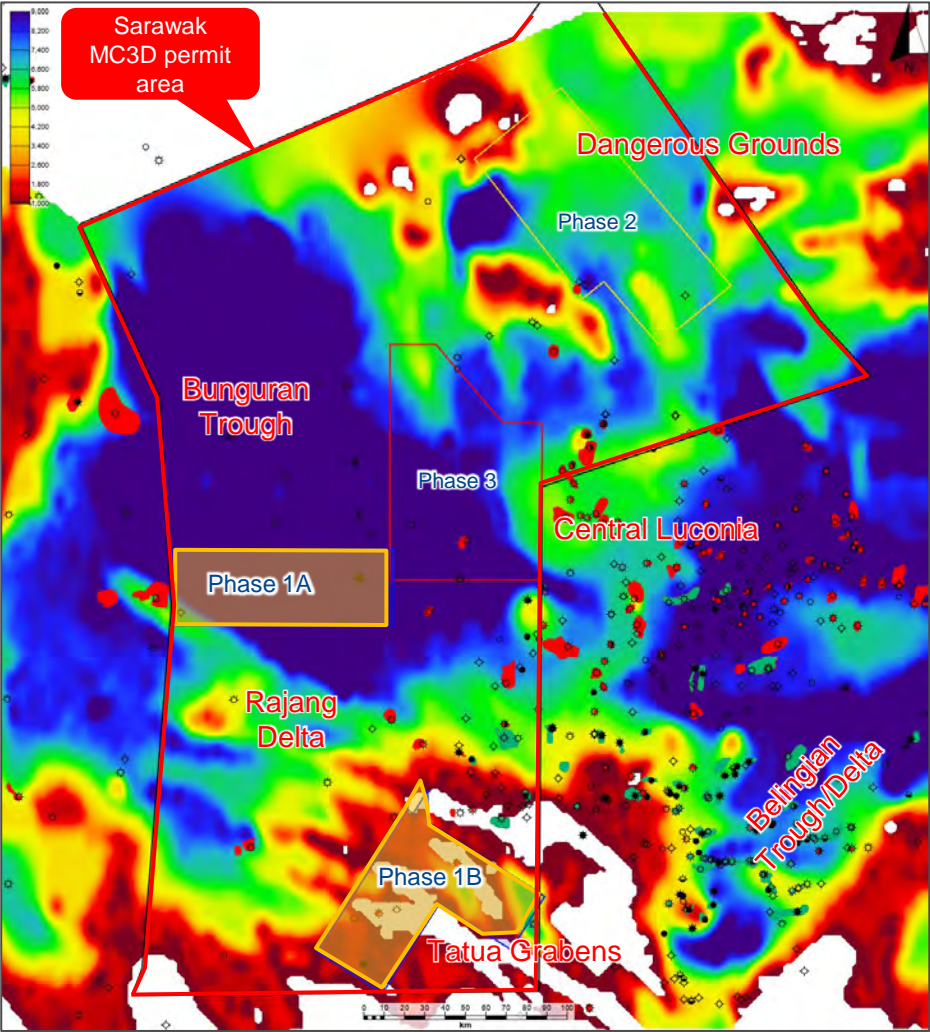
## Study area is part of greater Sundaland

- Prolific hydrocarbon province
- Predominantly Tertiary exploration targets (some basement plays)
- Majority of exploration has been in the post-MMU section
- It is important to clearly image pre-MMU rift packages to better understand basin development and deeper Petroleum Play potential

