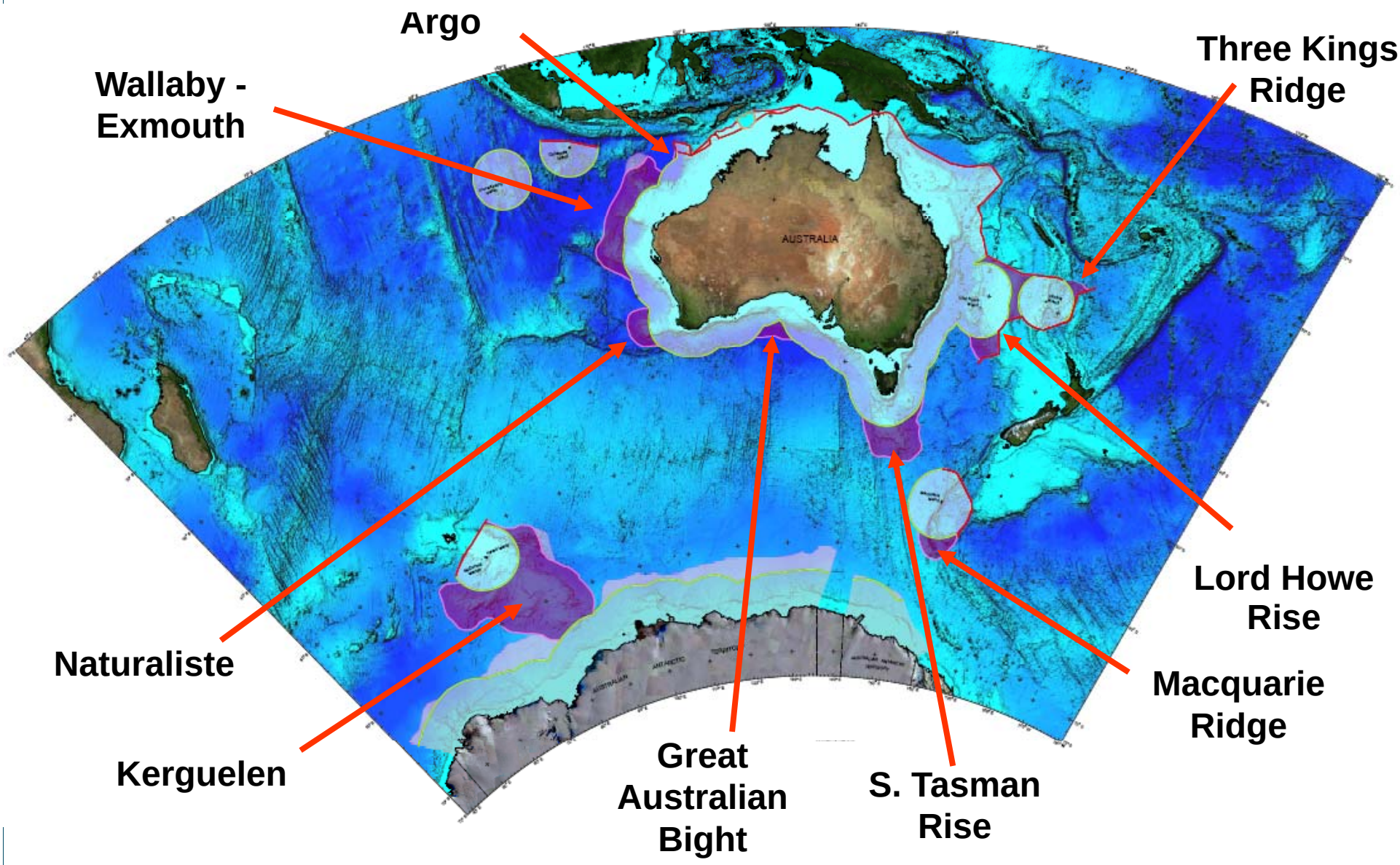
Australian Government

Geoscience Australia

Implications of Australia's Submission to the Commission on the Limits of the Continental Shelf

Mark Alcock, Bill Campbell QC (AGD), **Todd Quinn** (DFAT), **Phil Symonds**



Australian Submission Regions Considered by CLCS

SUBMISSION RESULT

9 of 10 Regions considered

Area Considered	2.68 mil km^2
Area Finalised	2.56 mil km^2
Success Rate	95%
Area of possible revised sub	88,200 km^2

Confirmed ECS area ~ 35% of Aust. continent & islands

ISSUES DEALT WITH BY AUSTRALIAN SUBMISSION

- Data requirements
- Prolongation and FOS
  - Location of FOS
    - morphological
    - geological supported
    - evidence to the contrary
    - Subsidiary features of the continental margin
- Sediment thickness approach
- Application of depth constraint
- Ridges – article 76.6
- Status of Islands
- Construction of the outer limit
- Delimitation issues and the interaction of treaties with CS definition

DATA REQUIREMENTS

Australia used all available data

- International > 70% – i.e. NGDC
- National holdings > 30%
- Many data types and vintages
- single beam, multibeam, transit navigation, some celestial

All acceptable

PROLONGATION AND DETERMINATION OF FOOT OF SLOPE (Base)

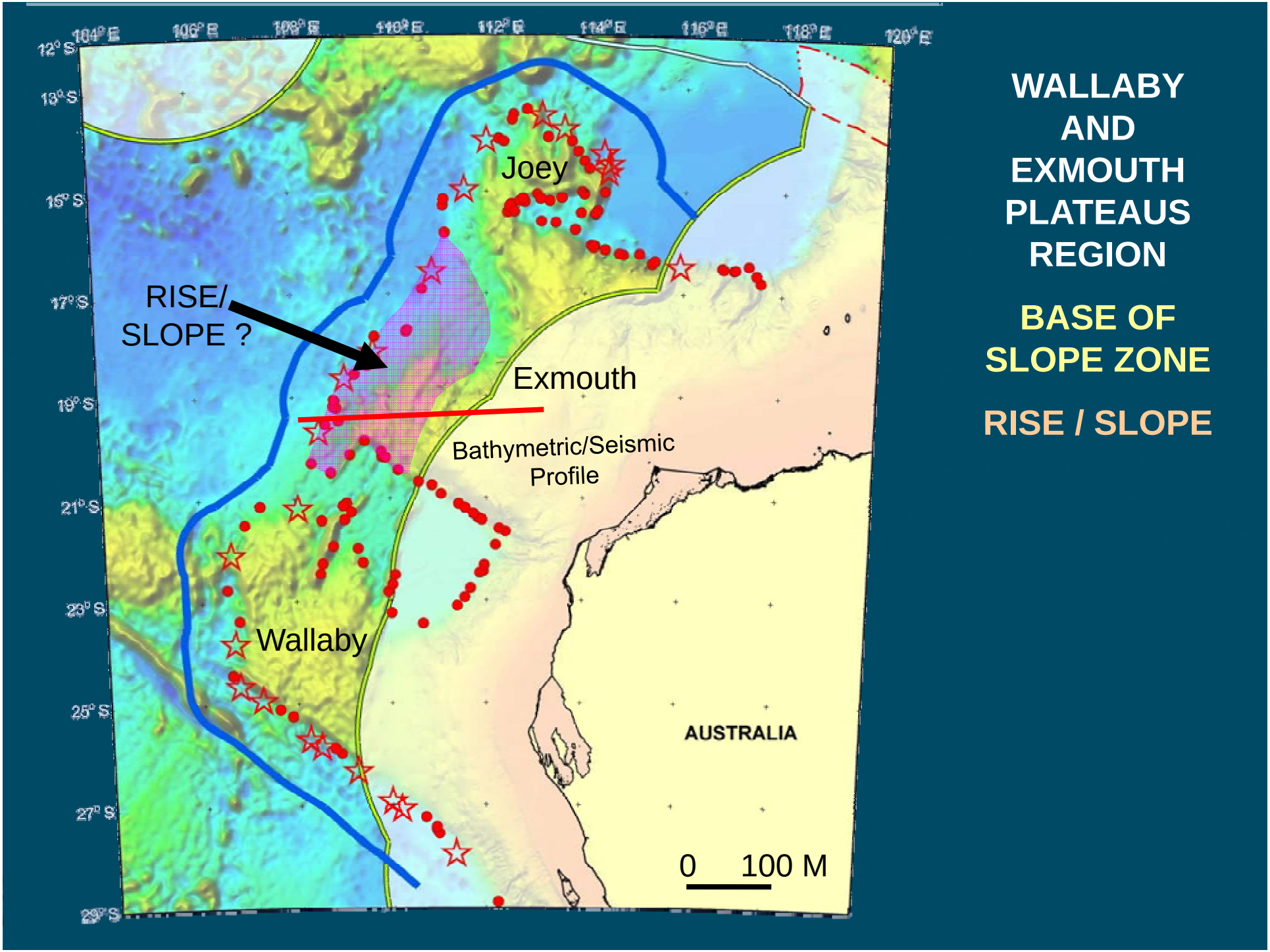
- The FOS at the *BASE* is the location from which the submerged prolongation (continental margin) is measured
- In broadest sense involves distinguishing –
  - Rise / Slope
  - Deep ocean floor / Slope
- Fundamentally morphological
- Location of the *BASE* of the slope is fundamental to identification of FOS

PROLONGATION AND DETERMINATION OF FOOT OF SLOPE (Base)

