3D Exploration Seismic Data for Optimising Site Investigations

A case study from Timor Sea

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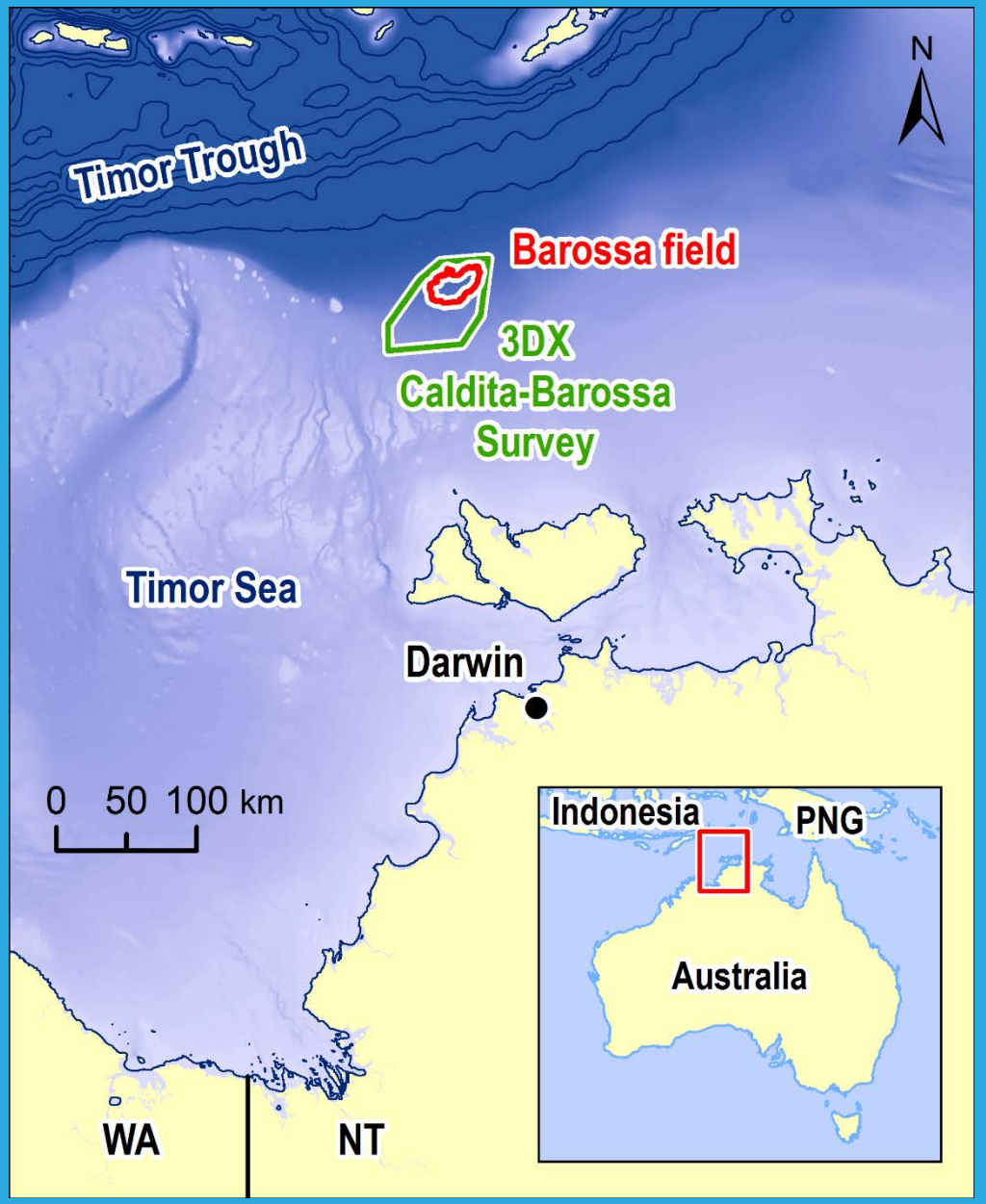