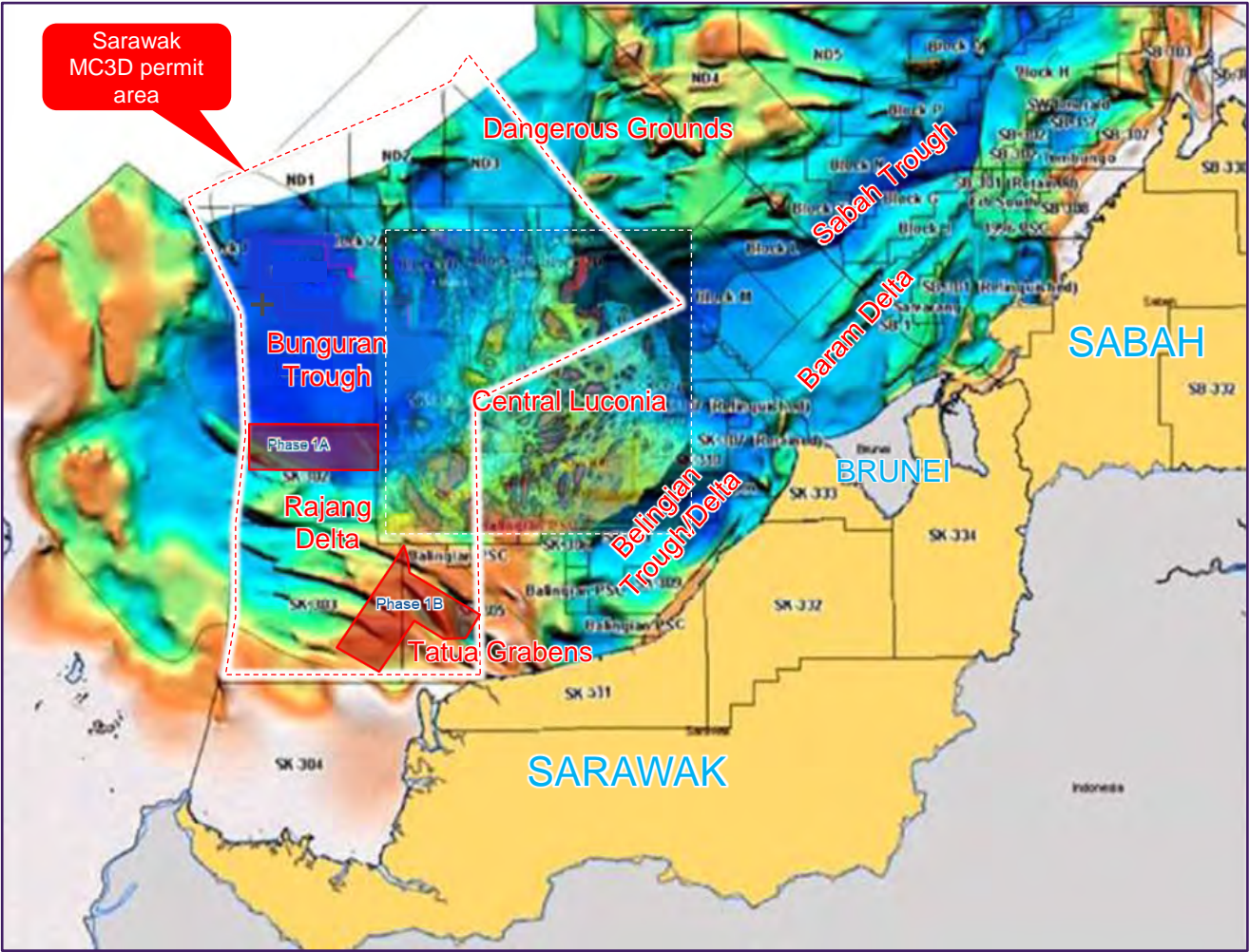




# Sarawak geological provinces



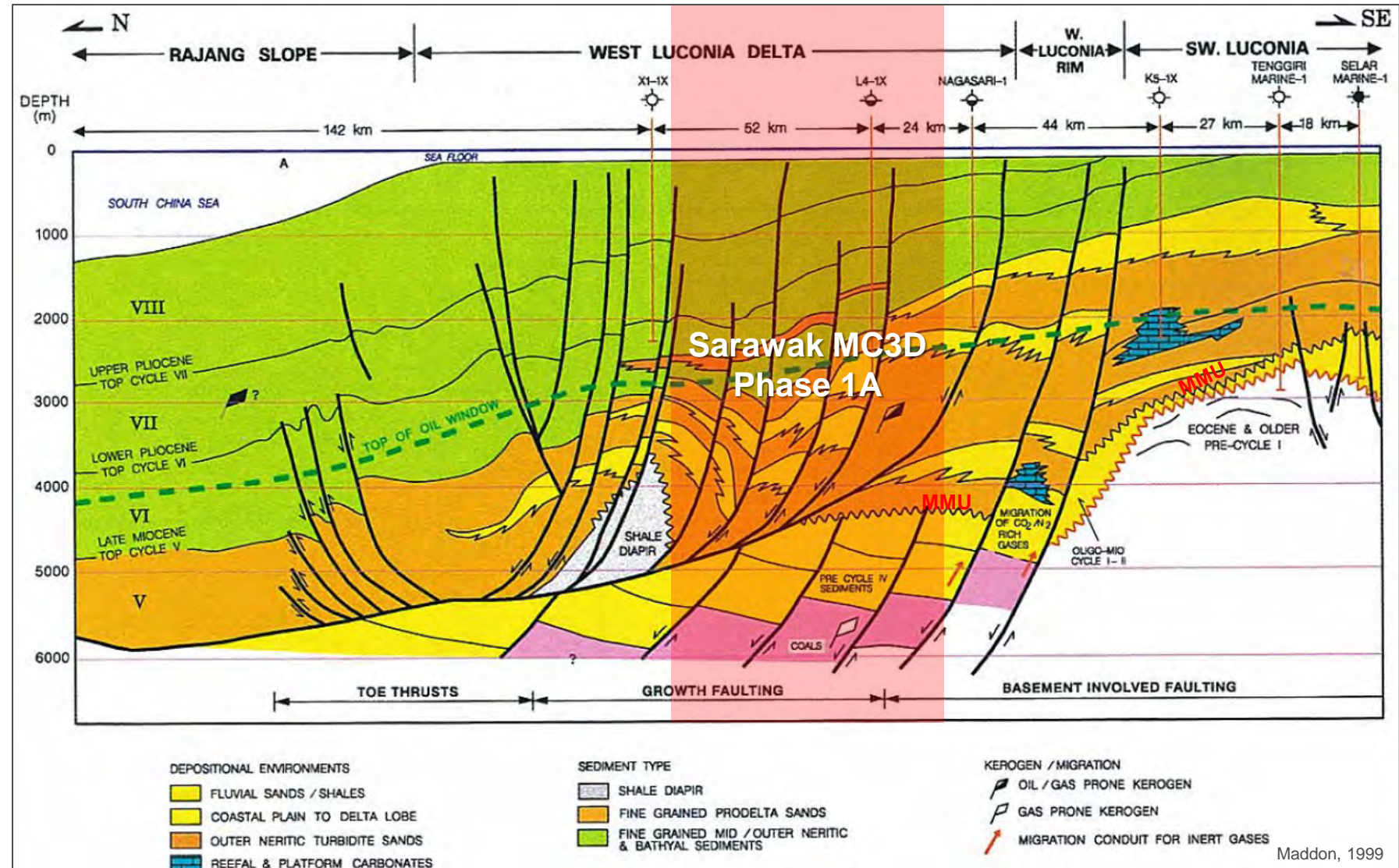
**Sediment Thickness** using seismic data  
 Modified from Jong et al. (2014)



**Offshore Geological Features Top Carbonates-Basement Composite Map**  
 Modified after Hutchison, 2004 and Jong et al, 2014