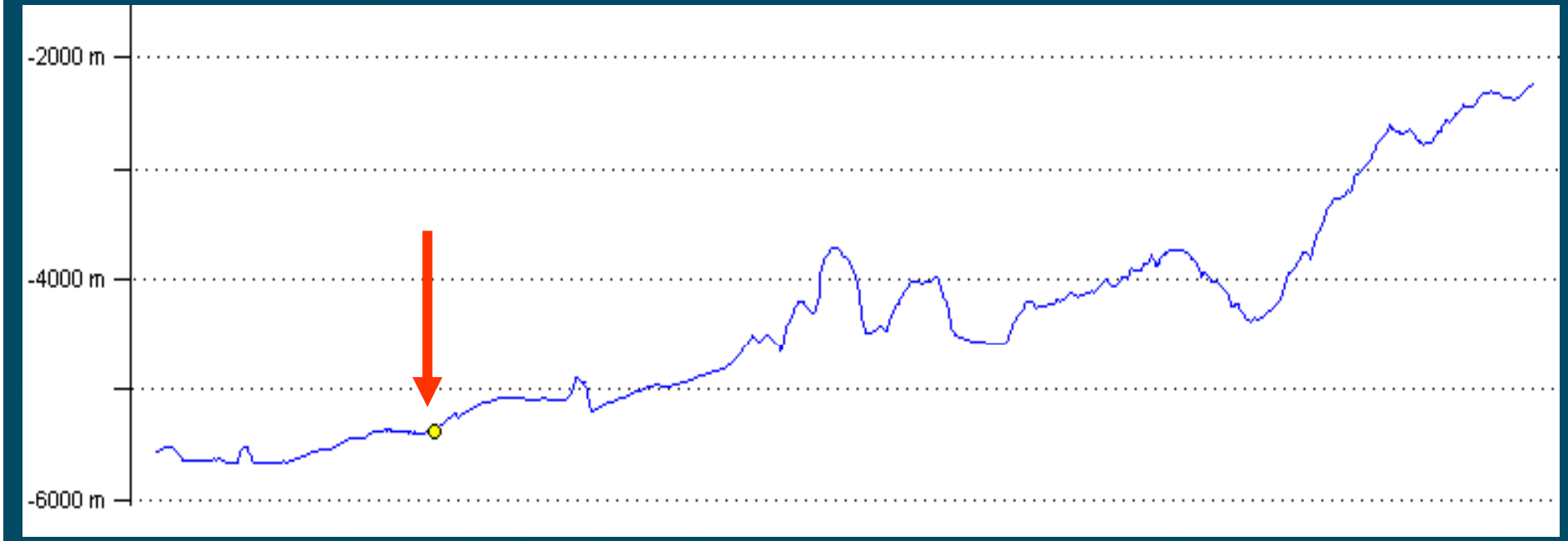
Foot of Slope determination

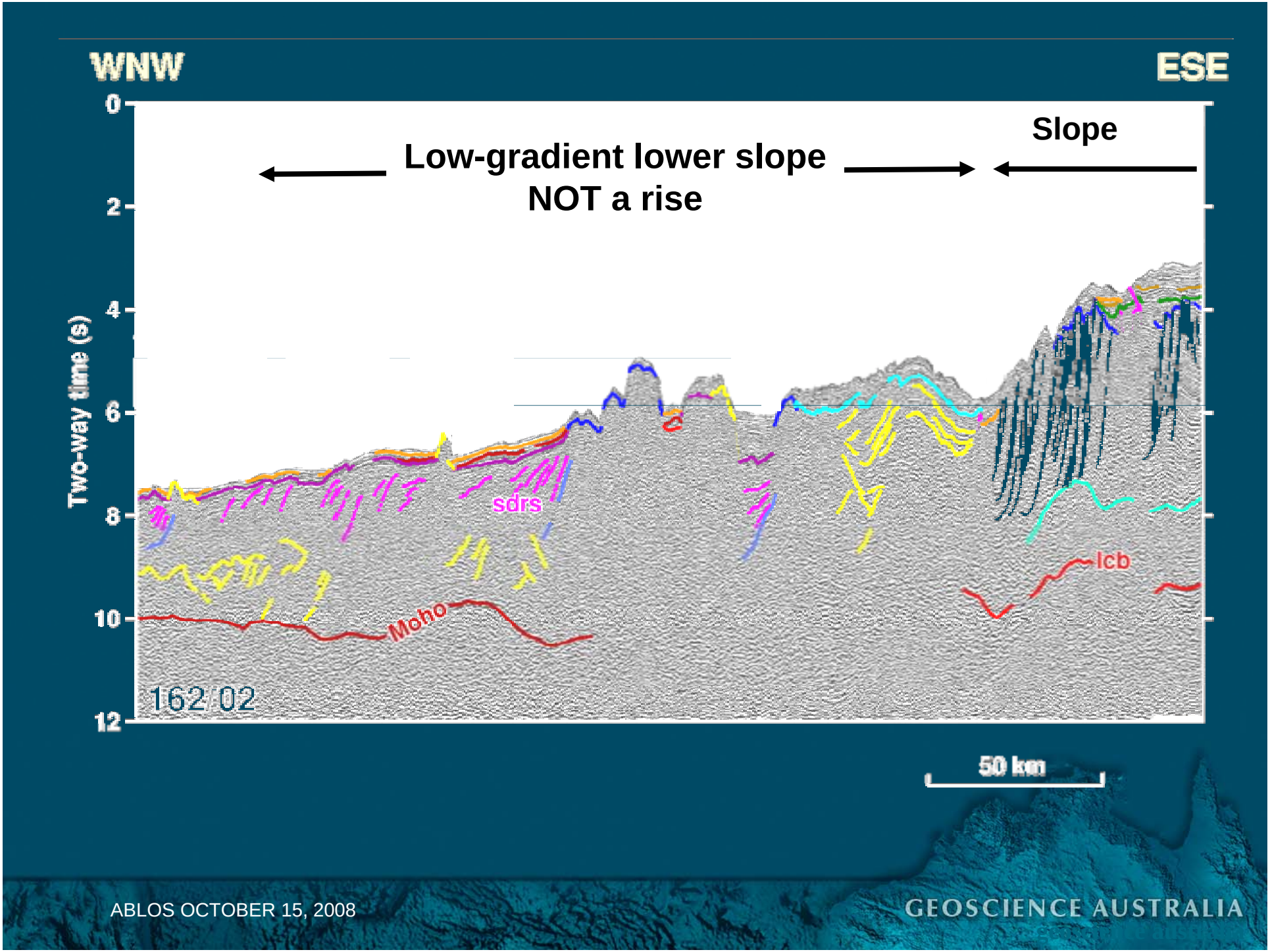
Australian approach acceptable

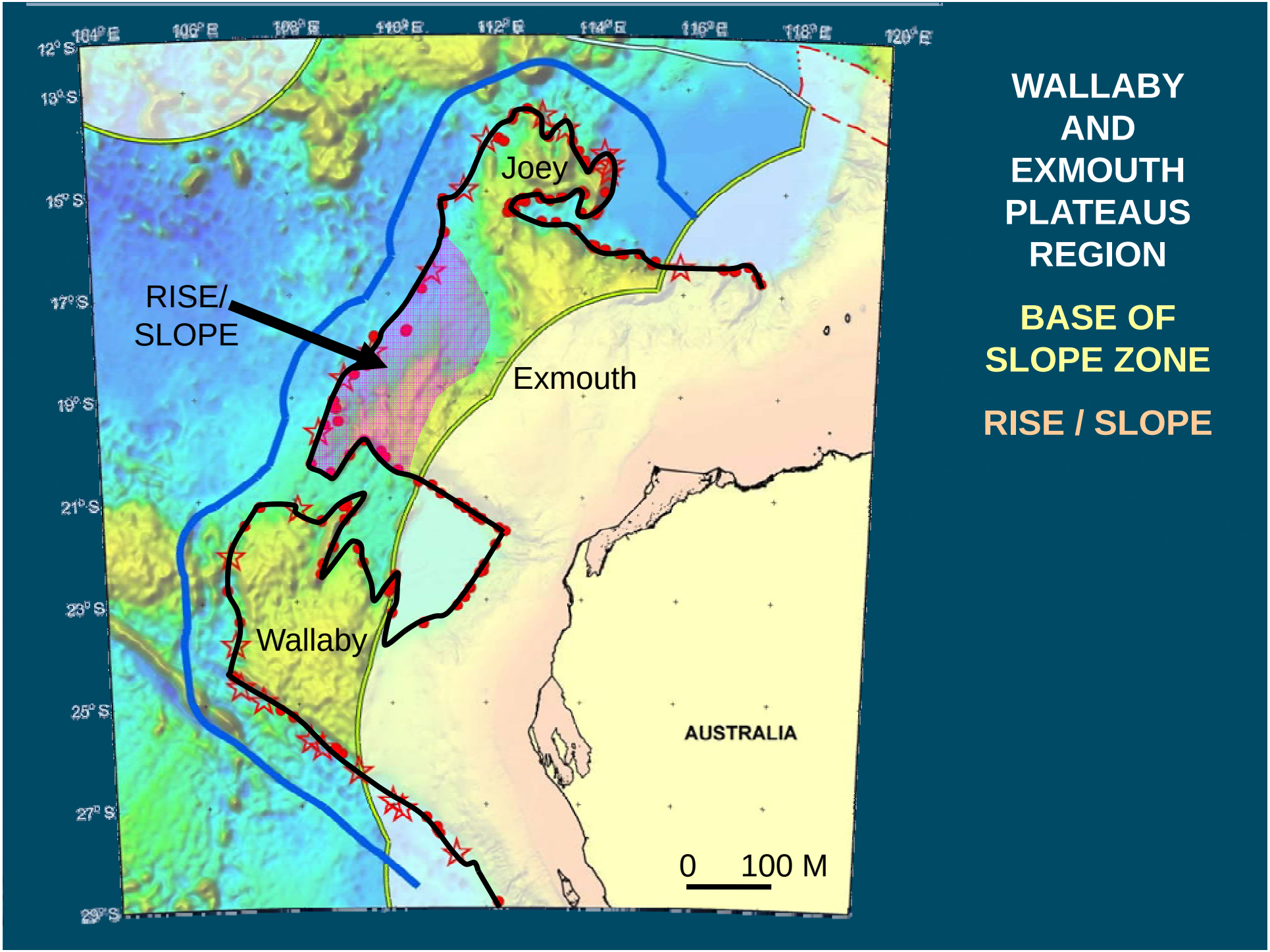
- Morphology (single obvious base location)
- Geologically supported (multiple possible morphological base locations)
- Evidence to the Contrary (no obvious morphological base of slope zone)


WALLABY AND EXMOUTH PLATEAUS REGION
BASE OF SLOPE ZONE
RISE / SLOPE
Joey
RISE/ SLOPE ?
Exmouth
Bathymetric/Seismic Profile
Wallaby
AUSTRALIA
0 100 M

Morphological, geologically-supported FOS pick




WNW
ESE
Low-gradient lower slope
NOT a rise
Slope
Two-way time (s)
0
2
4
6
8
10
12
sdrs
Moho
Icb
162 02
50 km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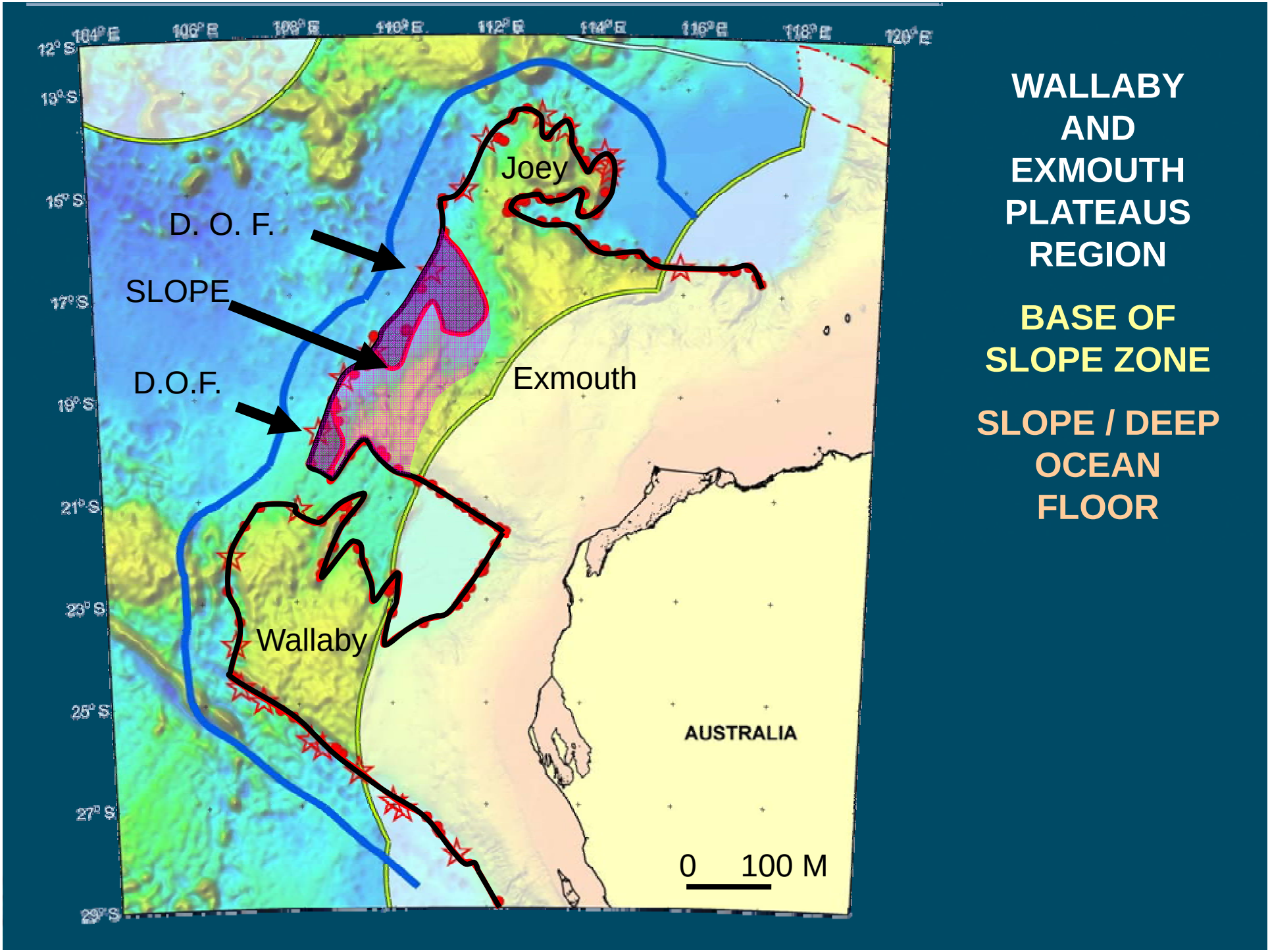