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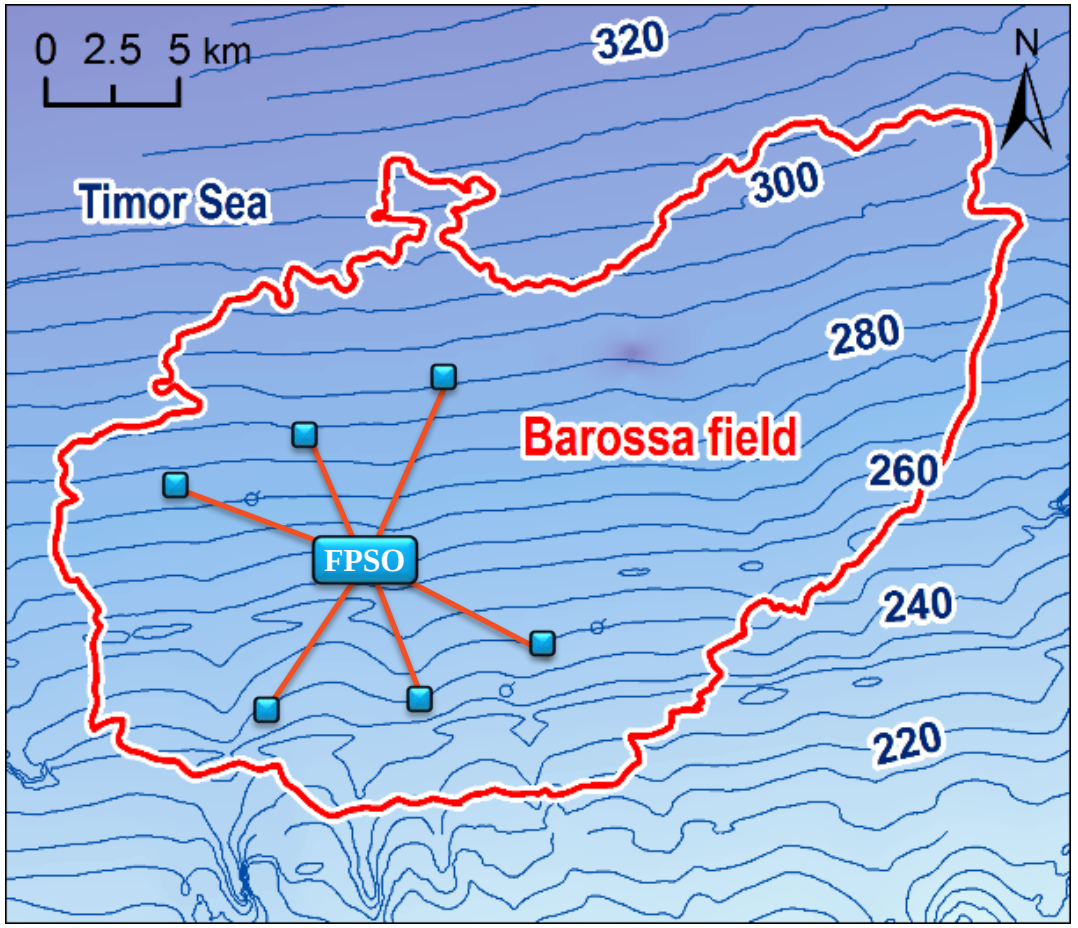
ARUP