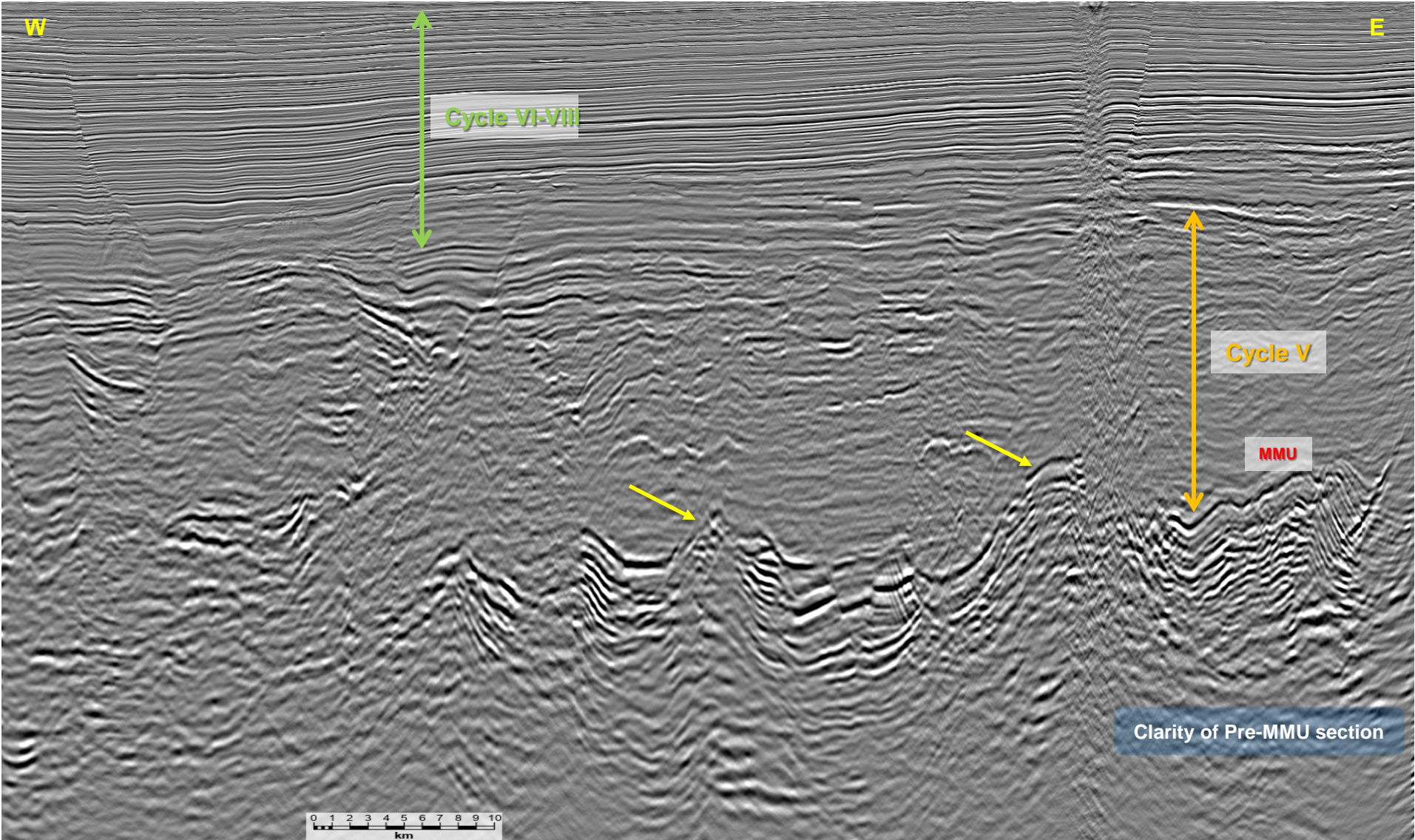


# Schematic summary of play types in West Luconia

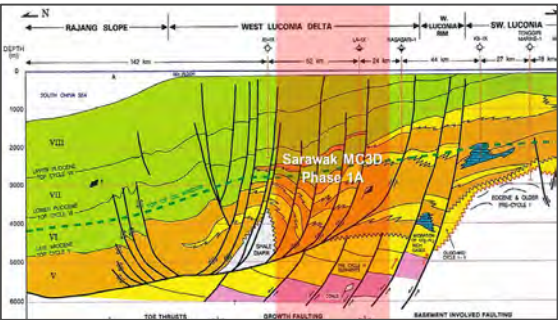




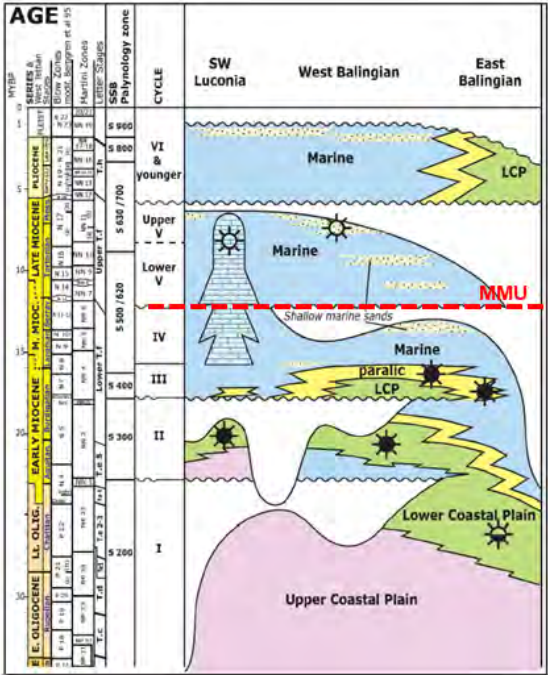
# Sarawak MC3D Phase 1A - West Luconia



Sarawak Phase 1A PSTM



Maddon, 1999

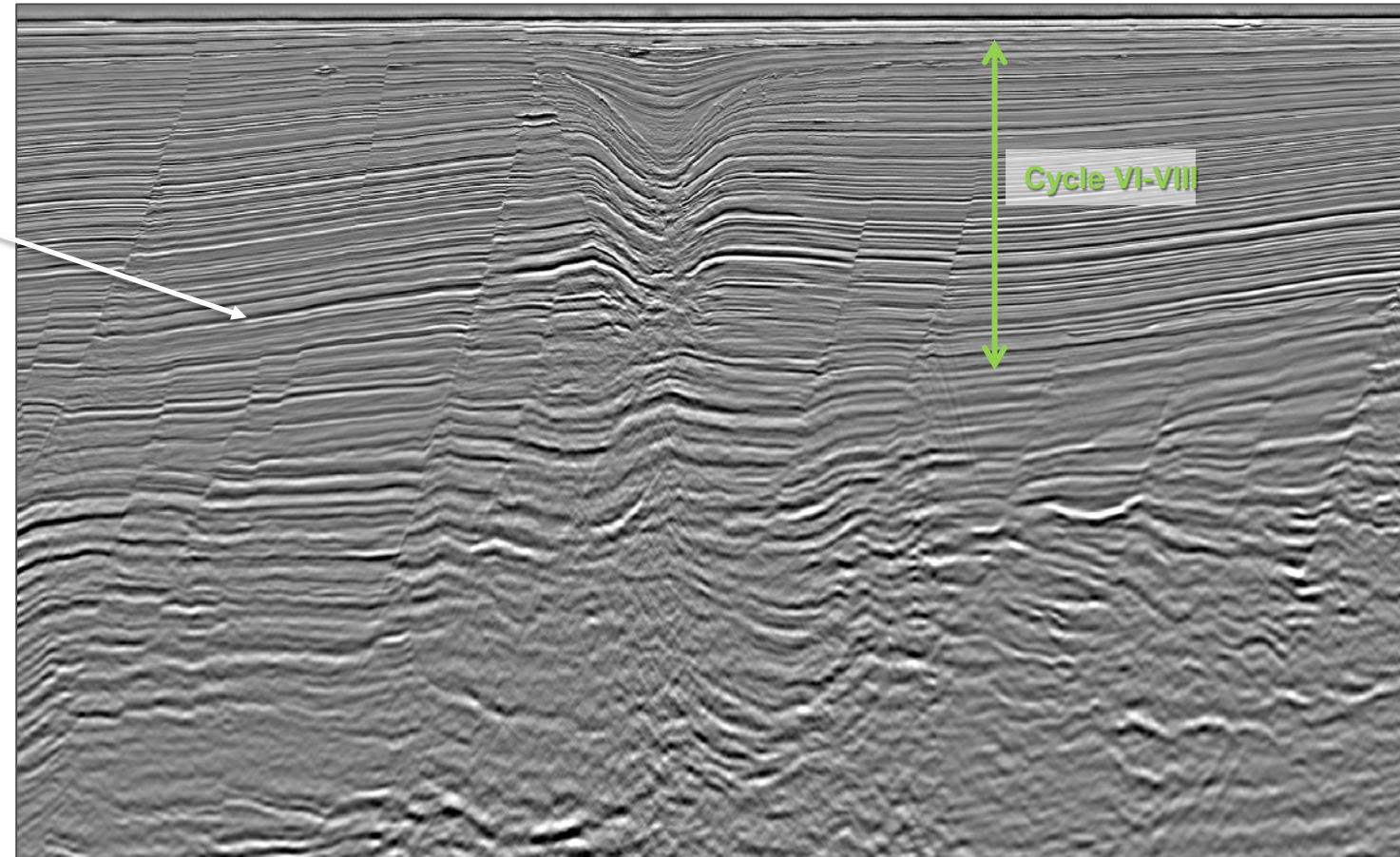
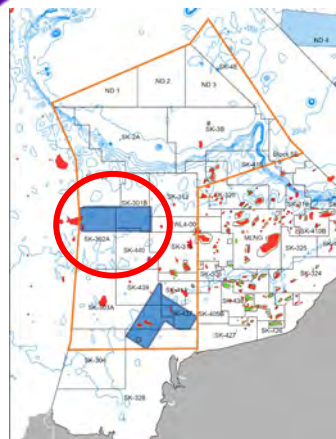
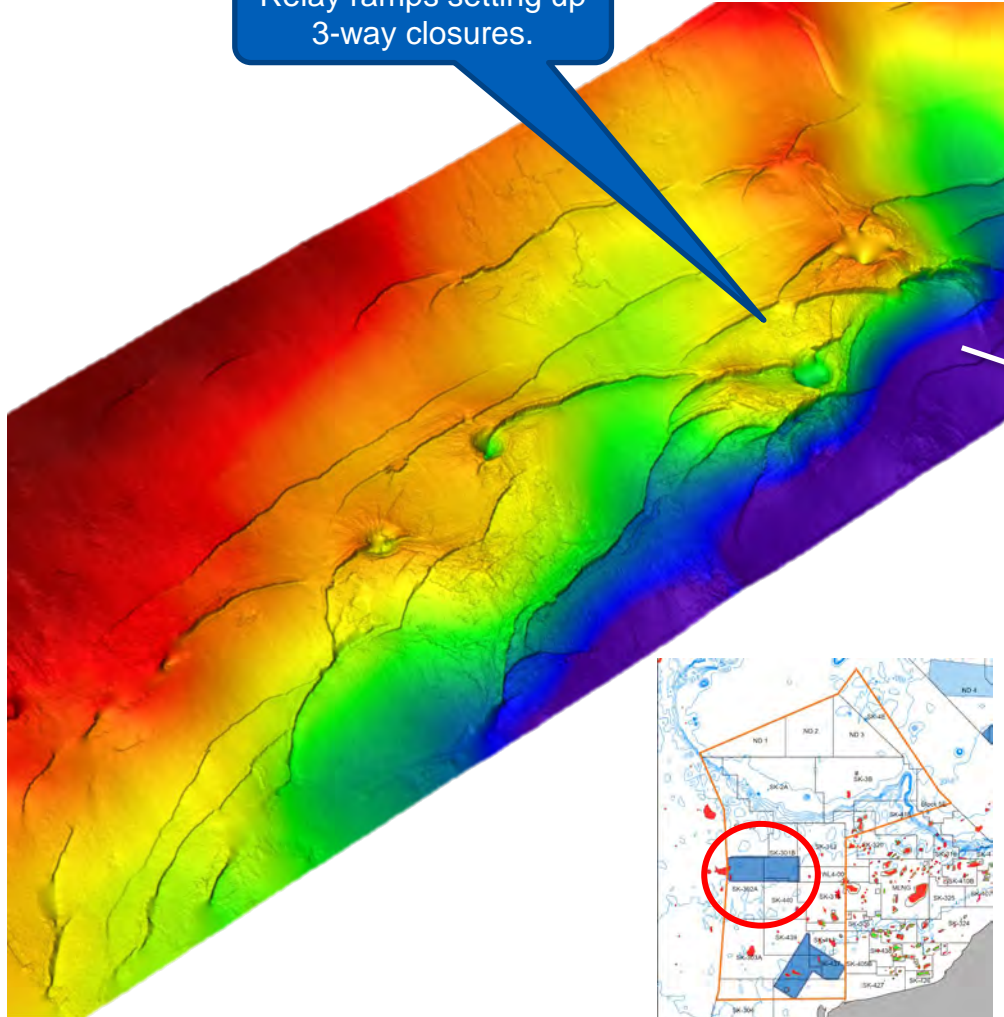




# Sarawak MC3D Phase 1A - Cycle VI TWT Structure



Relay ramps setting up  
3-way closures.