WALLABY AND EXMOUTH PLATEAUS REGION

BASE OF SLOPE ZONE

SLOPE / DEEP OCEAN FLOOR

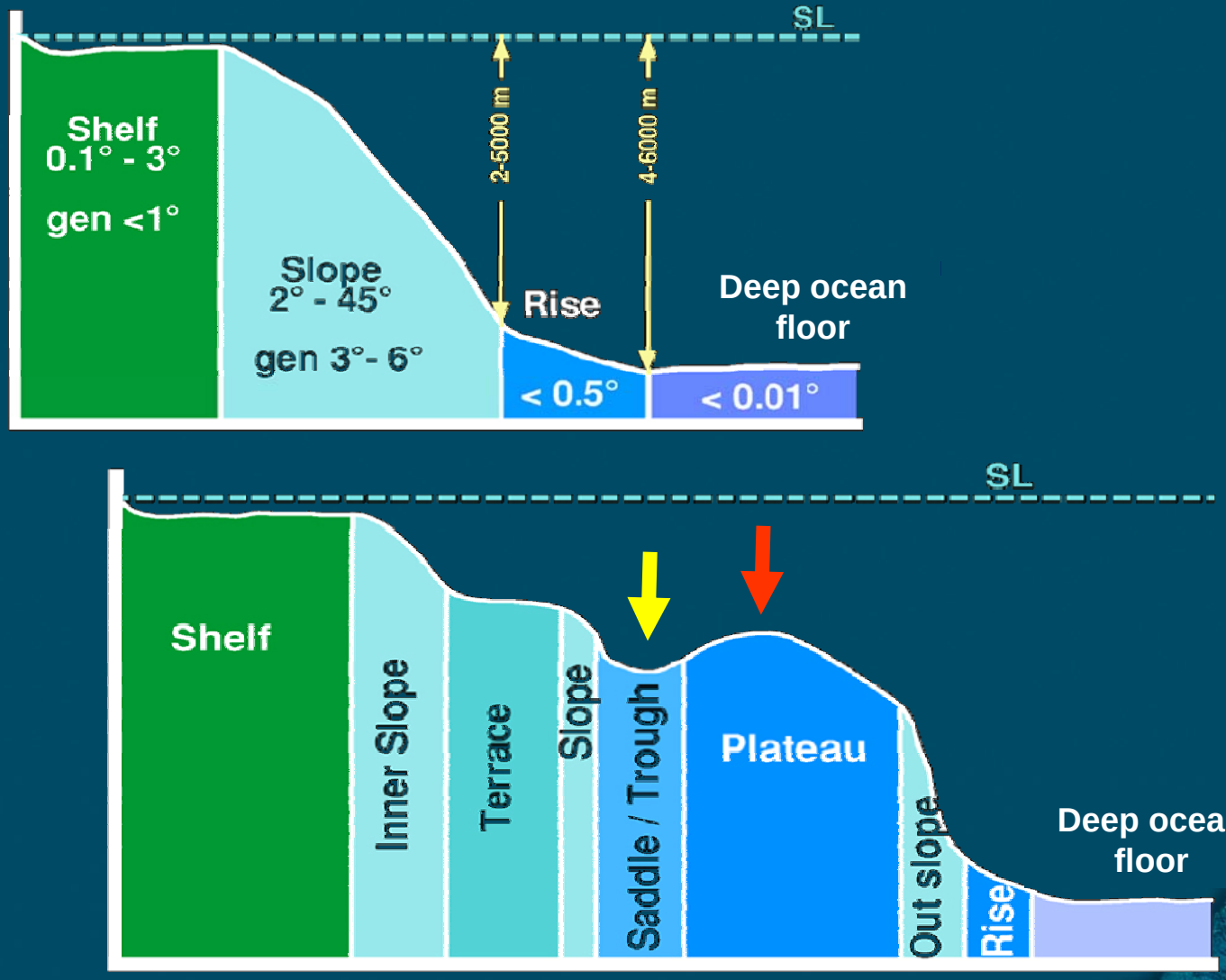
PROLONGATION AND DETERMINATION OF FOOT OF SLOPE (Subsidiary Features)

Consideration for including subsidiary features separated from main body of margin by troughs and saddles (South Tasman Rise, Naturaliste, Plateau Wallaby

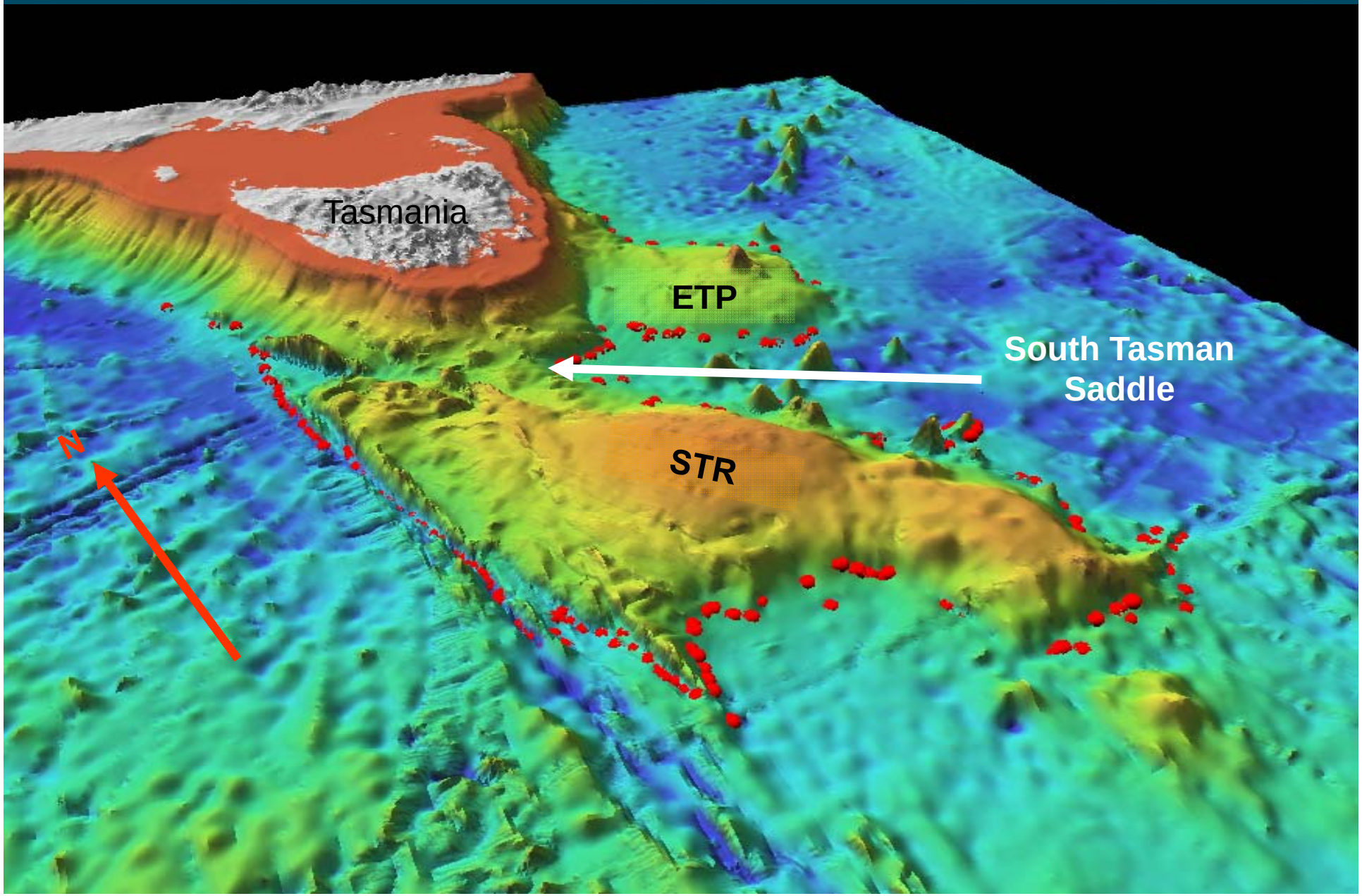
Australian approach

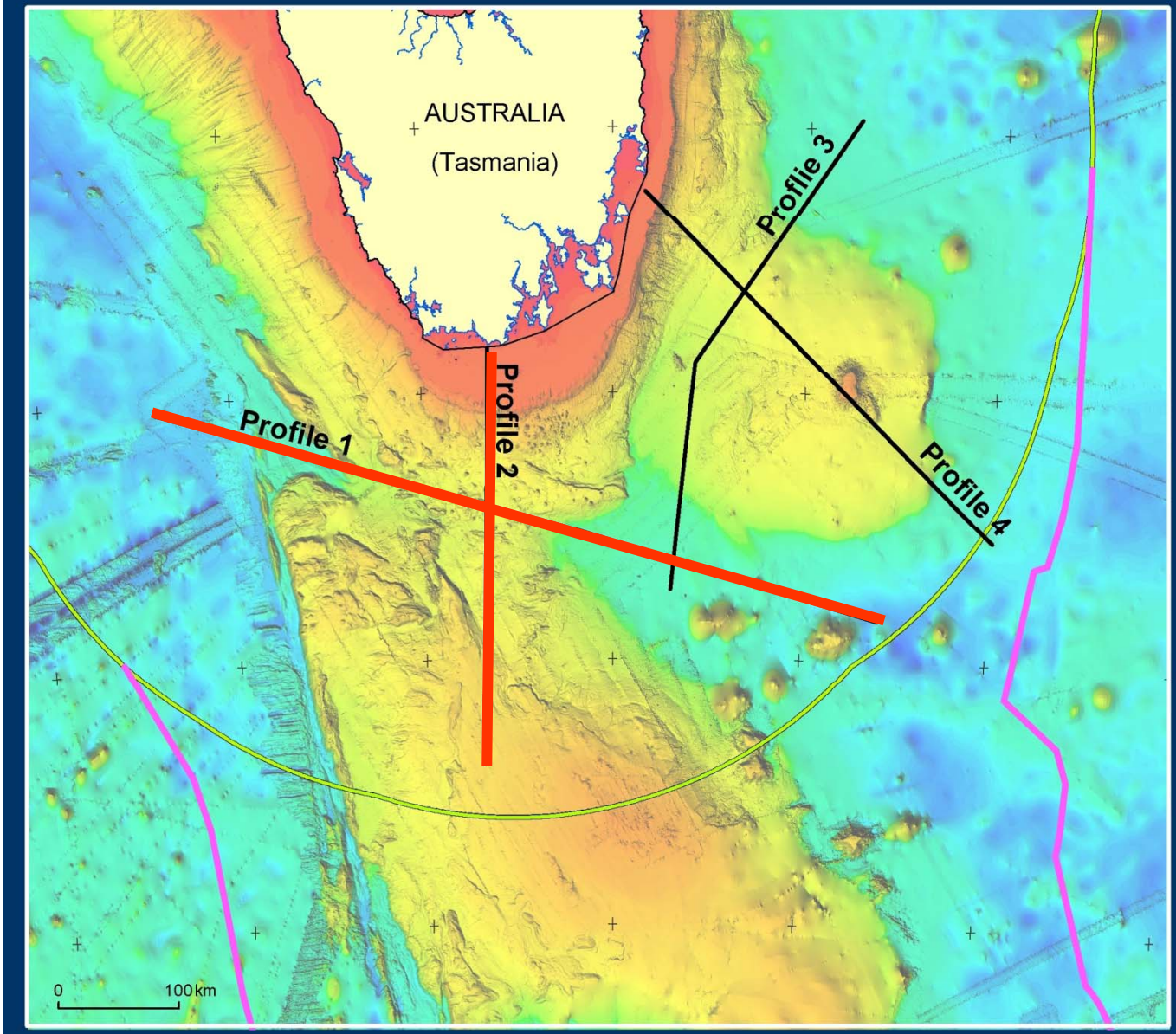
- So long as trough sits above depth of the deep ocean floor the inclusion of such features is acceptable
- Geology is not an essential consideration