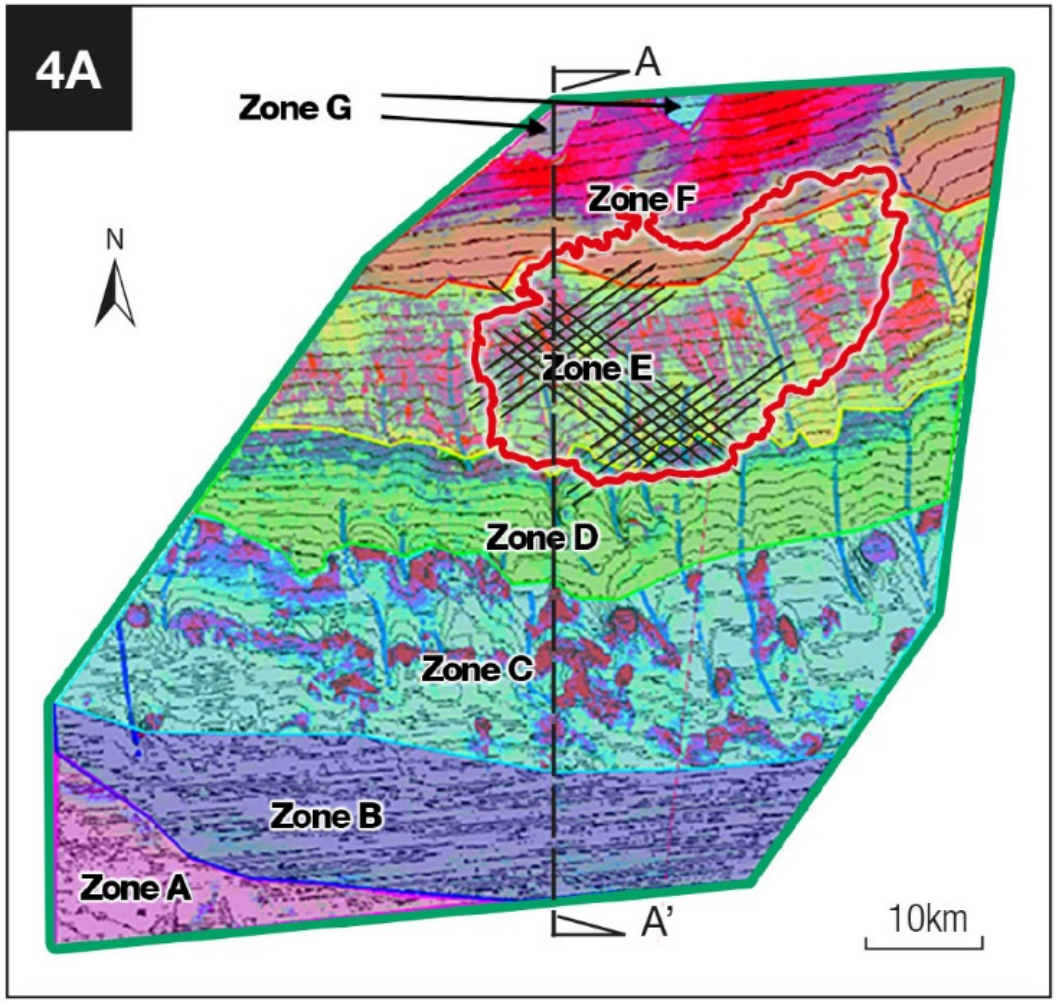
Barossa Project

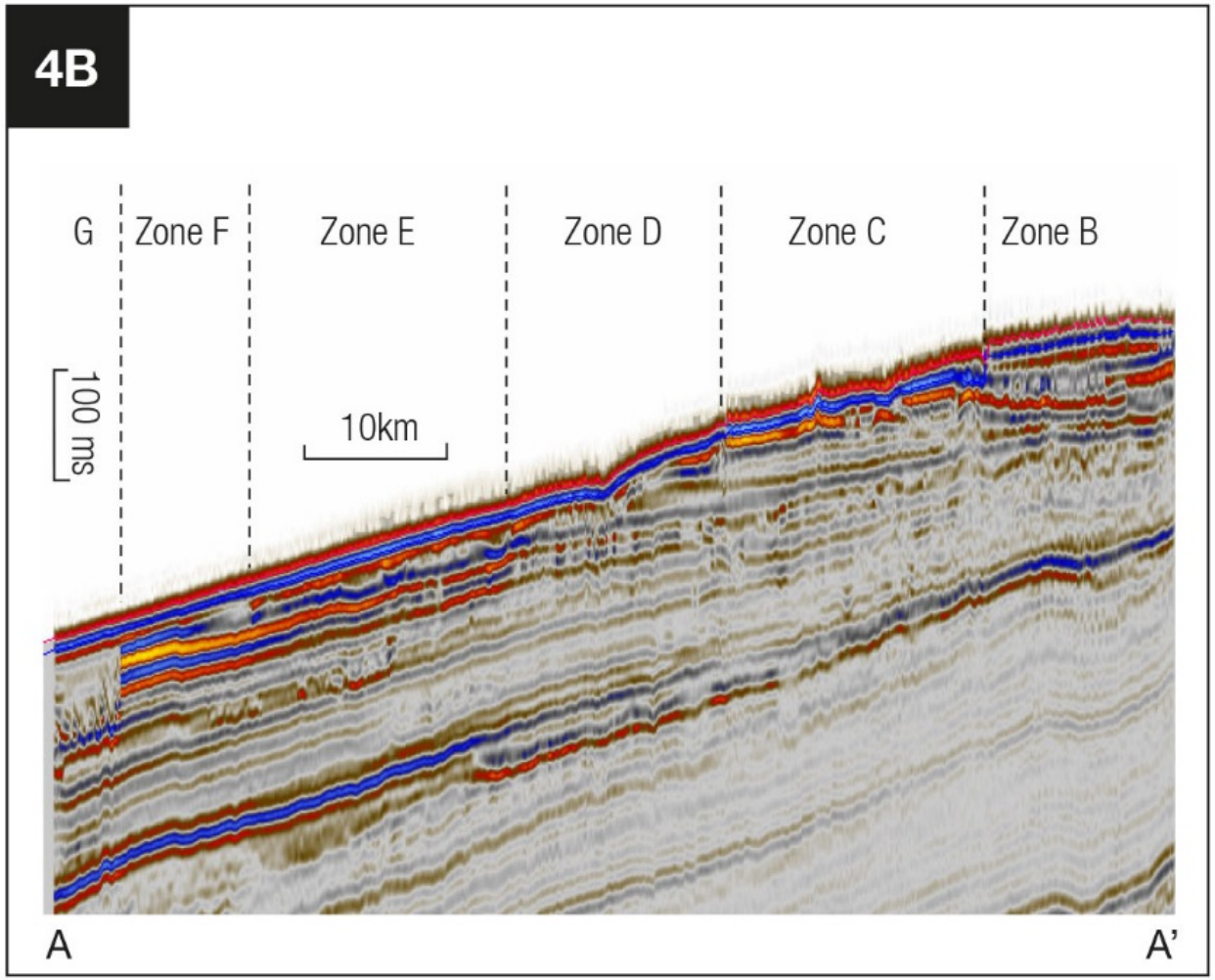
Site
- 220-300m water depth
- Featureless seabed (<1 deg)
- Seafloor channels (south)

Field Layout (schematic)
- Southern and northern resources
- Central FPSO
- Area of Interest ~ 20km x 20kms