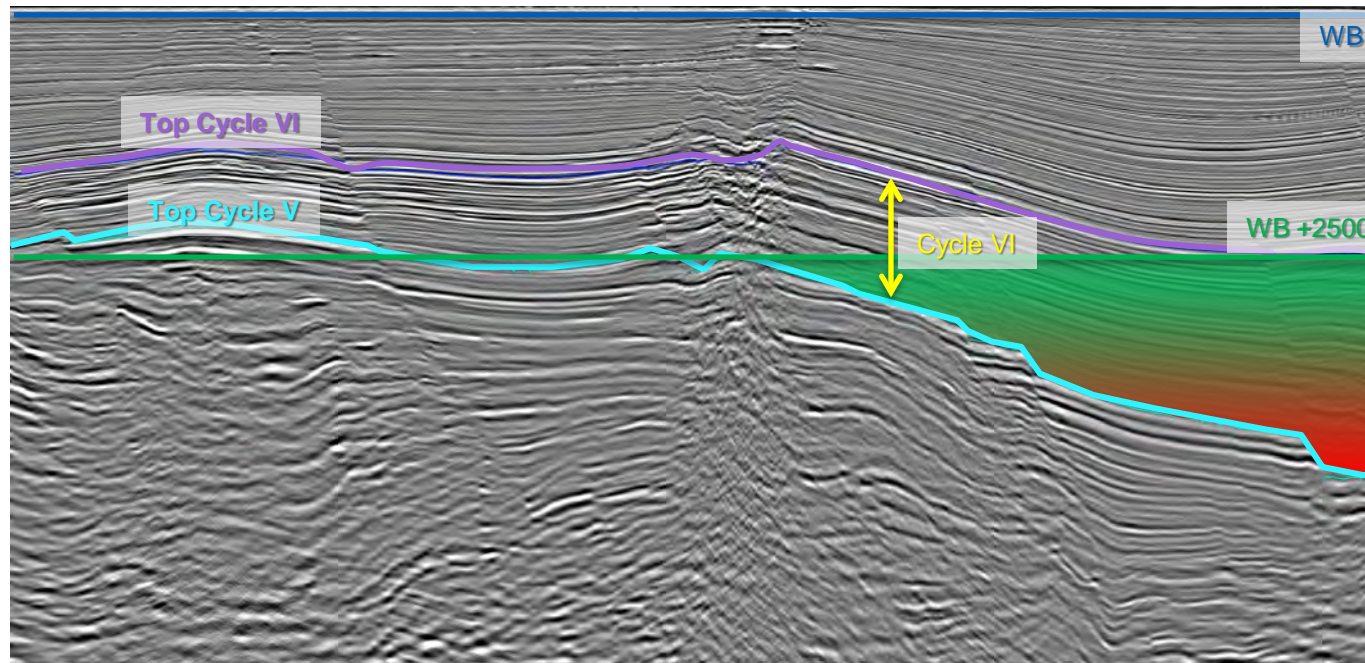
Sarawak Phase 1A PSTM



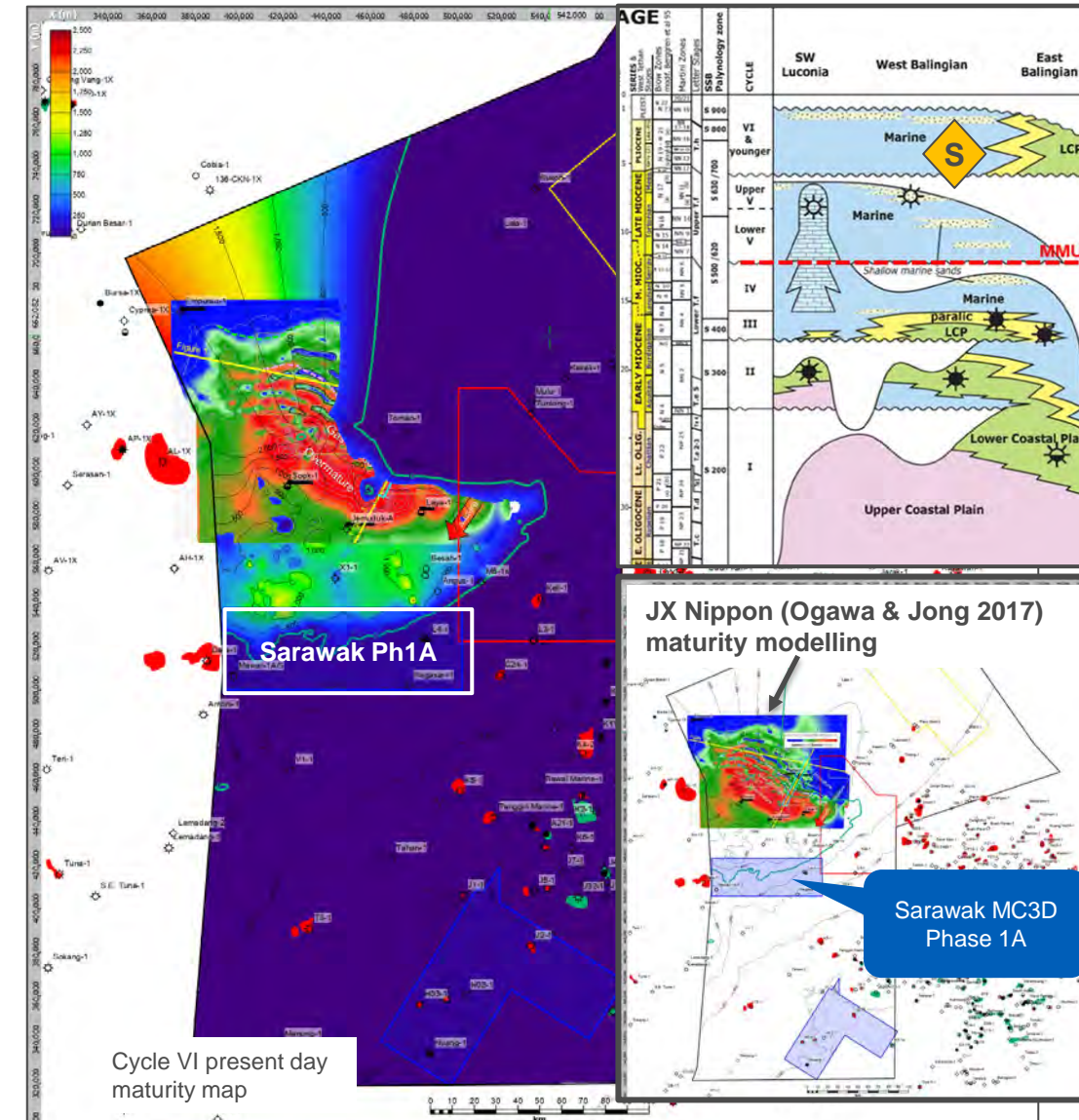
# Sarawak MC3D Phase 1A - West Luconia Cycle VI Maturity