Possible physiographic components of the continental margin



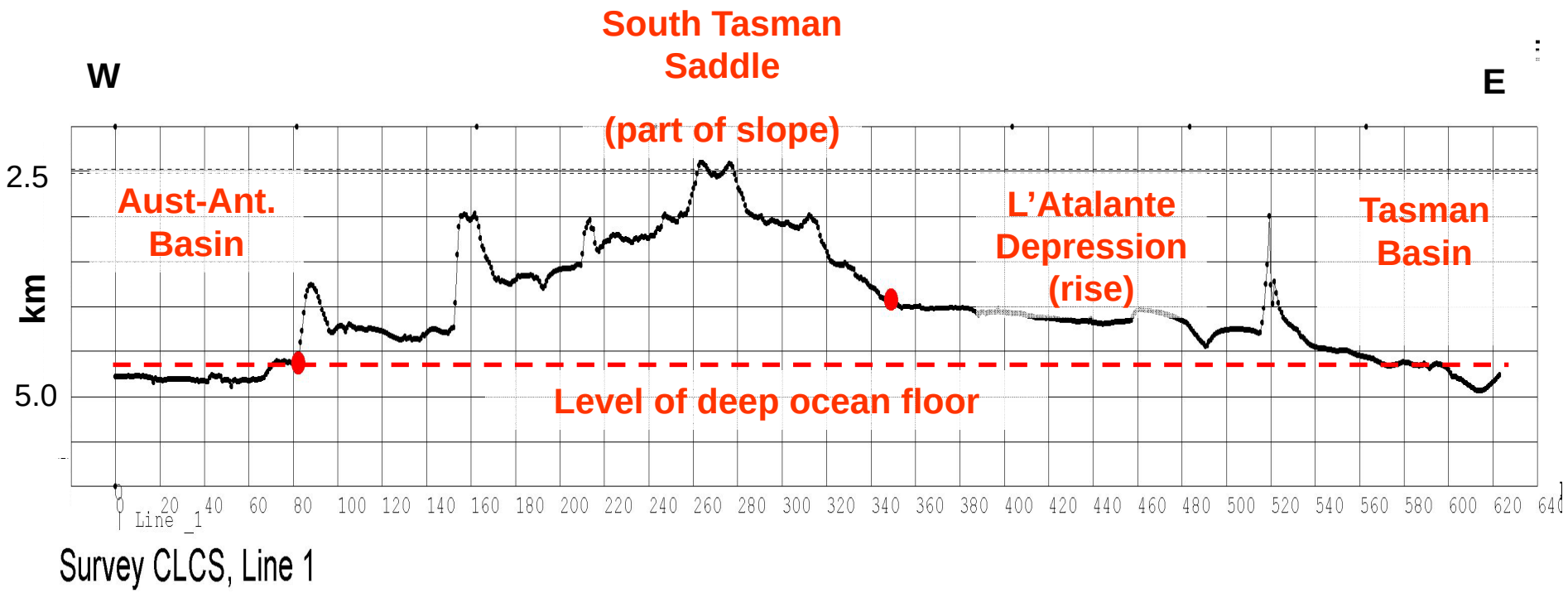
South Tasman Rise and Saddle (view from SW)





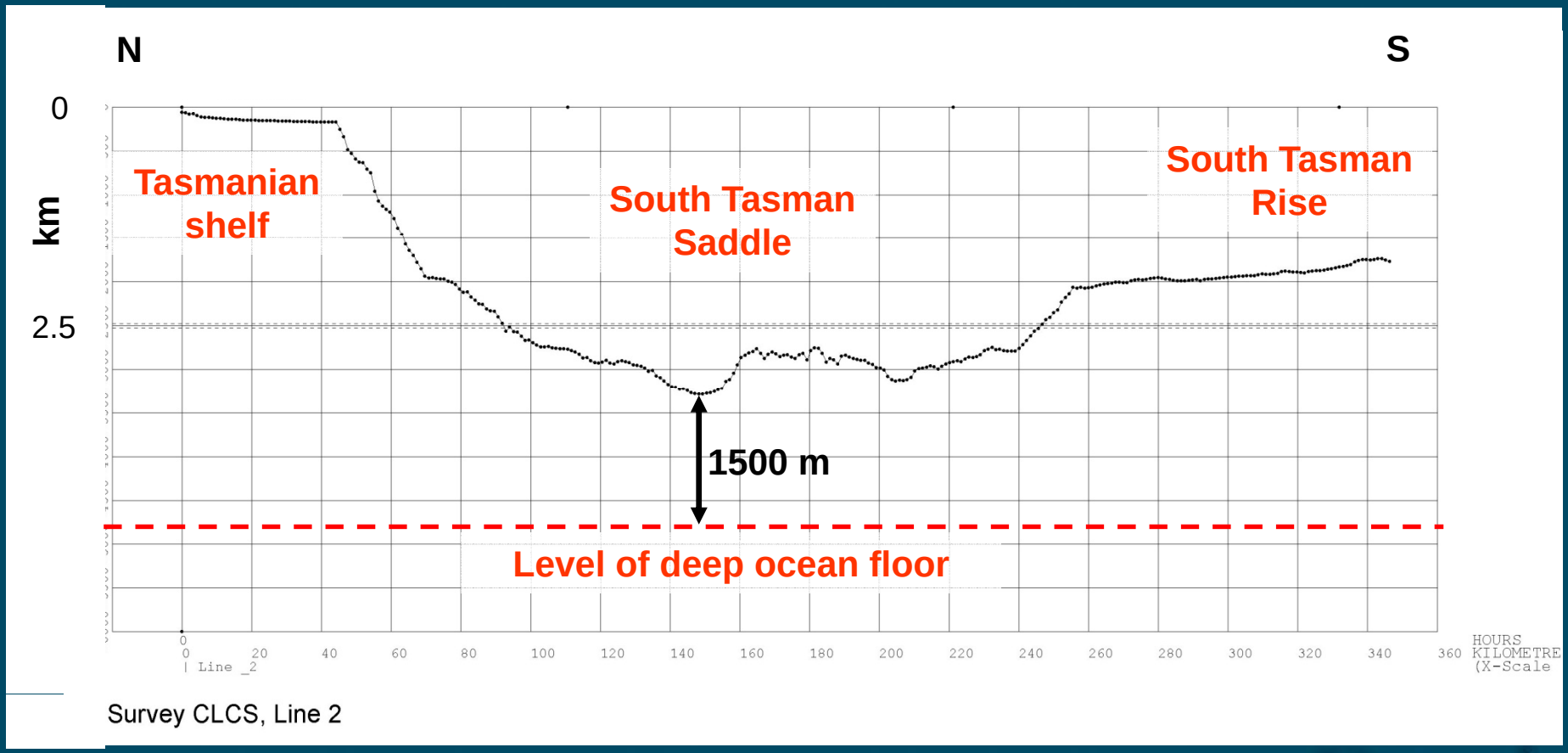
Location of regional profiles 1 & 2, South Tasman Saddle

Profile 1, South Tasman Saddle, W - E



Survey CLCS, Line 1

Profile 2, South Tasman Saddle, N - S



Survey CLCS, Line 2

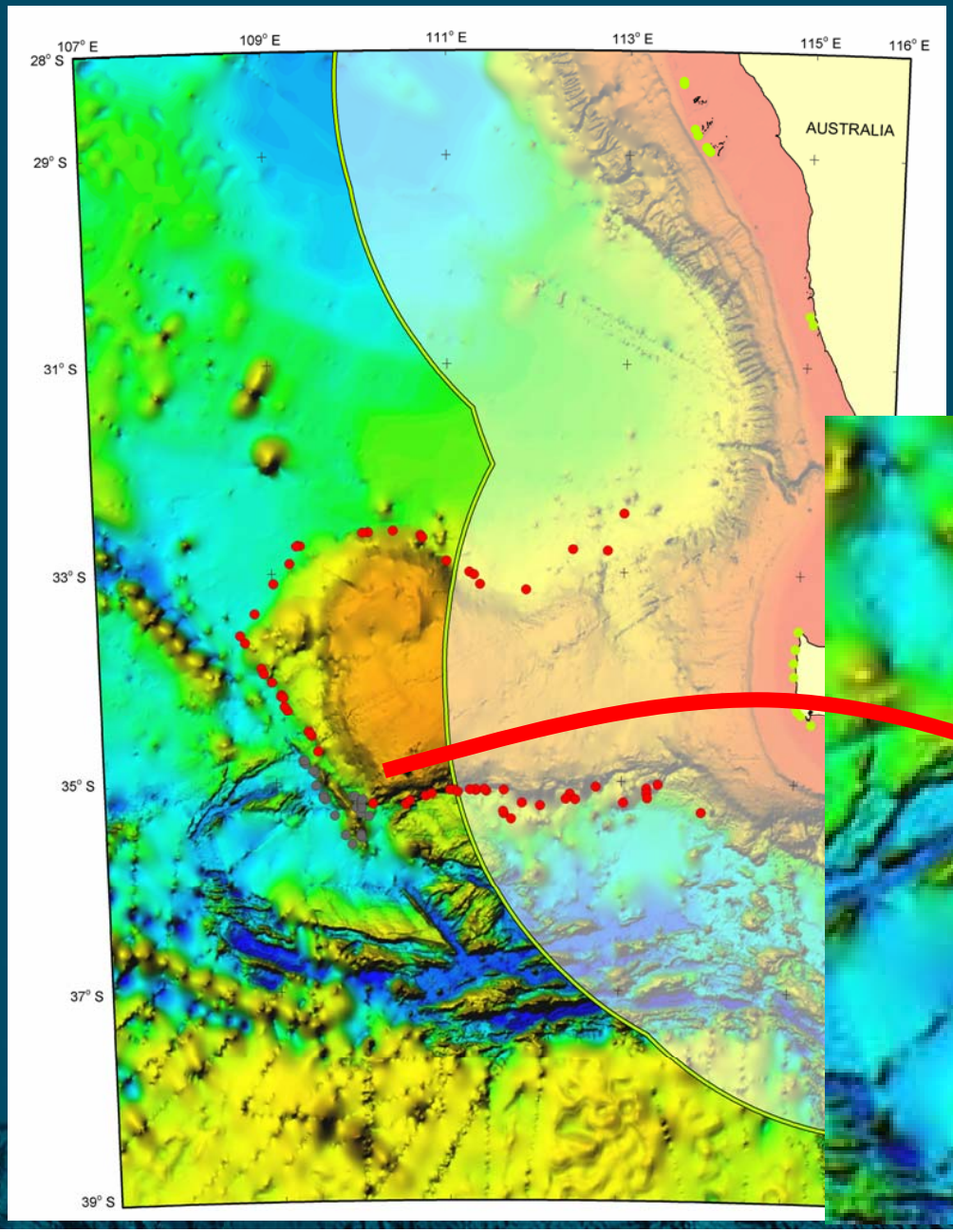
PROLONGATION AND DETERMINATION OF FOOT OF SLOPE (Subsidiary Features pt 2)

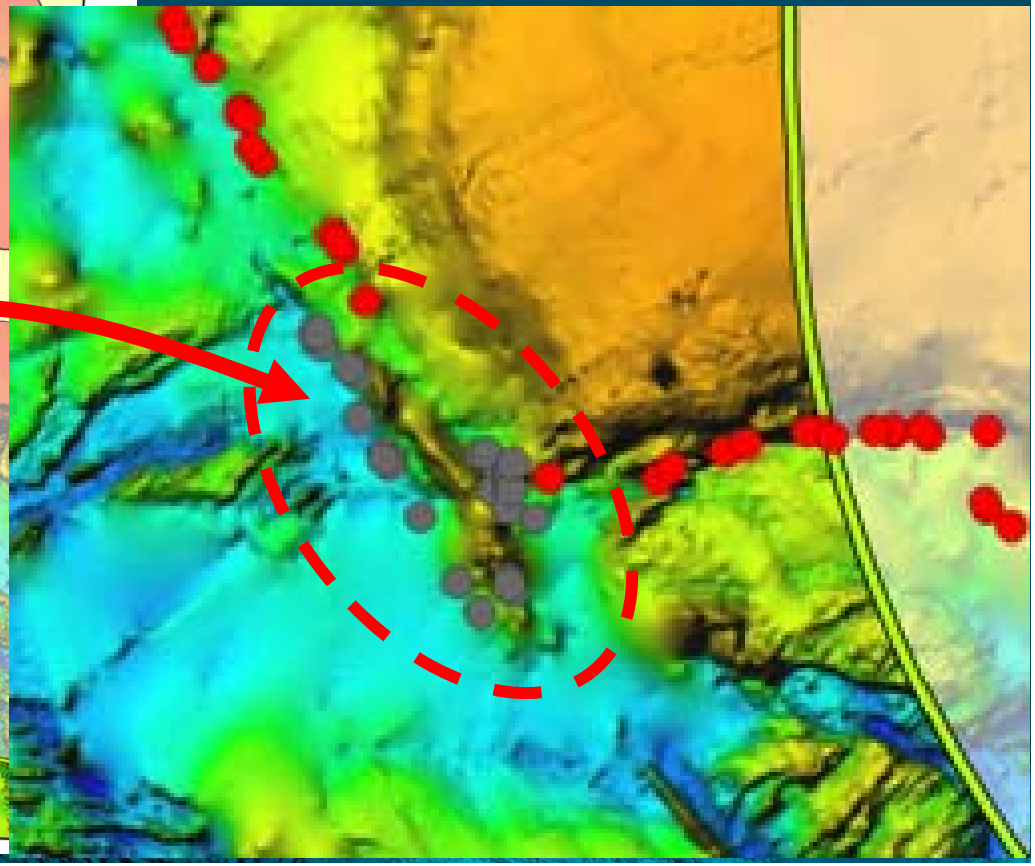
When the connection between the main body of the margin and a subsidiary feature is subtle, the connection must be "*greater than the average undulations of the surrounding deep seafloor*"