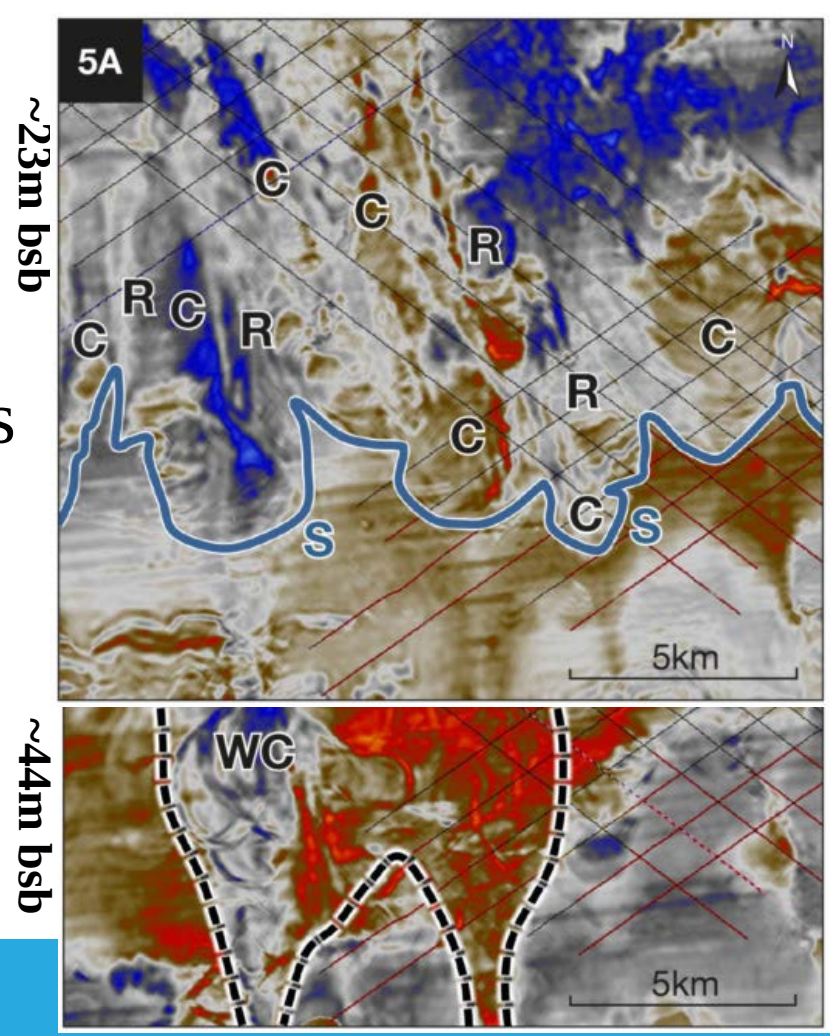
Geological Setting via 3DX Seismic Data

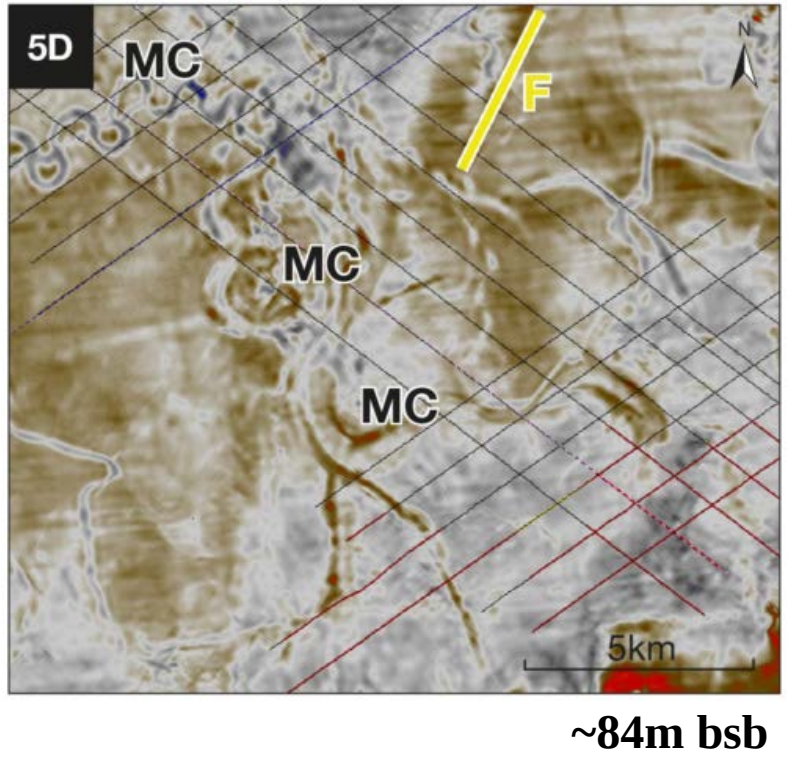




3DX Seismic