- The **source interval Cycle VI** was identified and modelled to be mature by JX Nippon **post Toman-1** (Ogawa & Jong, 2017).
- **Top Cycle V (Base VI) – (WB+2500ms)** = Present day maturity window
- Overlaid JX and our maturity maps – calibrates well



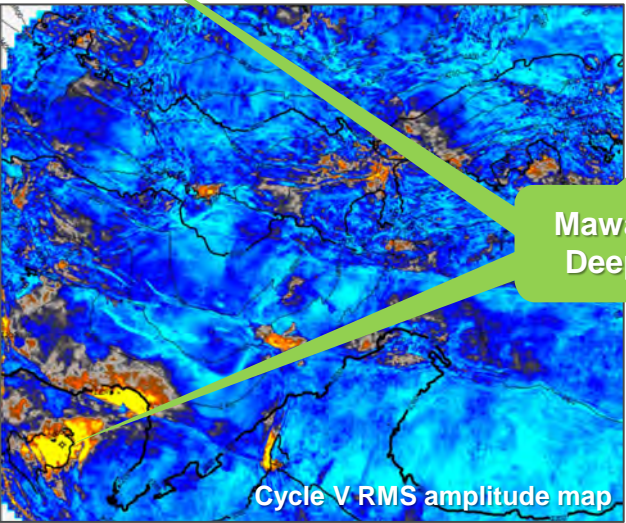
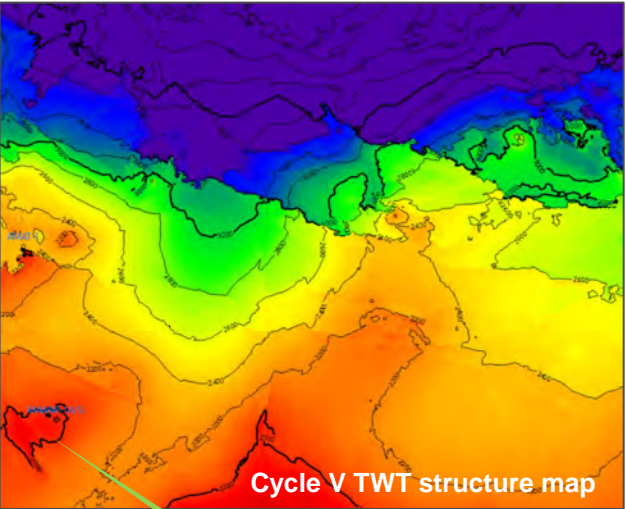
Sarawak Phase 1A PSTM