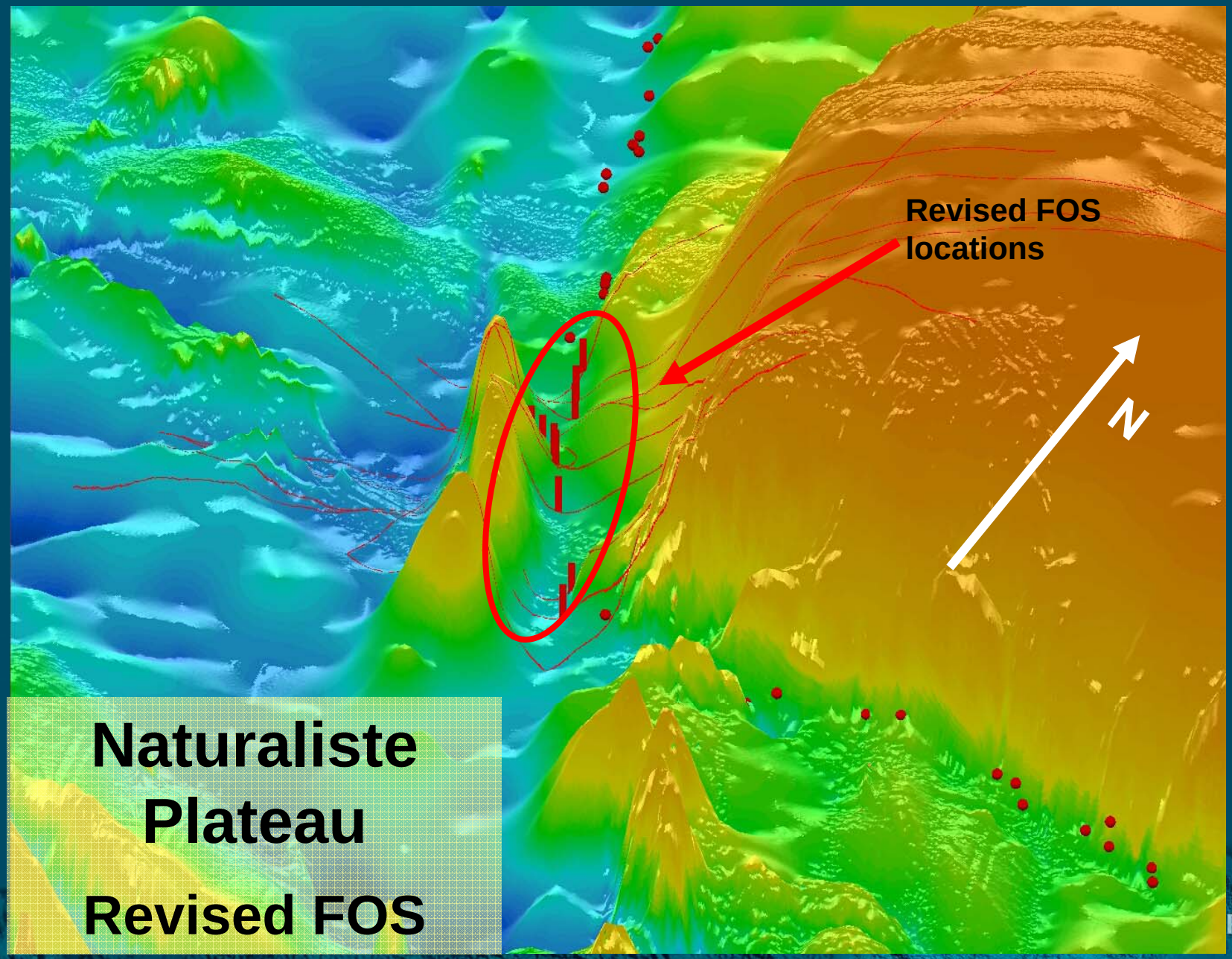
(Subcommission's response to Australia)