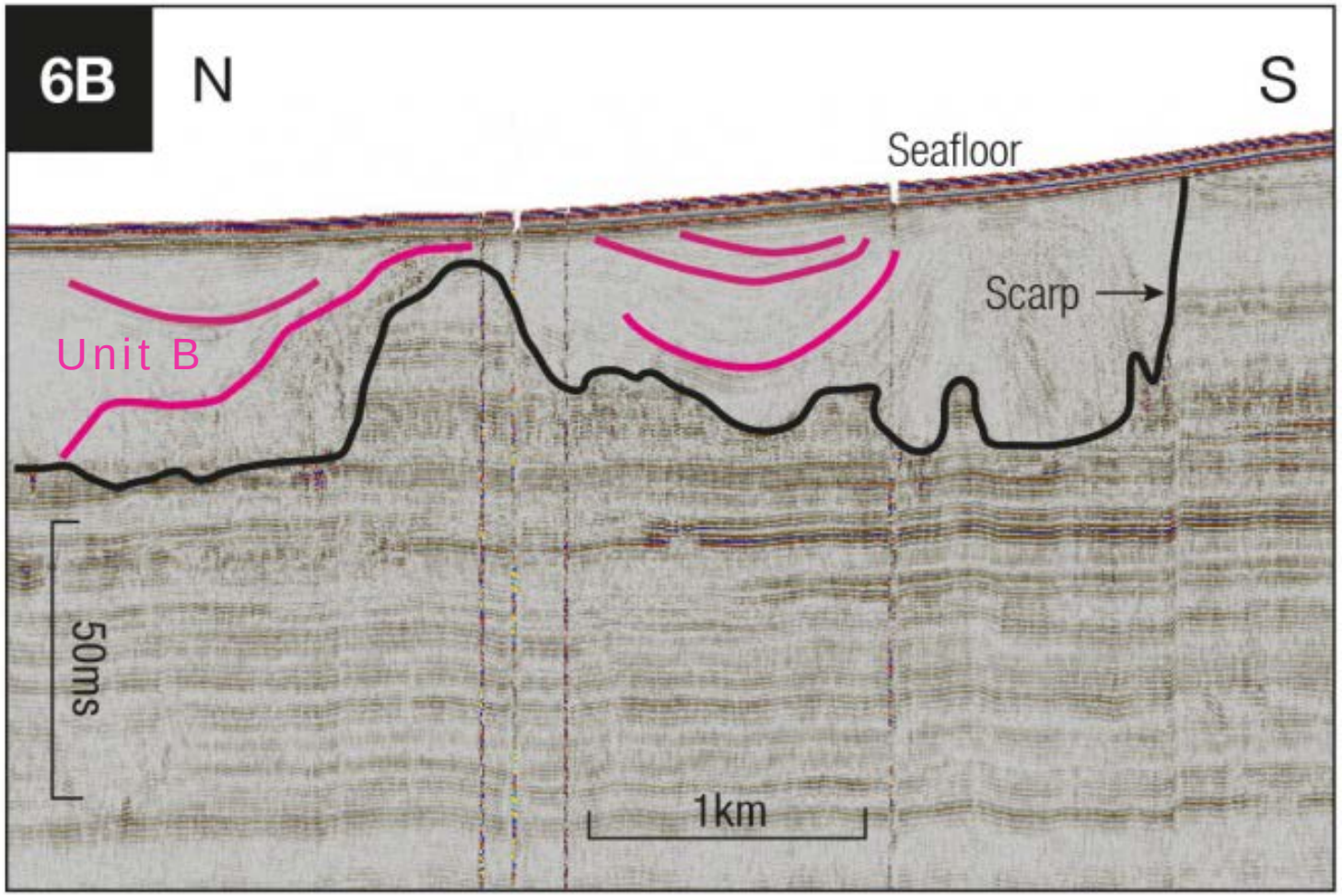
- S = Scarp
- C = Channel
- R = Ridge
- WC = Wide Channels
- F = Fault
- MC = Meandering Channels