Cycle VI present day maturity map

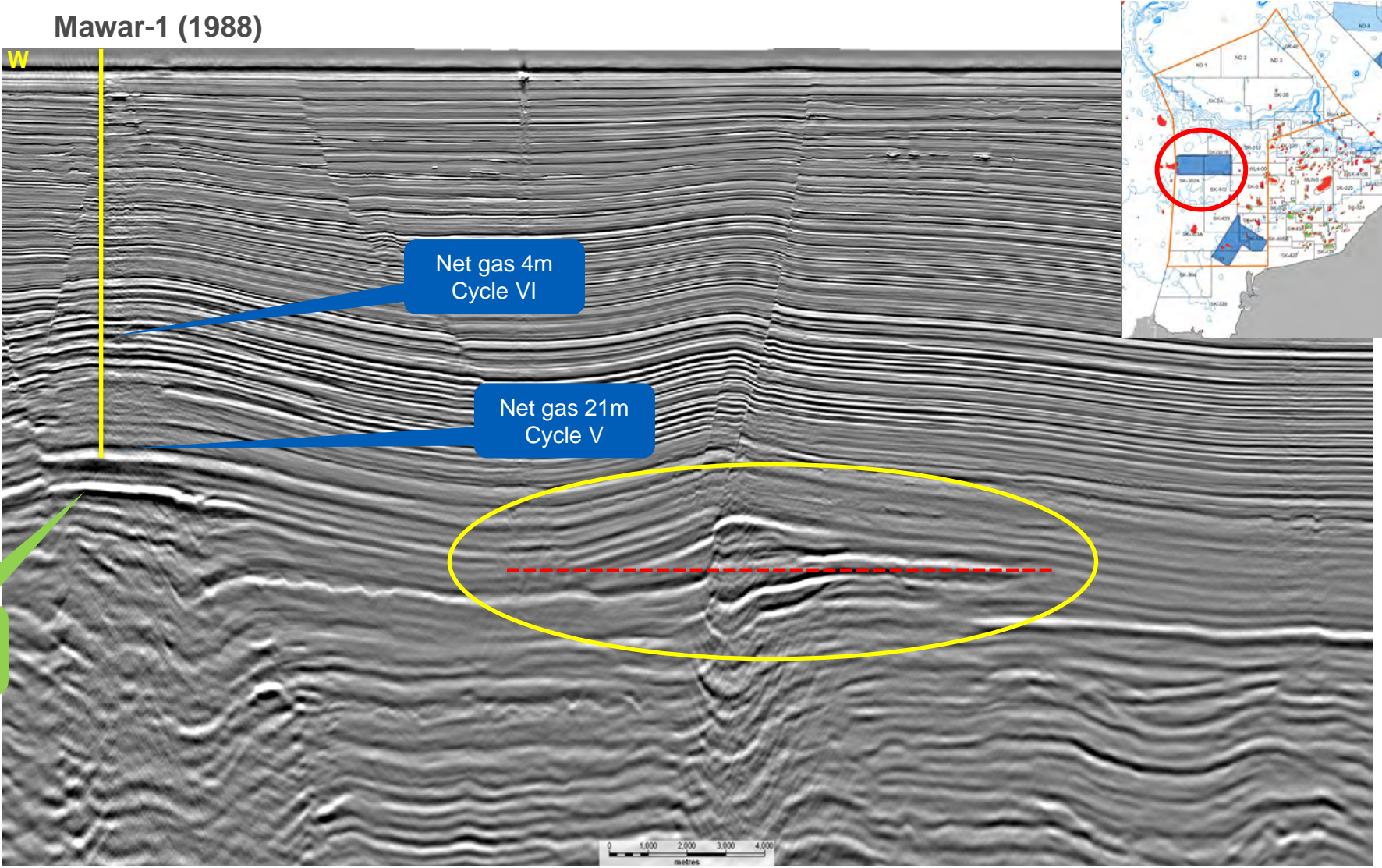


# Sarawak MC3D Phase 1A - Cycle V TWT (Mawar deep anomaly)



Mawar Deep

Mawar Deep amplitudes fit to structure

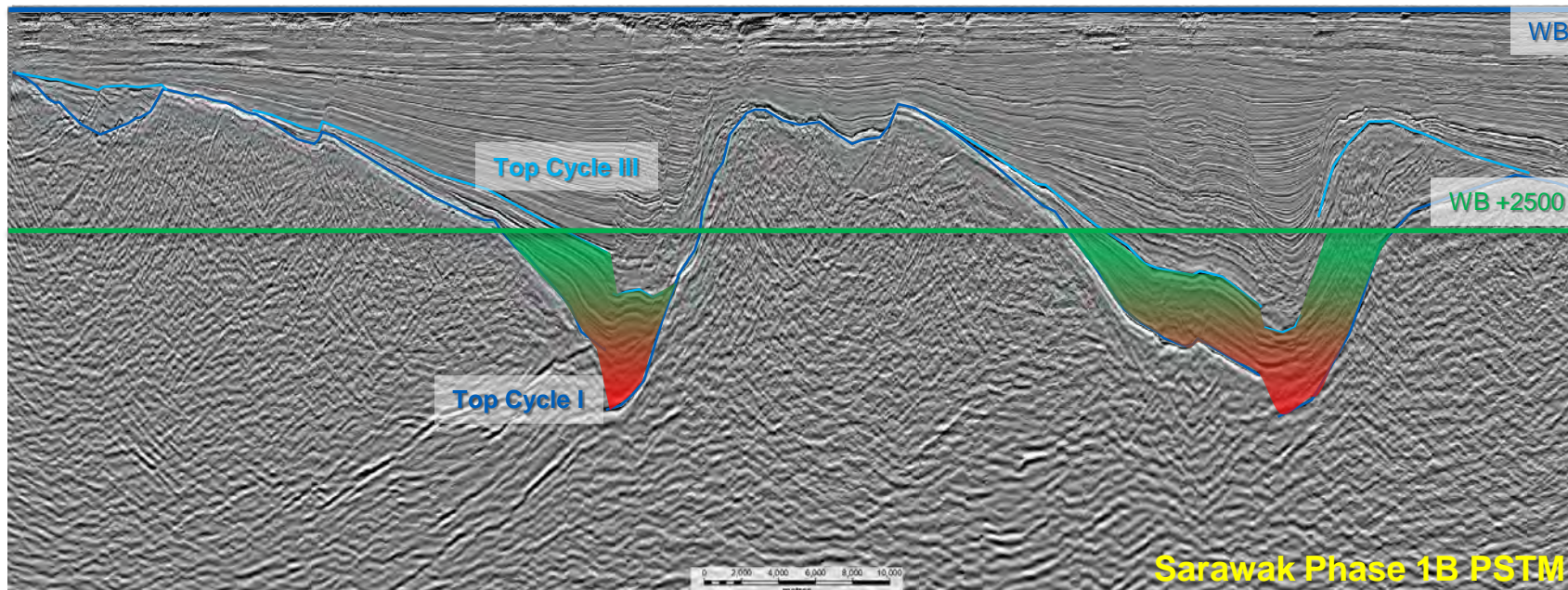
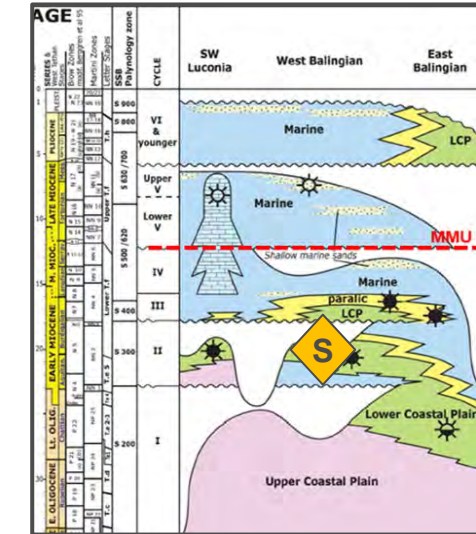
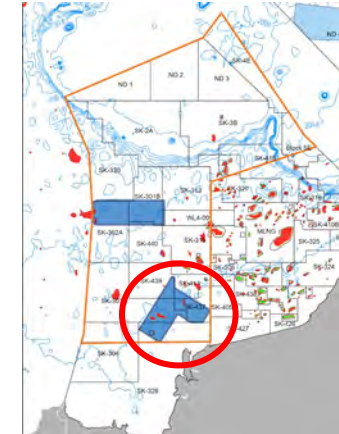




# Sarawak MC3D Phase 1B – Tatua Grabens Cycle II Maturity

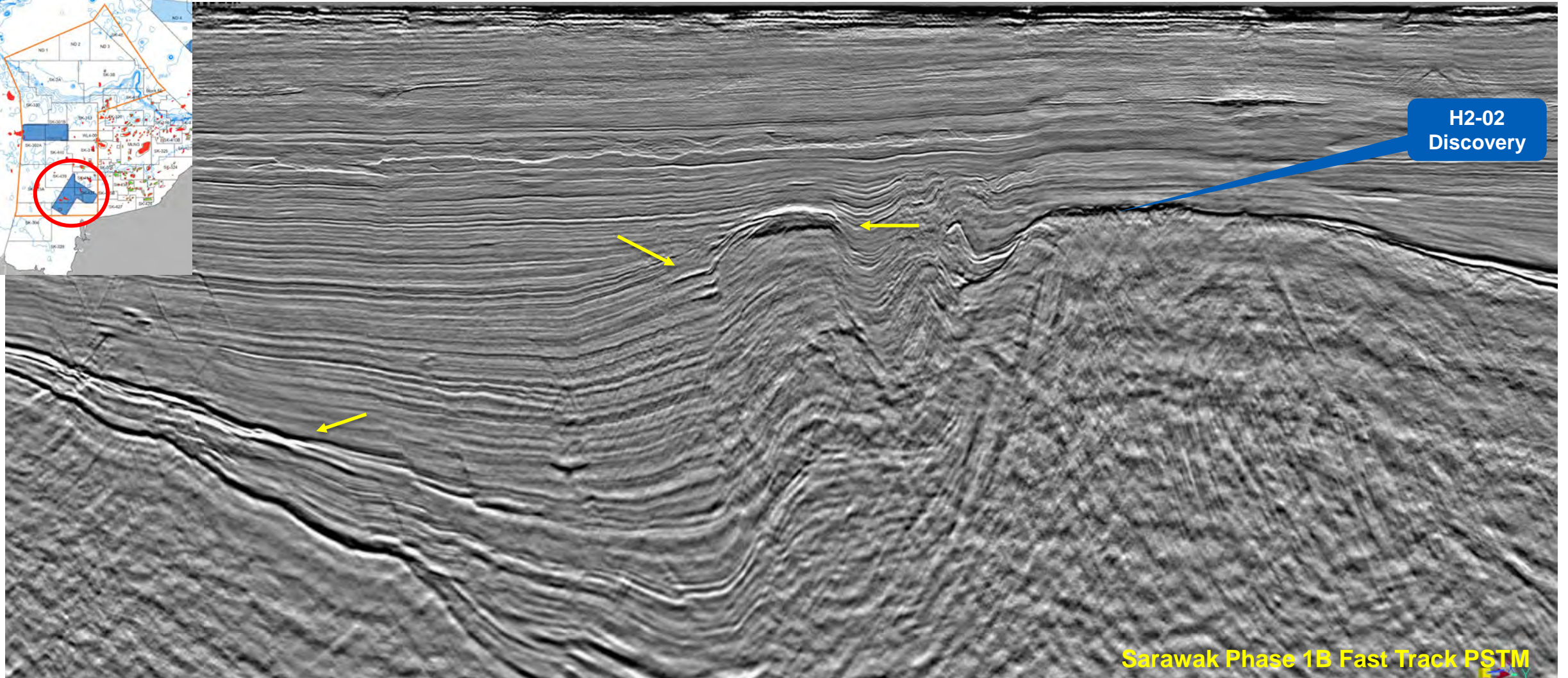
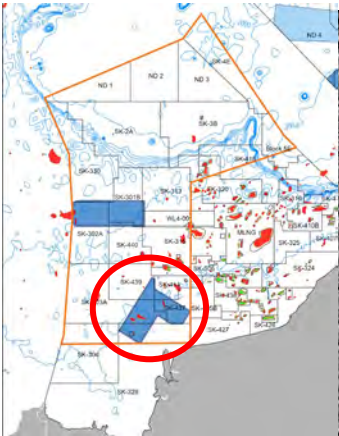


- **Top Cycle I (Base II) – (WB+2500ms)** = Present day maturity window
- Shows **two mature half grabens** within Phase 1B and trend potentially extending to the north