Naturaliste Plateau

Minor ridge at base of slope

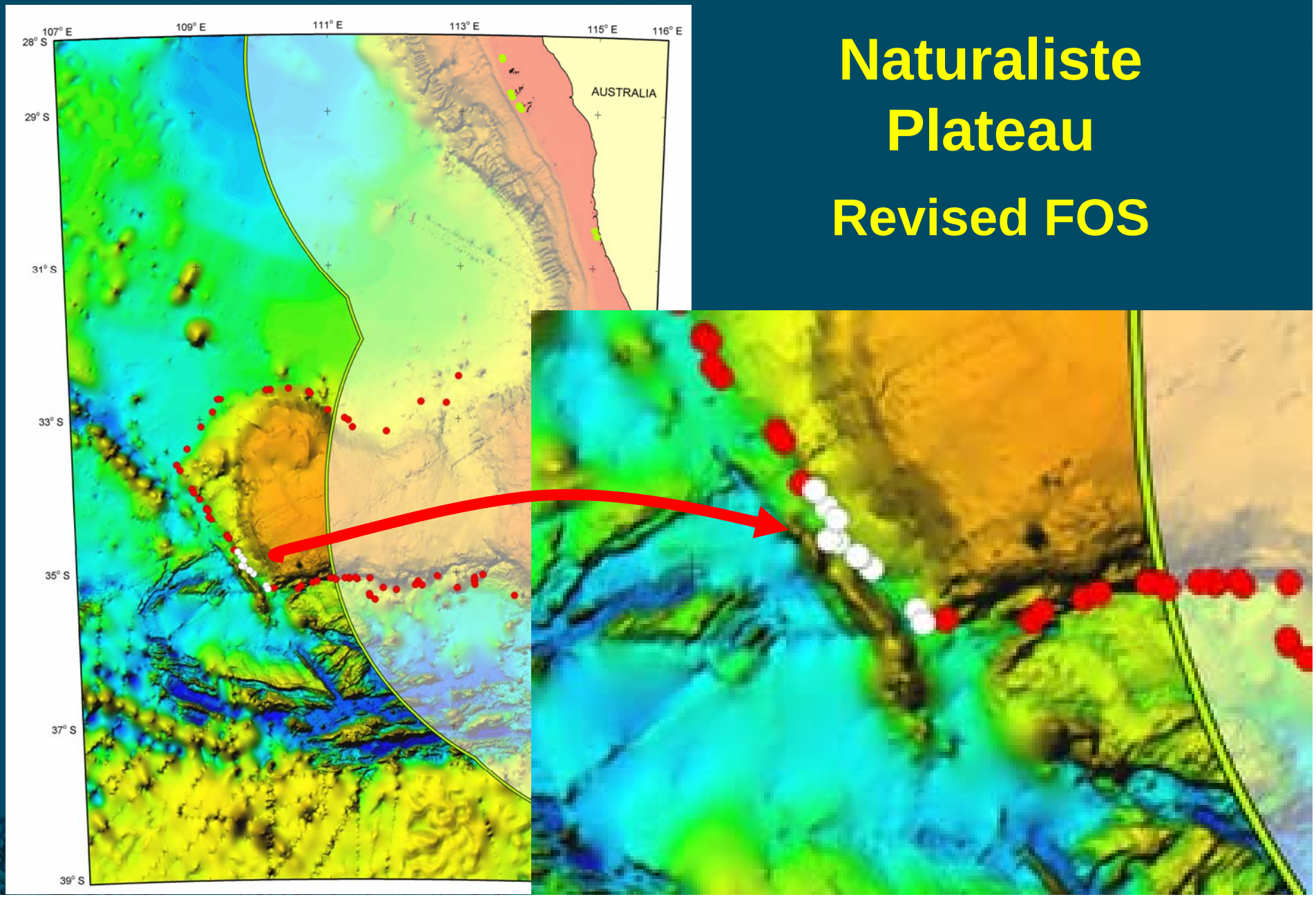


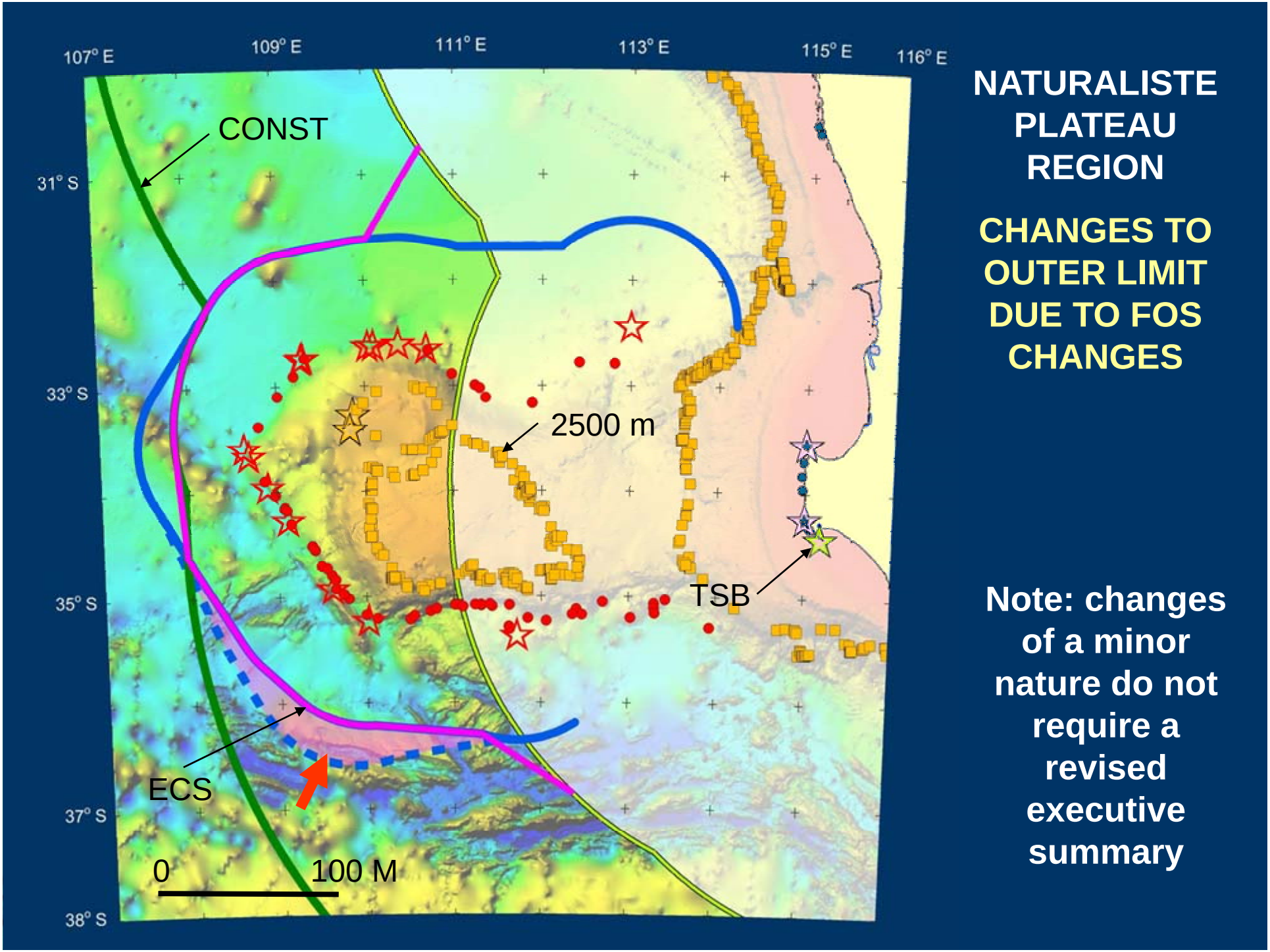



Revised FOS
locations
N
Naturaliste
Plateau
Revised FOS

Naturaliste Plateau

Revised FOS





NATURALISTE PLATEAU REGION

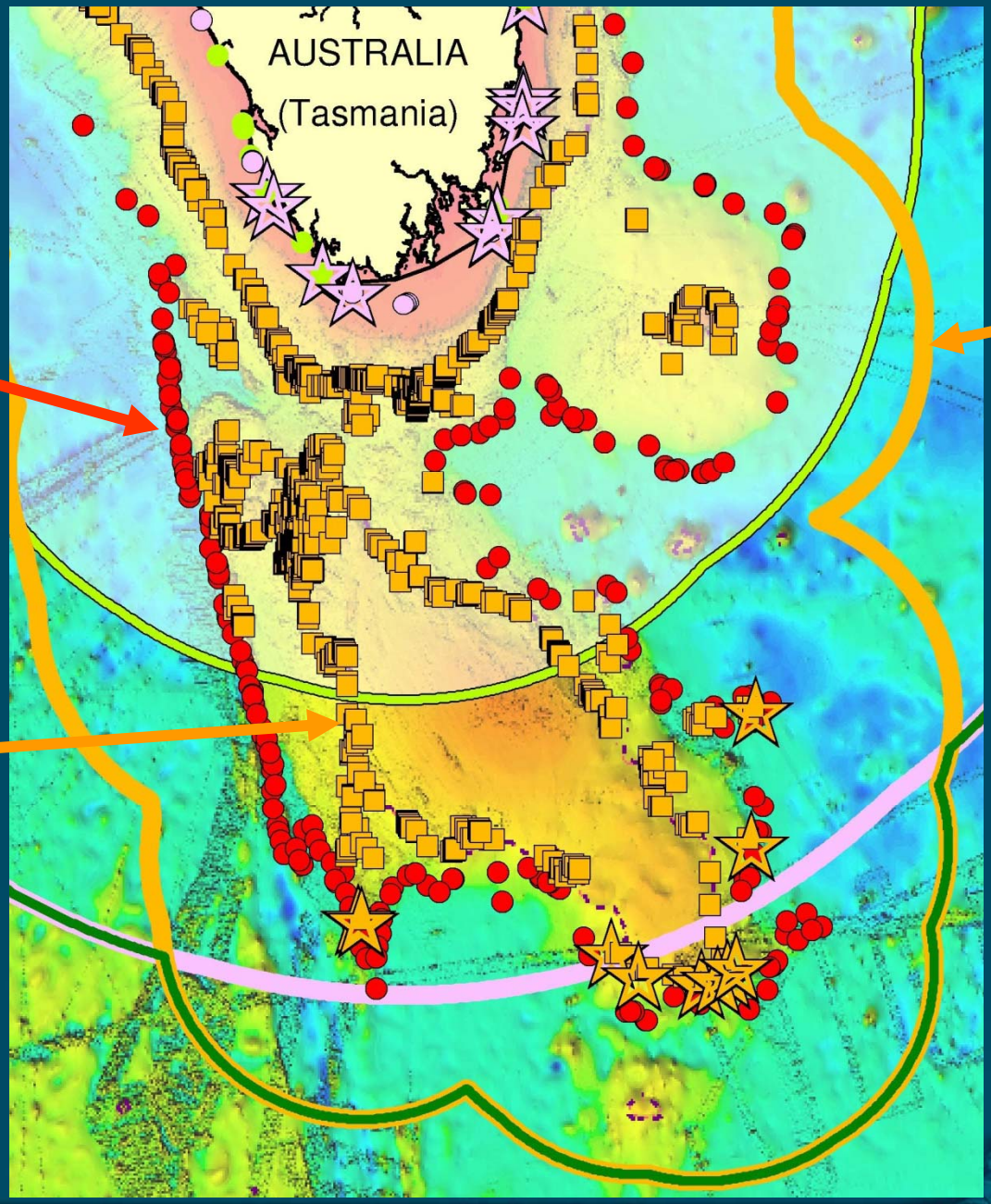
CHANGES TO OUTER LIMIT DUE TO FOS CHANGES

Note: changes of a minor nature do not require a revised executive summary

APPLICATION OF DEPTH CONSTRAINT

Australian approach accepted

- Any crossing of the 2500 m isobath that falls within the envelope of FOS points is acceptable
- Not universally applicable - in rare situations the innermost isobath lies beyond FOS – shallow FOS with broad rise



FOS points

2500m points

2500m constraint

RIDGES – ARTICLE 76.6

Highly contentious

Australian outcome largely as submitted but CLCS reasoning was different

Commission applies a test of "geological continuity" – but test is largely undefined

RIDGES – ARTICLE 76.6

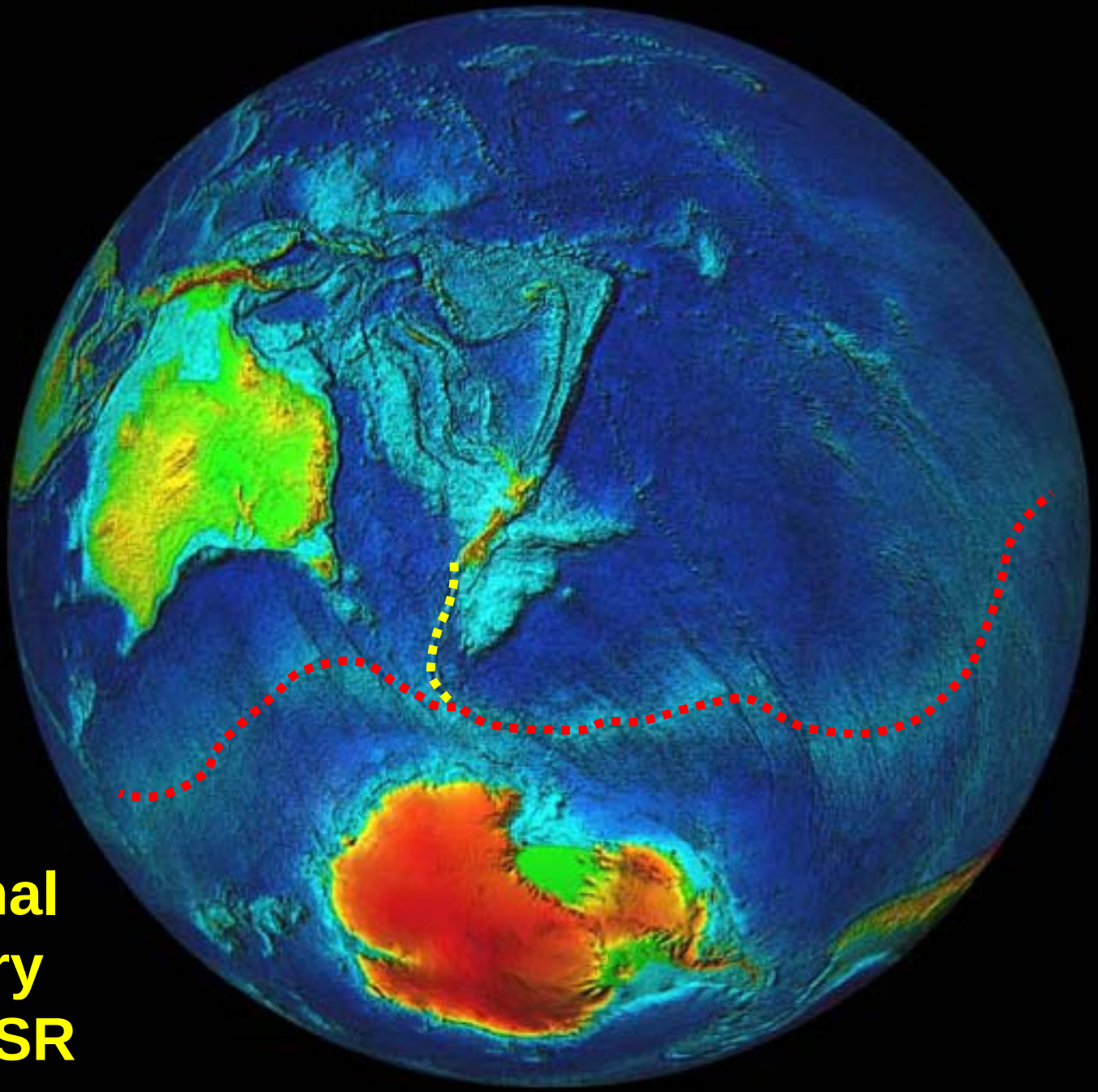
Article 76.6

Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

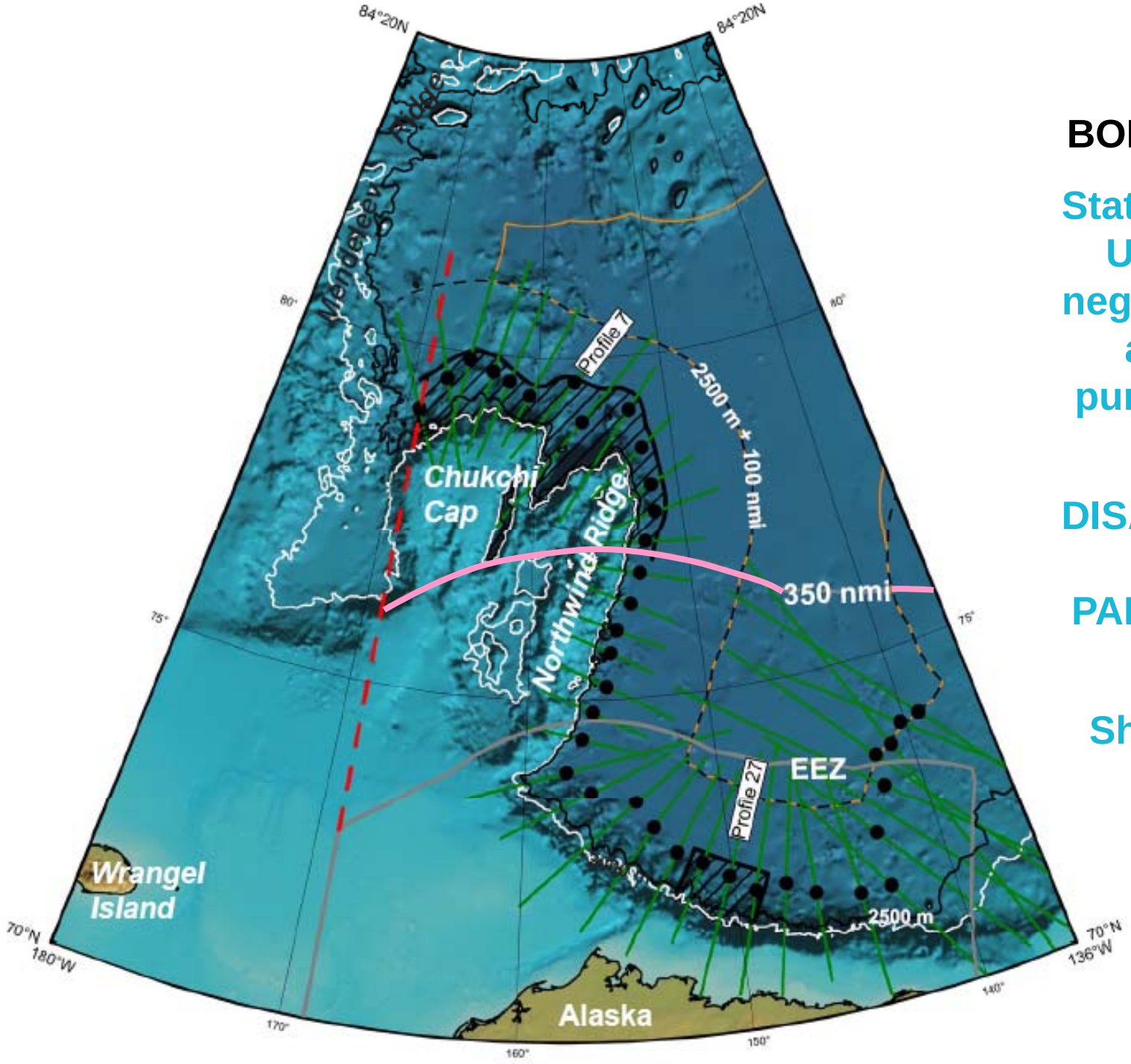
[emphasis added]

RIDGES

Macquarie Ridge



Transpressional plate boundary connecting to SR



CHUKCHI BORDERLANDS

Statement by the US at end of negotiation – not a ridge for purpose of 76.6

NO DISAGREEMENT BY PARTICIPATING STATES

Should not be tested

Maher et al 2002

RIDGES – ARTICLE 76.6

Approach utilised by Australia

STEP 1: Is the feature a ridge or ridge-like?

NO – article 76.6 has no application

YES – go to step 2

STEP 2: Is the ridge a natural component of the continental margin? (geological consideration)

NO – distance constraint (350 M) applies

YES – distance and/or depth (2,500 m isobath + 100 M) constraints apply

RIDGES – ARTICLE 76.6

Approach utilised by Subcommission:

Test all submarine highs attached to the continental margin against geological continuity with the landmass of the coastal State, wherever such highs would generate continental shelf outer limits beyond 350 M.