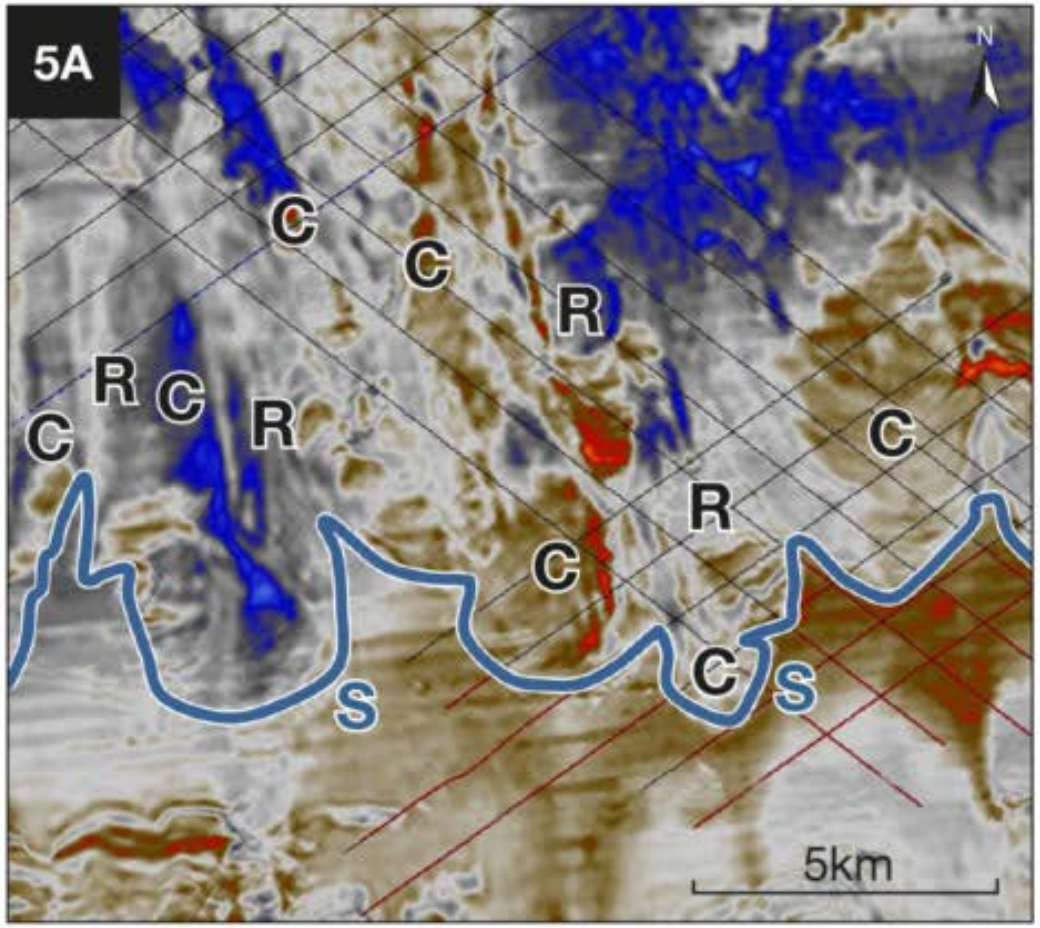


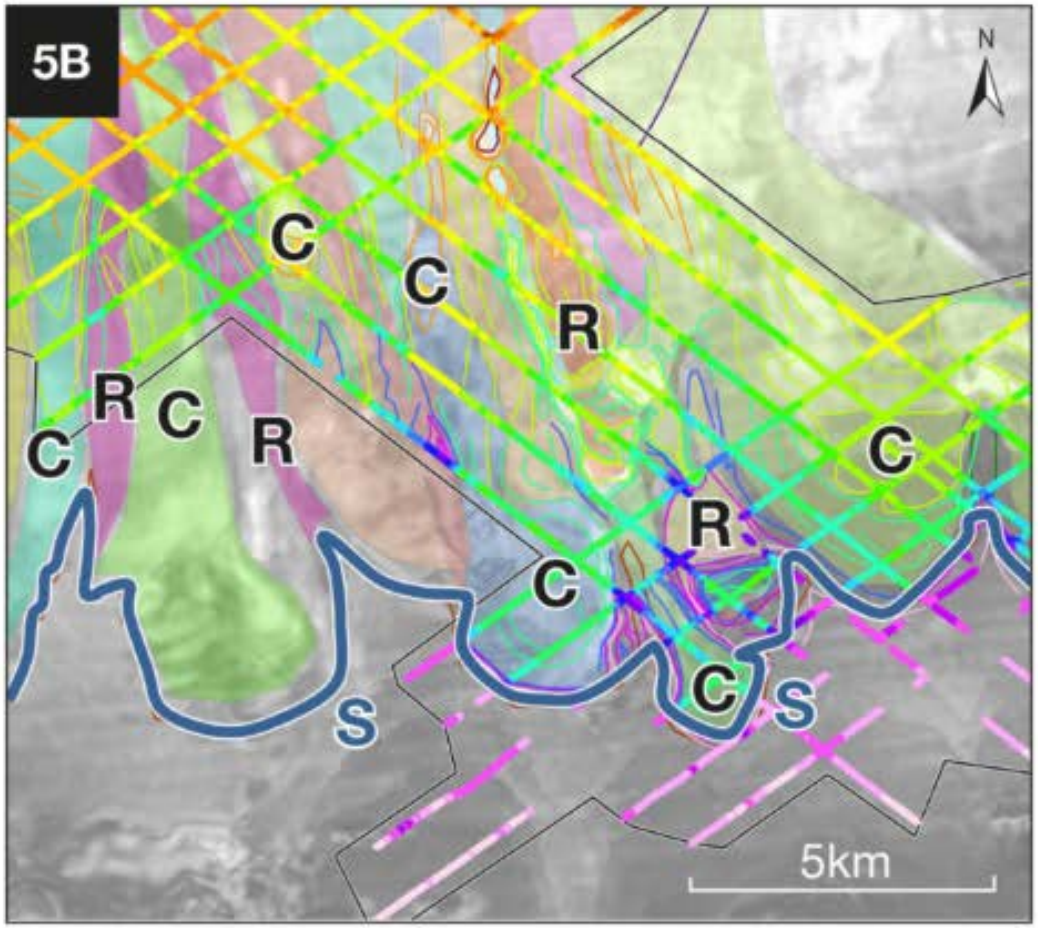
~84m bsb

2D Seismic



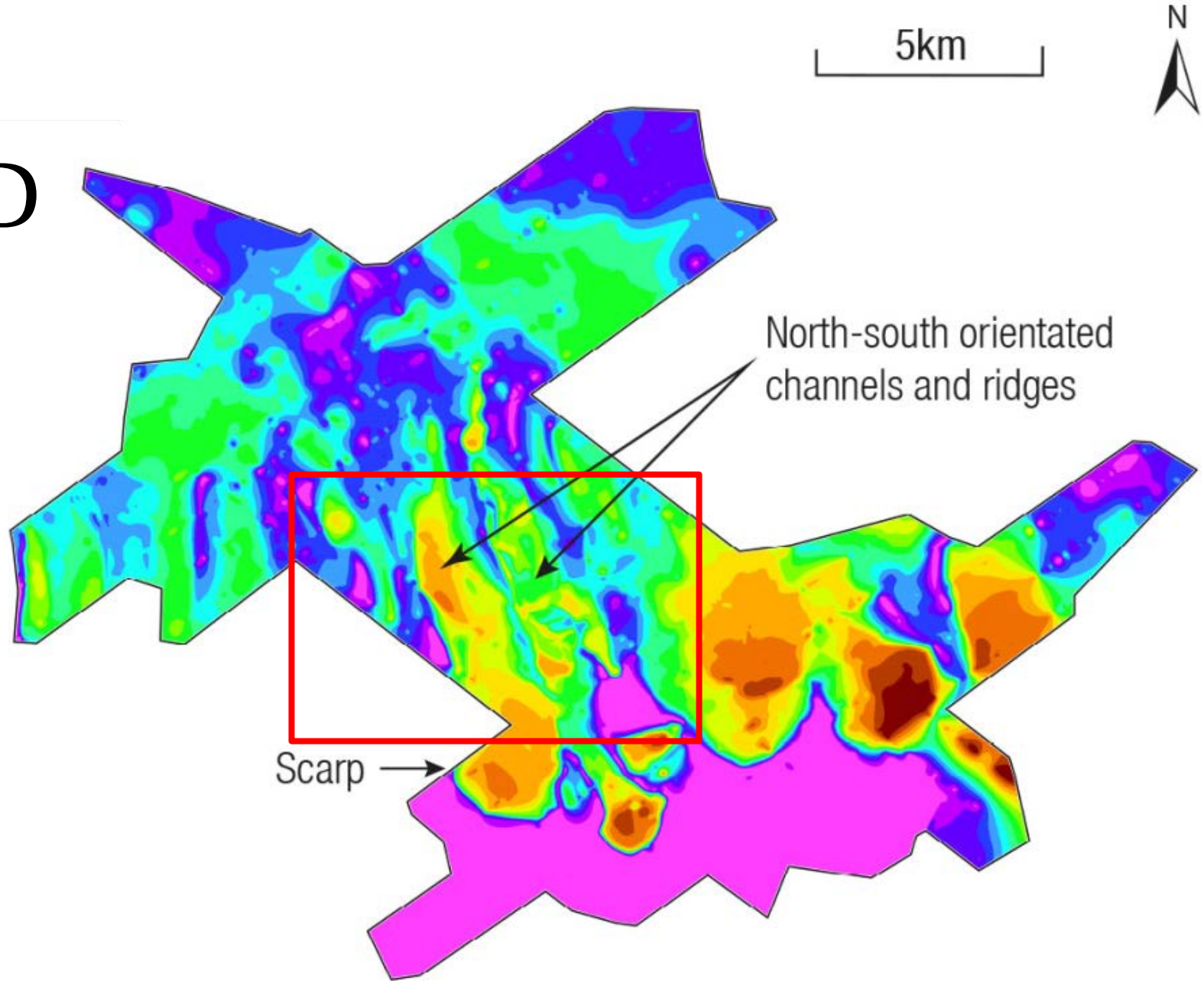
Integrating 3DX and 2D





~23m bsb

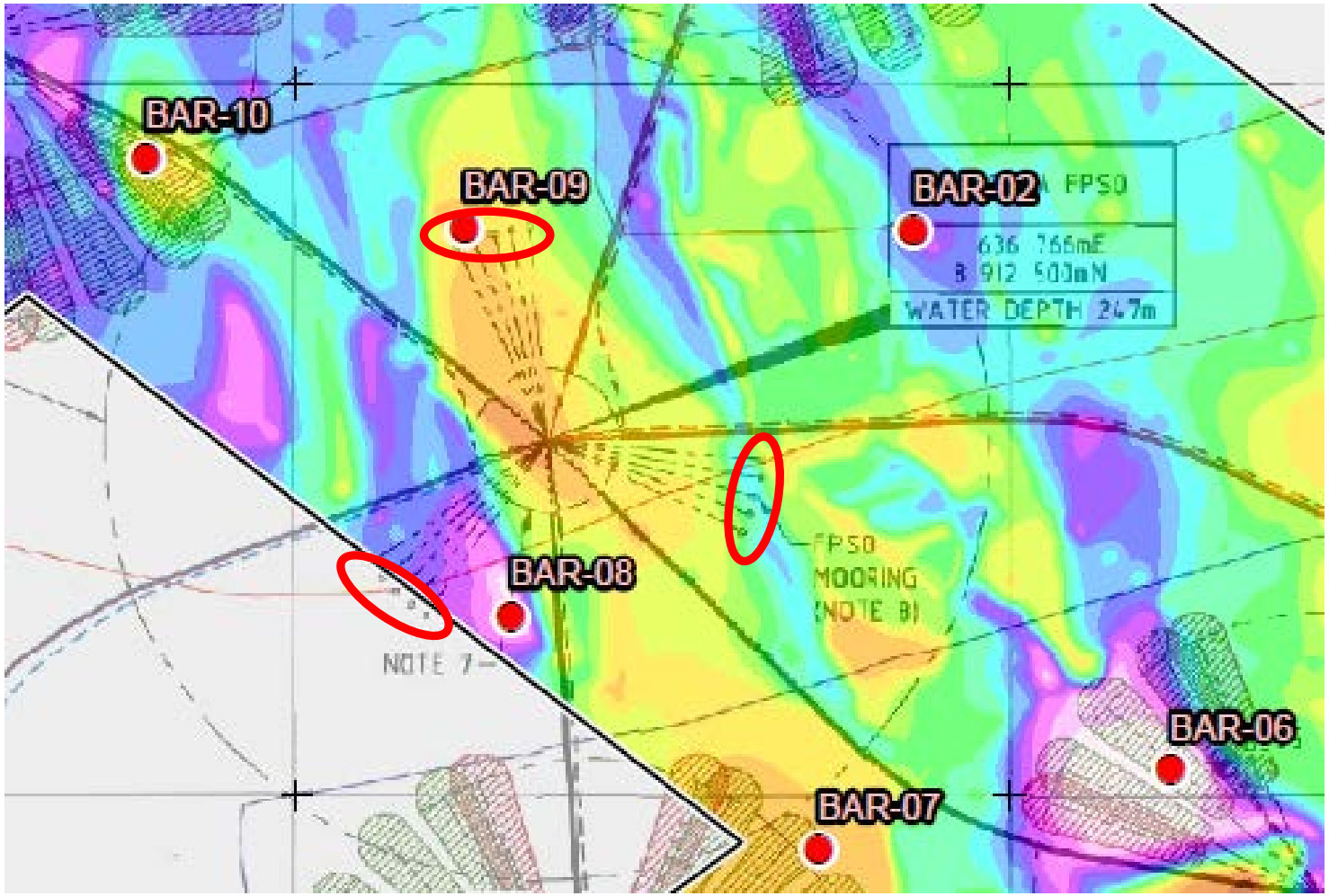
Integrated 3DX and 2D



Integrated 3D and 2DX

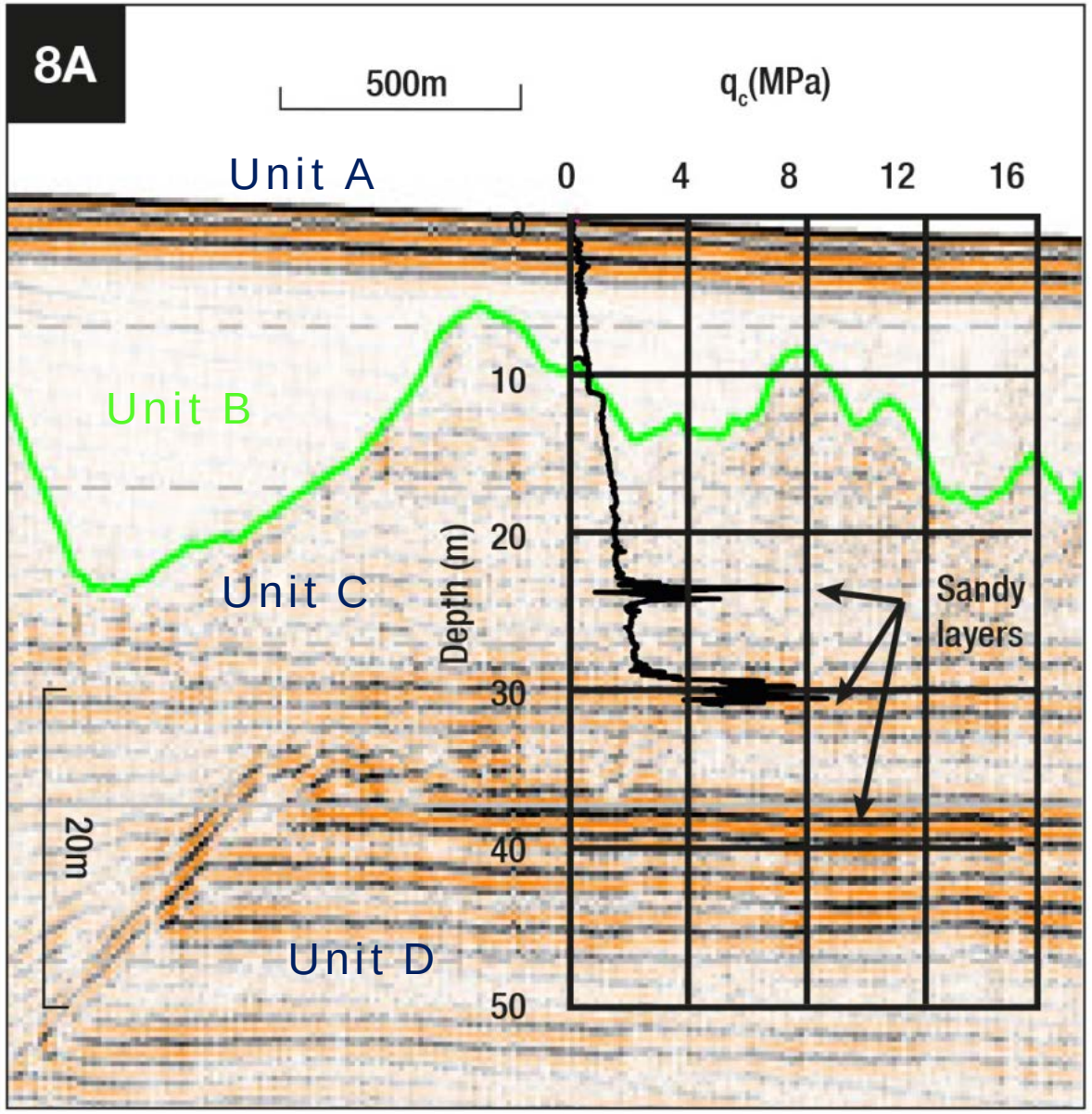
Depth (m) BSB
Base Unit B

- 0.0 - 2.5
- 2.5 - 5.0
- 5.0 - 7.5
- 7.5 - 10.0
- 10.0 - 12.5
- 12.5 - 15.0
- 15.0 - 17.5
- 17.5 - 20.0
- 20.0 - 22.5
- 22.5 - 25.0
- 25.0 - 27.5
- 27.5 - 30.0
- 30.0 - 32.5
- 32.5 - 35.0
- 35.0 - 37.5
- 37.5 - 40.0
- 40.0 - 42.5



Conceptual field layout only

Geotechnical Phase



Conclusions – 3DX Seismic

- 3DX seismic (+ DS) defined prelim geological site model;
- Allowed 2D line plan optimisation (orientation/spacing);
- Cost saving: 2D prelim survey of 3 days;
- 3DX and 2D integration improved geological model;
- Allowed geology to drive Pre-FEED geotech survey (not facilities);
- Final SI's will be significantly cost optimised; and
- No urgency for final SI's until layouts mature.

Thank you

- Co-author, Andy Lane
- ConocoPhillips (and JV partners) for project co-operation and permissions to present