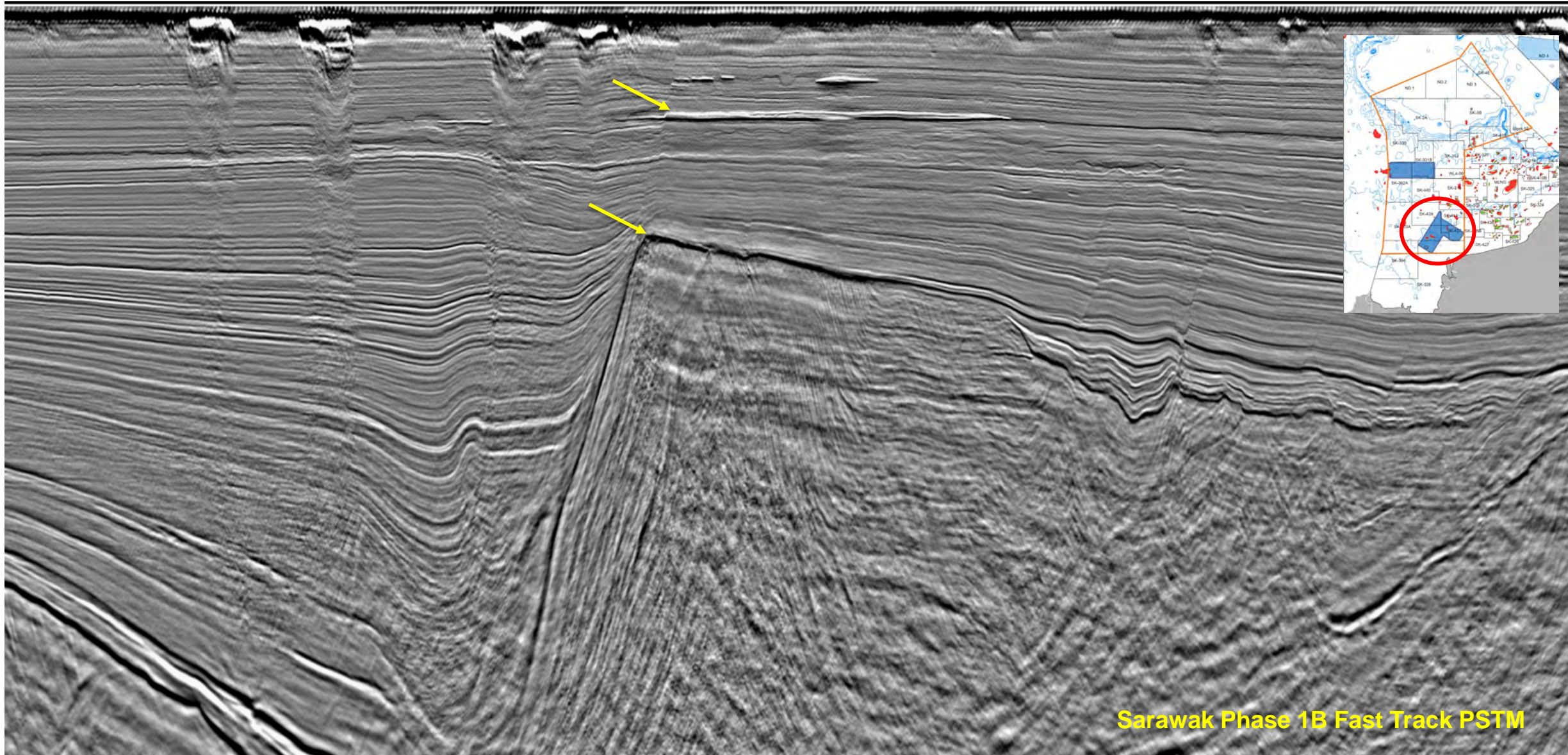
# Sarawak MC3D Phase 1B – fast-track PSTM Cycle II / III