RIDGES – ARTICLE 76.6

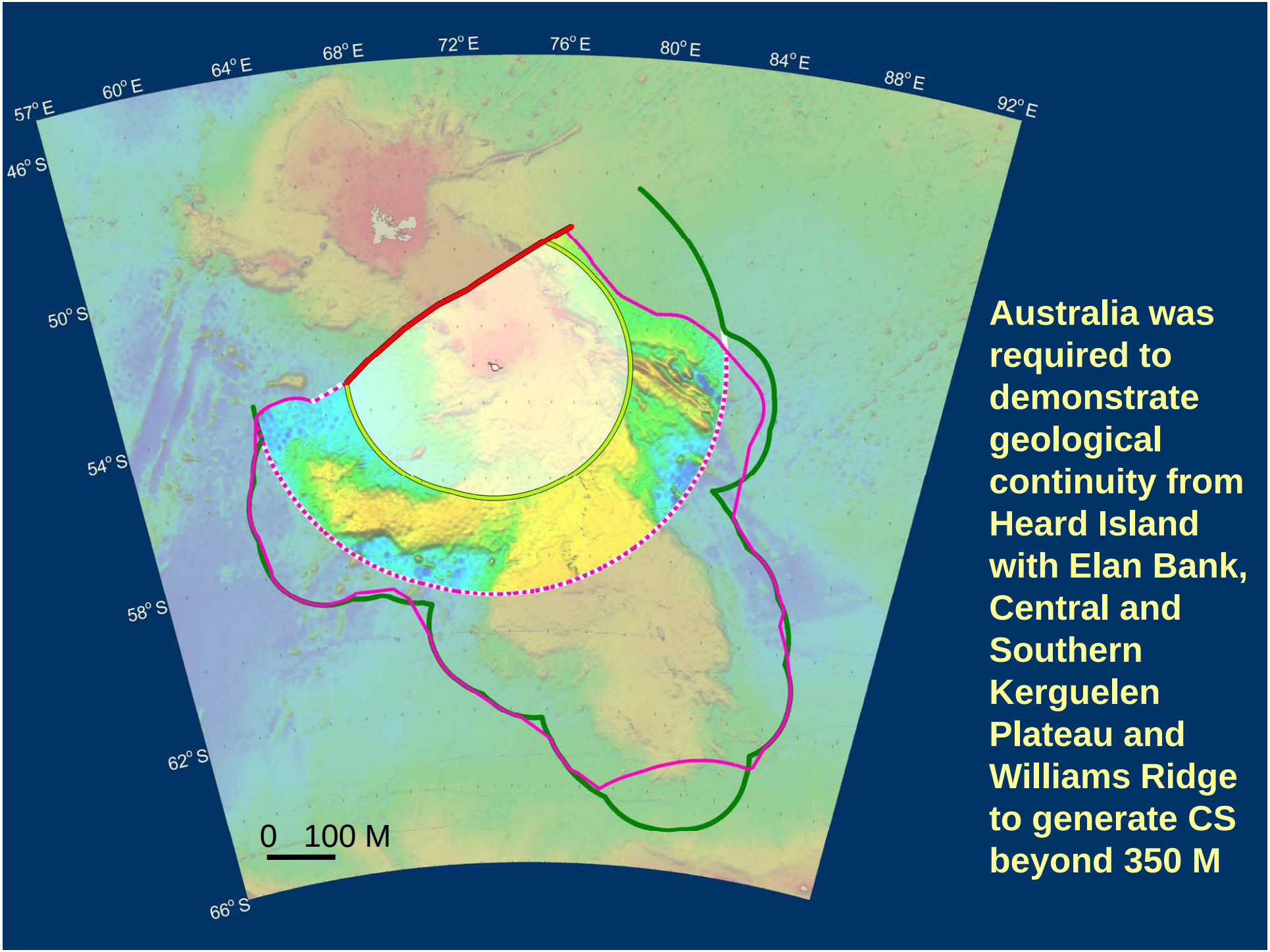
Subcommission's reasoning:

- No absolute, measurable morphological criteria by which a ridge can be distinguished from other ridge-like features
- To resort purely to morphology would be arbitrary
- All features that generate limits beyond 350 M should be tested

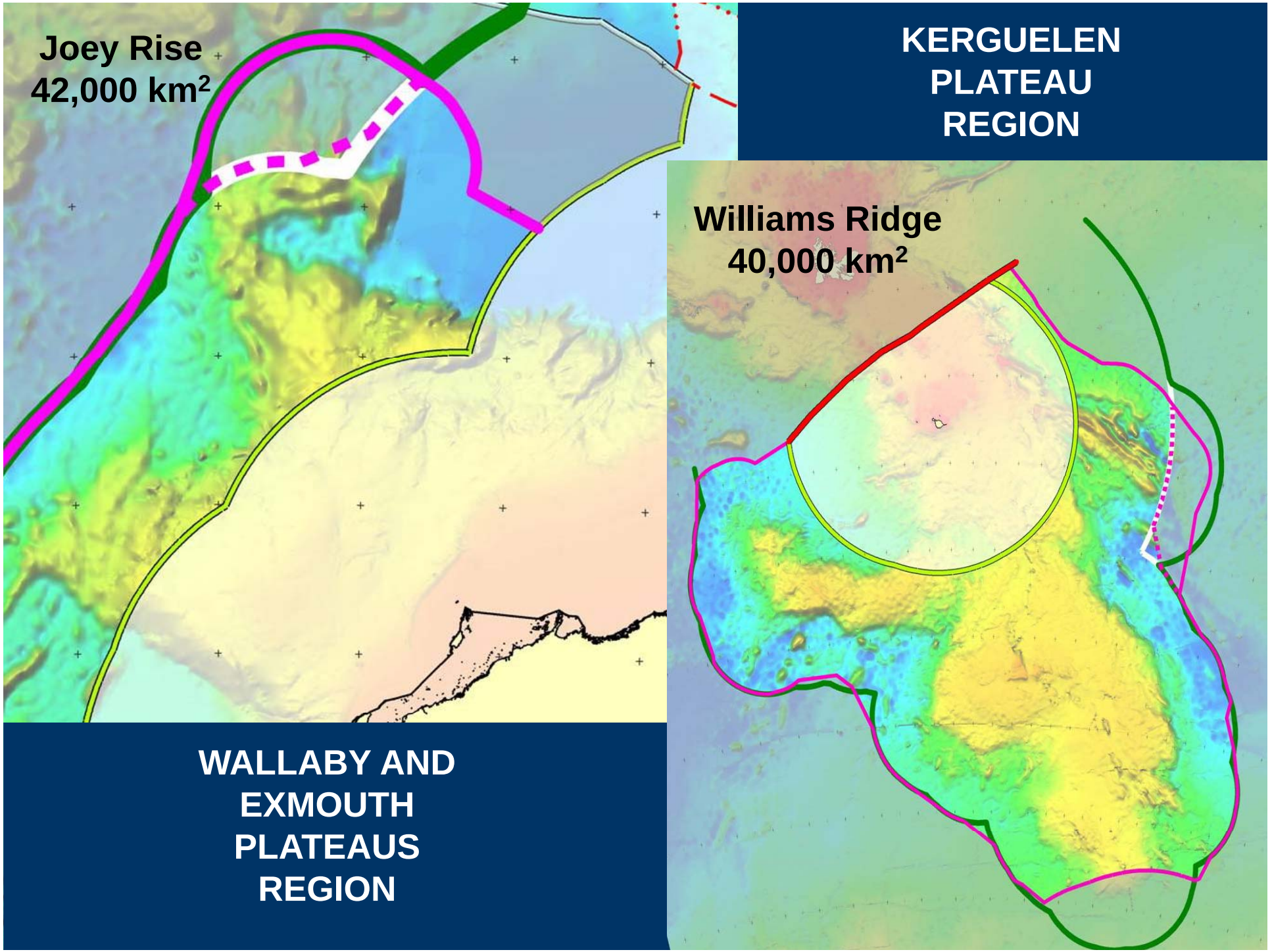
RIDGES – ARTICLE 76.6

Australian response:

- Where it is clear that a feature is not a ridge, article 76.6 has no application
- Most features have clear morphological character
- Morphological ambiguity in some cases does not justify testing all features



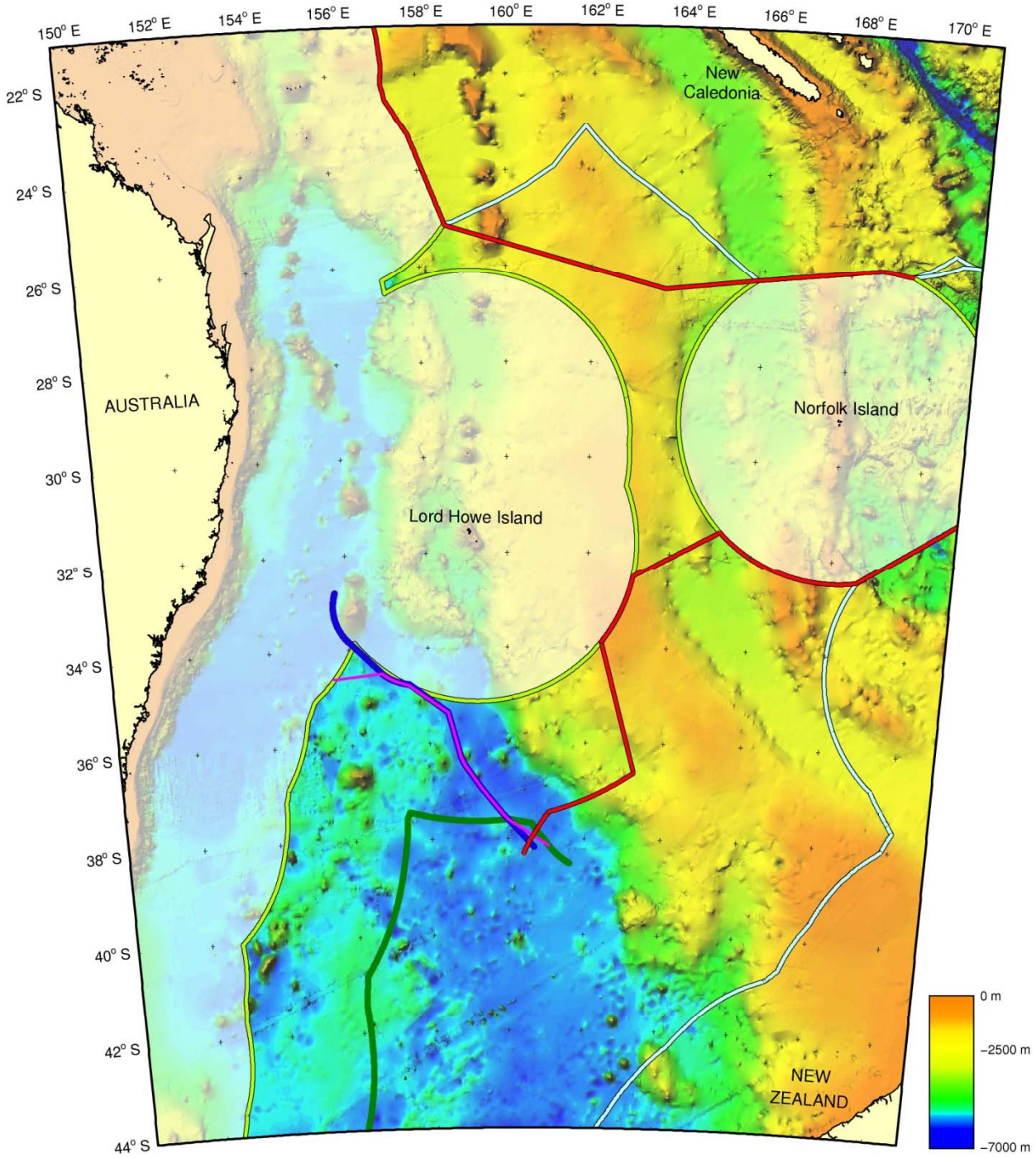
Australia was required to demonstrate geological continuity from Heard Island with Elan Bank, Central and Southern Kerguelen Plateau and Williams Ridge to generate CS beyond 350 M


Joey Rise
42,000 km²
KERGUELEN
PLATEAU
REGION
Williams Ridge
40,000 km²
WALLABY AND
EXMOUTH
PLATEAUS
REGION

SMALL ISLANDS ON LARGE FEATURES

No Special Test

- As for normal continental margin
- No significant issue up to 350 M
- Interpretation of paragraph 6 (ridges) could be more difficult for small islands
  - "Geological continuity" with landmass
  - Onshore geology less likely to be reflected offshore