Sarawak Phase 1B Fast Track PSTM



# Sarawak MC3D Phase 1B – fast-track PSTM Basement play & shallow gas anomaly



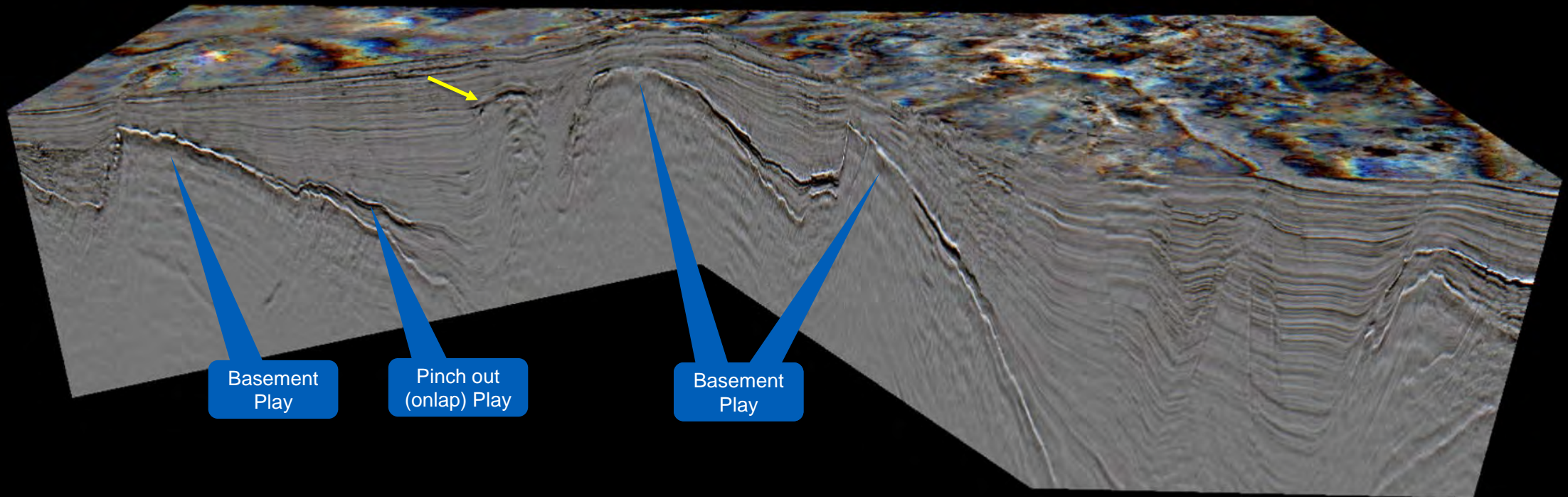
Sarawak Phase 1B Fast Track PSTM



## Sarawak MC3D Phase 1B



### Sarawak Phase I – 1B

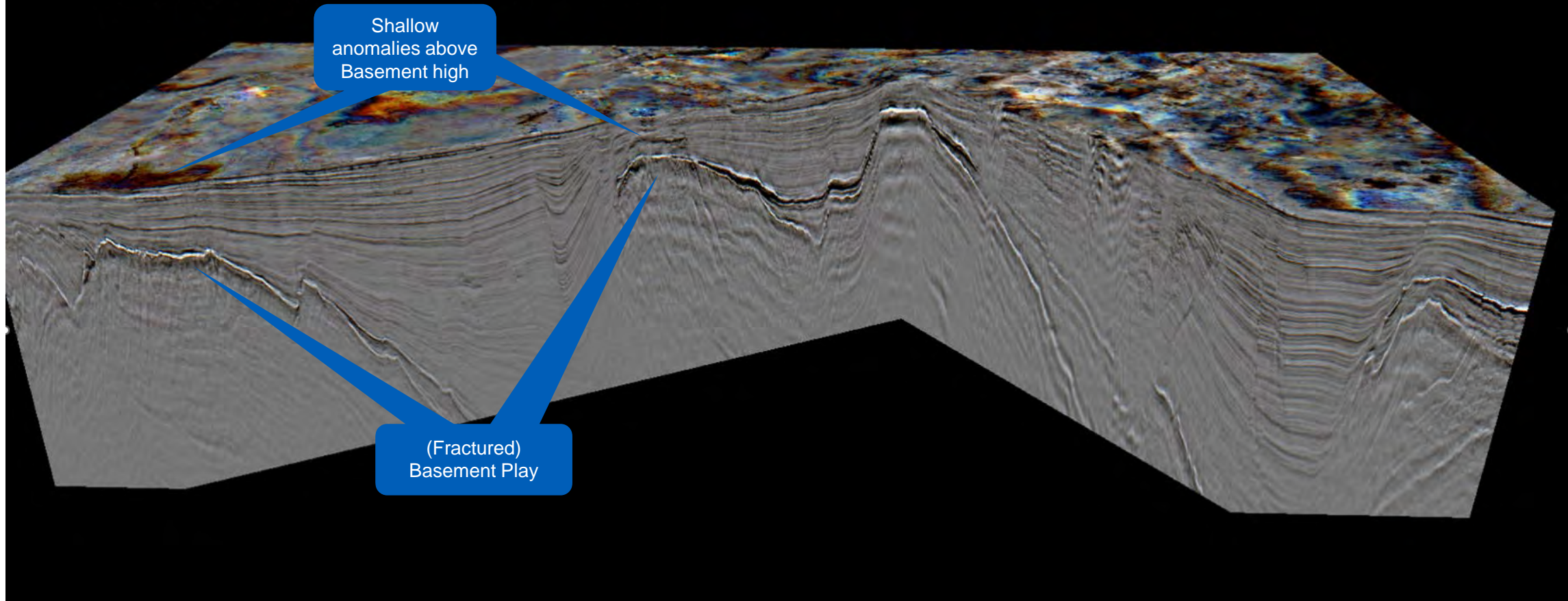




## Sarawak MC3D Phase 1B



### Sarawak Phase I – 1B





## Malaysia MC3D – Growing the footprint in NW Borneo

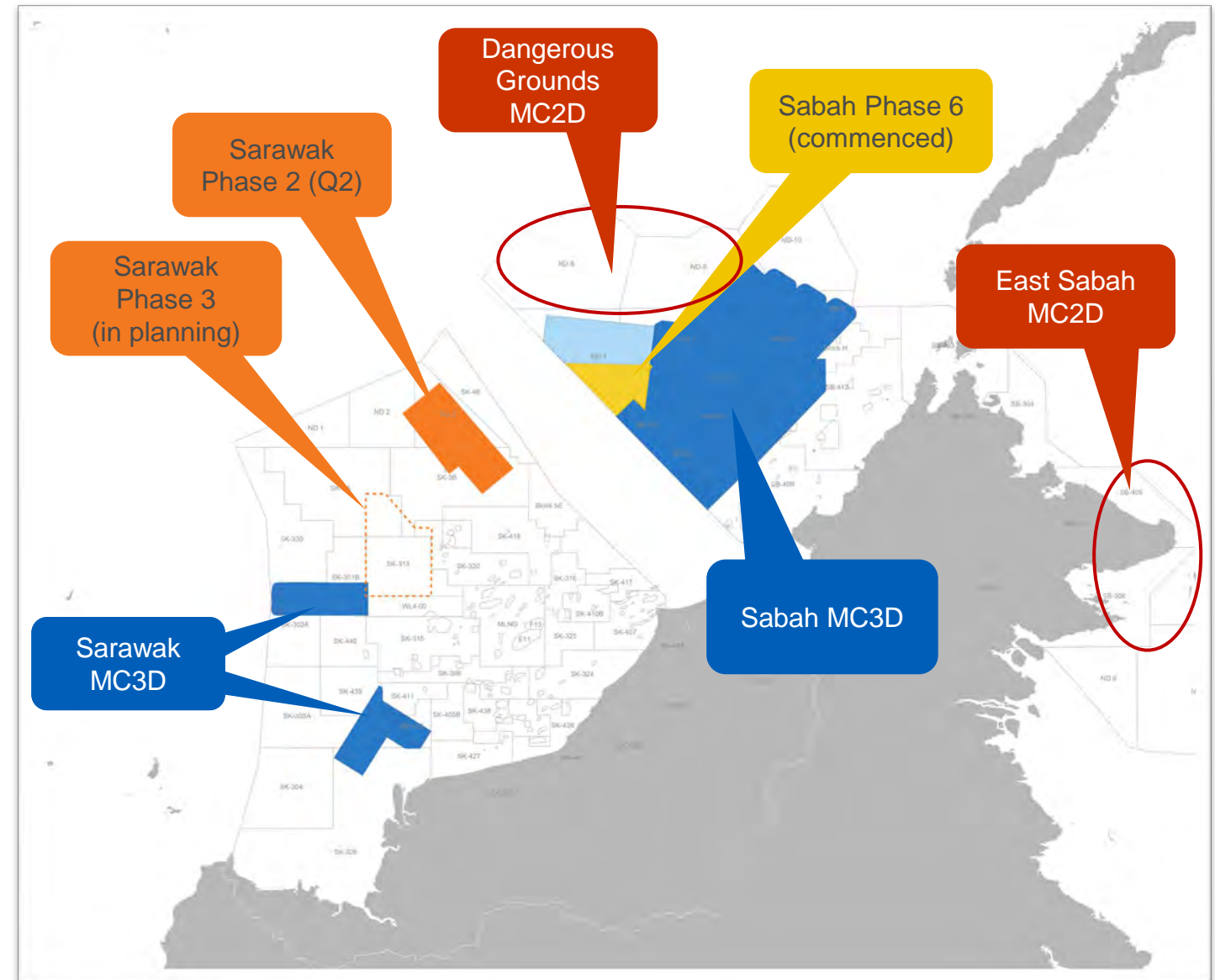


### Malaysia 2023 acquisition campaign:

- Sabah Phase 6: TS 12x150mx8025m
- Sarawak Phase 2: TS 12x150mx9000m

### Future – in planning:

- Sarawak Phase 3
- East Sabah MC2D: 2km x 2km grid (2D cube)
- Dangerous Grounds MC2D

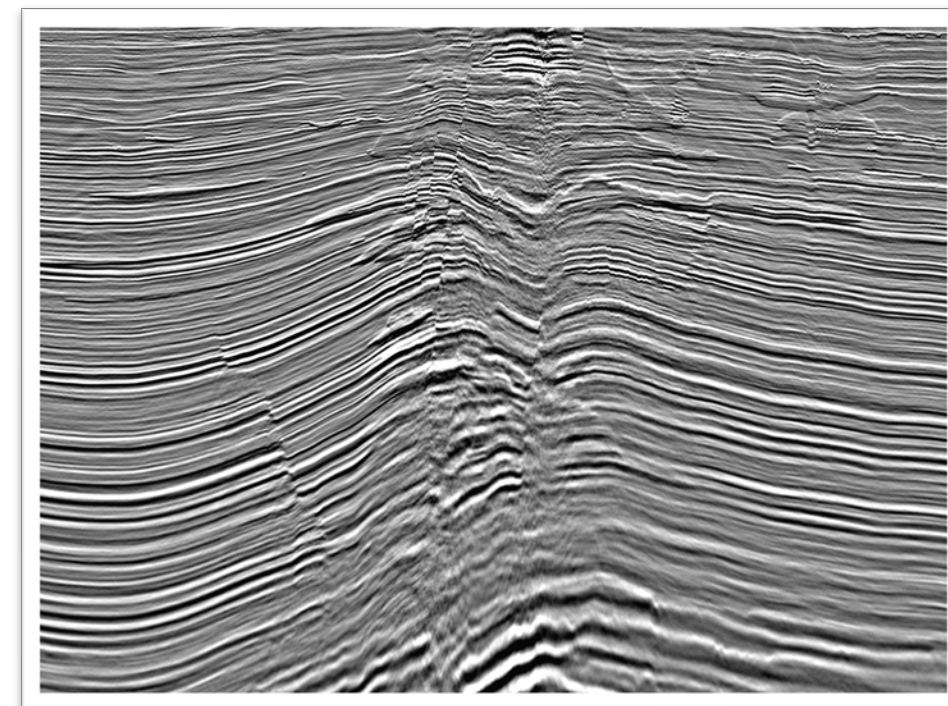




# Summary



- The MultiClient **JV consortium** has already acquired **8,400sqkm** of new multisensor **3D data in Sarawak**.
- The new data provides high quality broadband data with **better imaging of the pre-MMU** section and enables confidence in **mapping deeper structures**.
- This study shows **present day mature source** kitchens in both **West Luconia (Cycle VI)** and **Tatua Grabens (Cycle II)** with many **untested structures (with DHI's)**.
- **Sarawak Phase 2 will commence in Q2** covering **North Luconia** (Dangerous Grounds) province **followed by Phase 3**.
- **Watch this Space!**



Sarawak Phase 1A PSTM