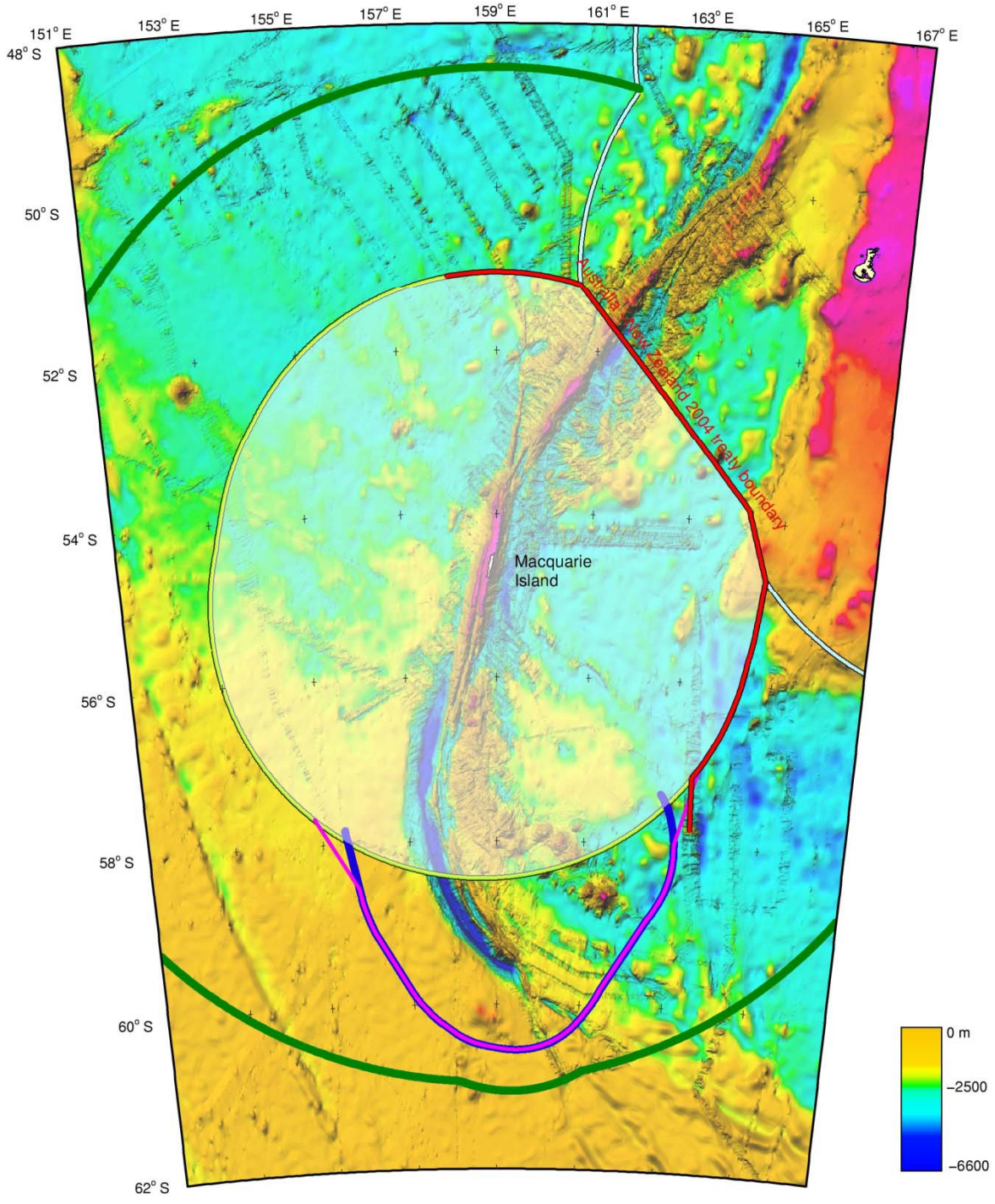
Example 1

Lord Howe Island – Lord Howe Rise

Land geology younger volcanics

LHR continental crust

GEOSCIENCE AUSTRALIA



Example 2

Macquarie Island – Macquarie Ridge

Island - uplifted oceanic crust exposed at sea level

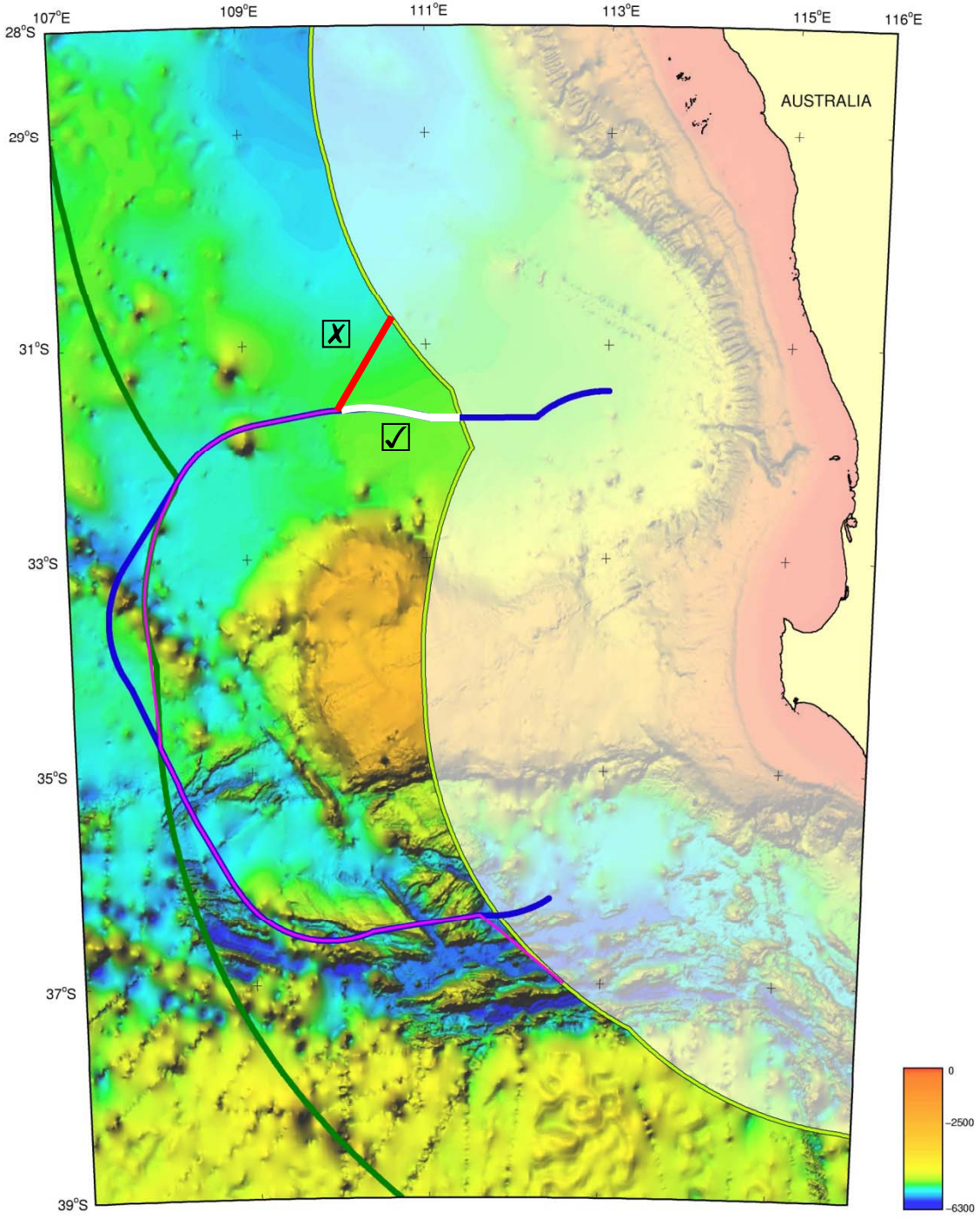
Macquarie Ridge geologically identical to island

GEOSCIENCE AUSTRALIA

Construction of Outer Limit

Australian approach mostly accepted

- Application of Paragraphs 76.4,76.5,76.7 OK
- Australian approach for connecting back to the 200 M line deemed unacceptable
- Some question as to whether this is binding
- Australia will use CLCS approach – with reservations



NATURALISTE PLATEAU REGION

200 M join

Not recommended most advantageous connection between CM and 200 M

Recommended intersection of 200 M and CM or

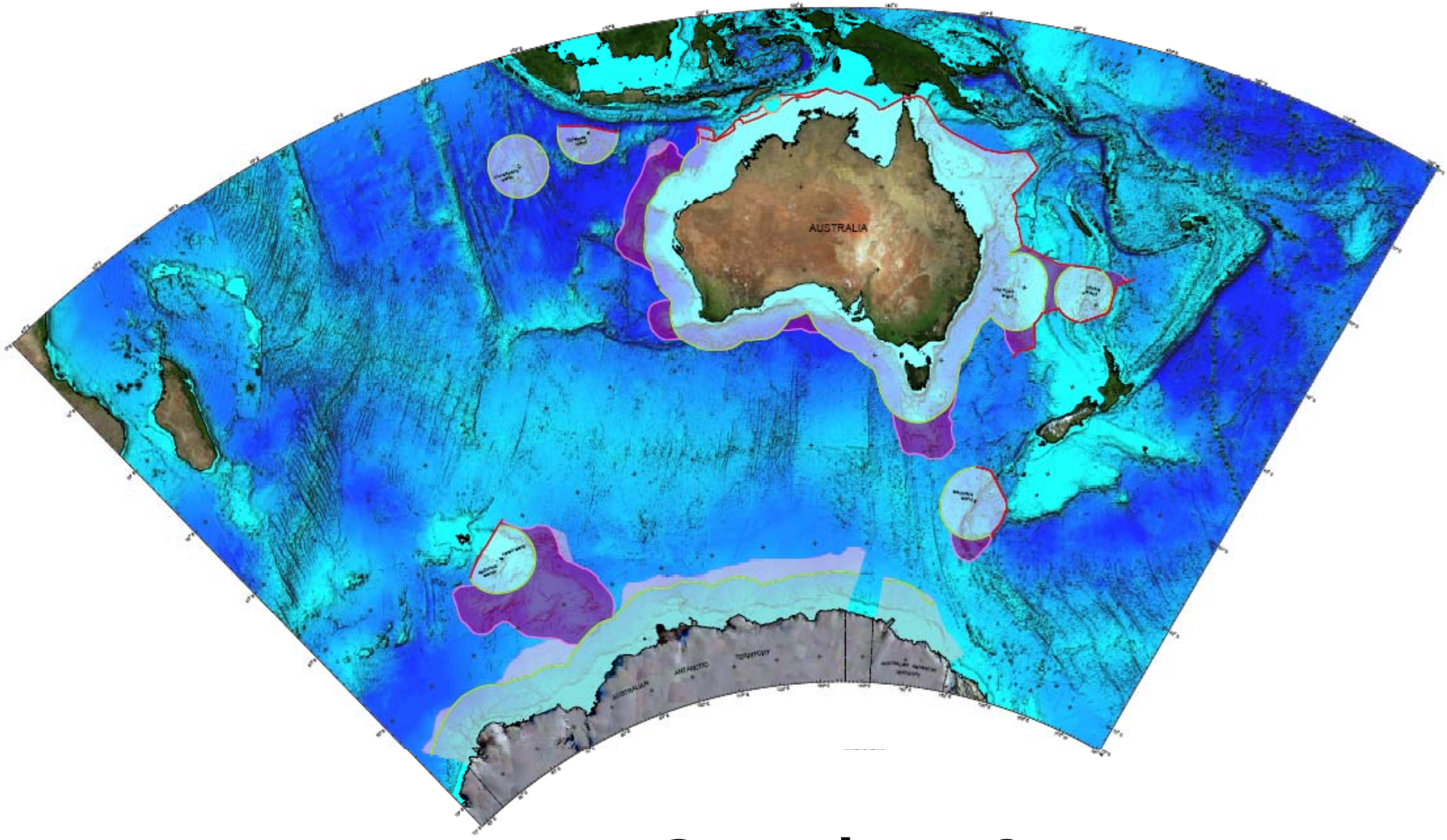
shortest distance between last fixed point on CM and 200 M line

GEOSCIENCE AUSTRALIA

THE COMMISSION AND DELIMITATION

Australian view

- Recommendations are always without prejudice
- Recommendations can be made in areas where delimitation is completed and/or outstanding
- The physical aspects of art. 76 are independent of States in areas of shared CS (eg FOS and 2500m isobath)



Questions ?