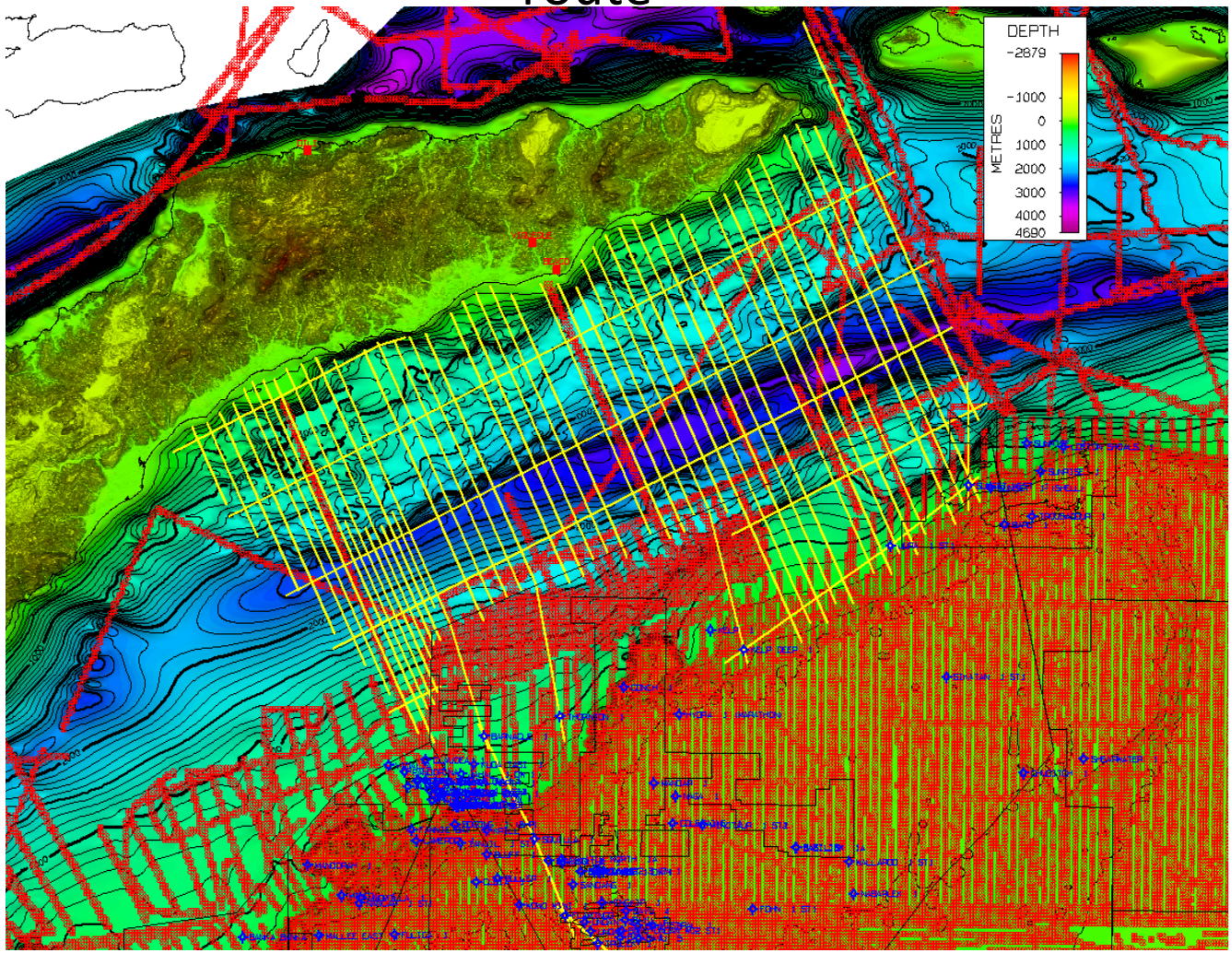
PIPELINE

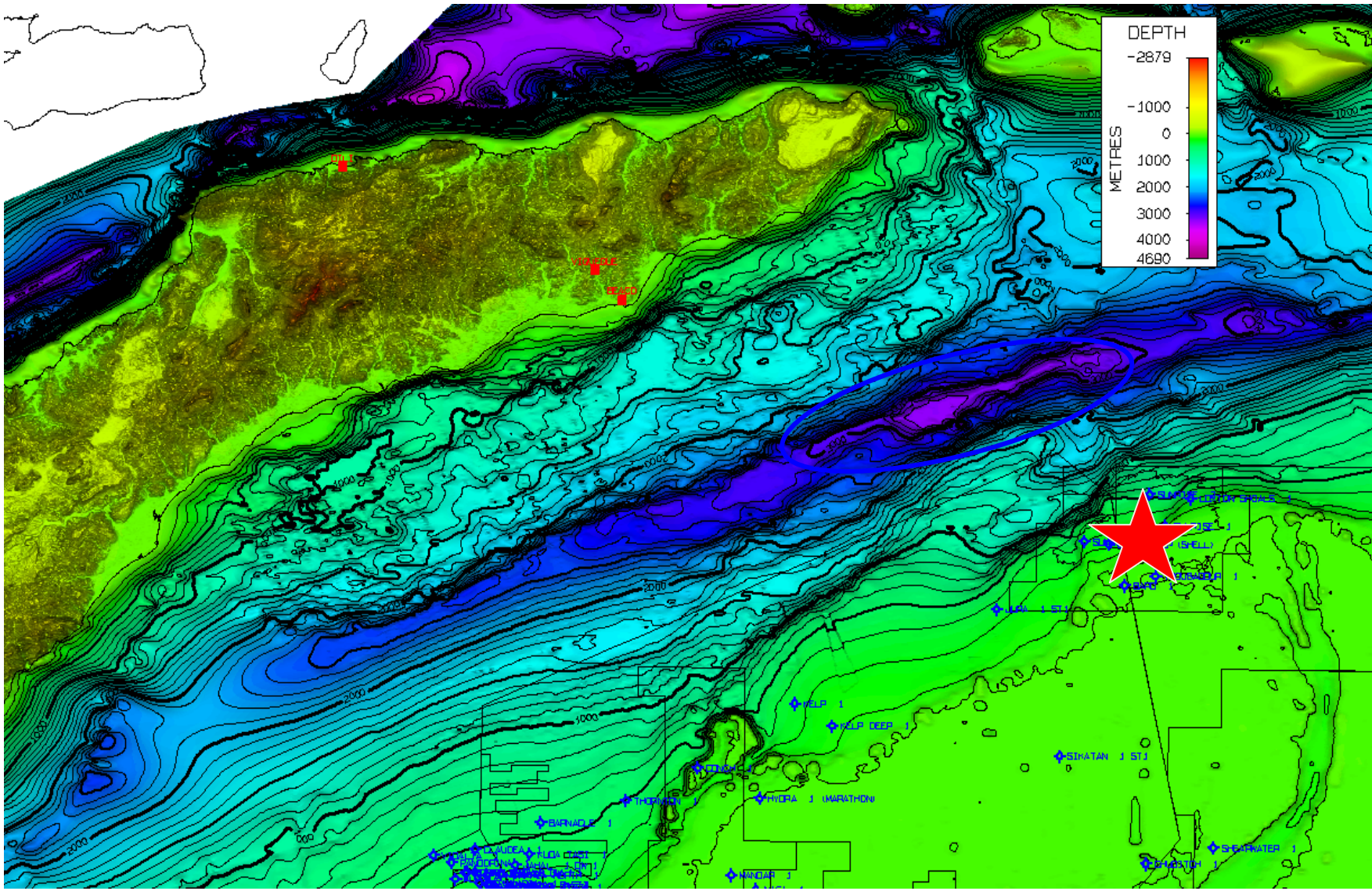
- POTENTIAL ROUTE
- BATHYMETRY (water depth and seabed stability)
- RISKS (including earthquake risks)

Geotechnical Aspects of Timor Trough and pipeline route



Data Sources: Onshore Topography from NASA SRTM

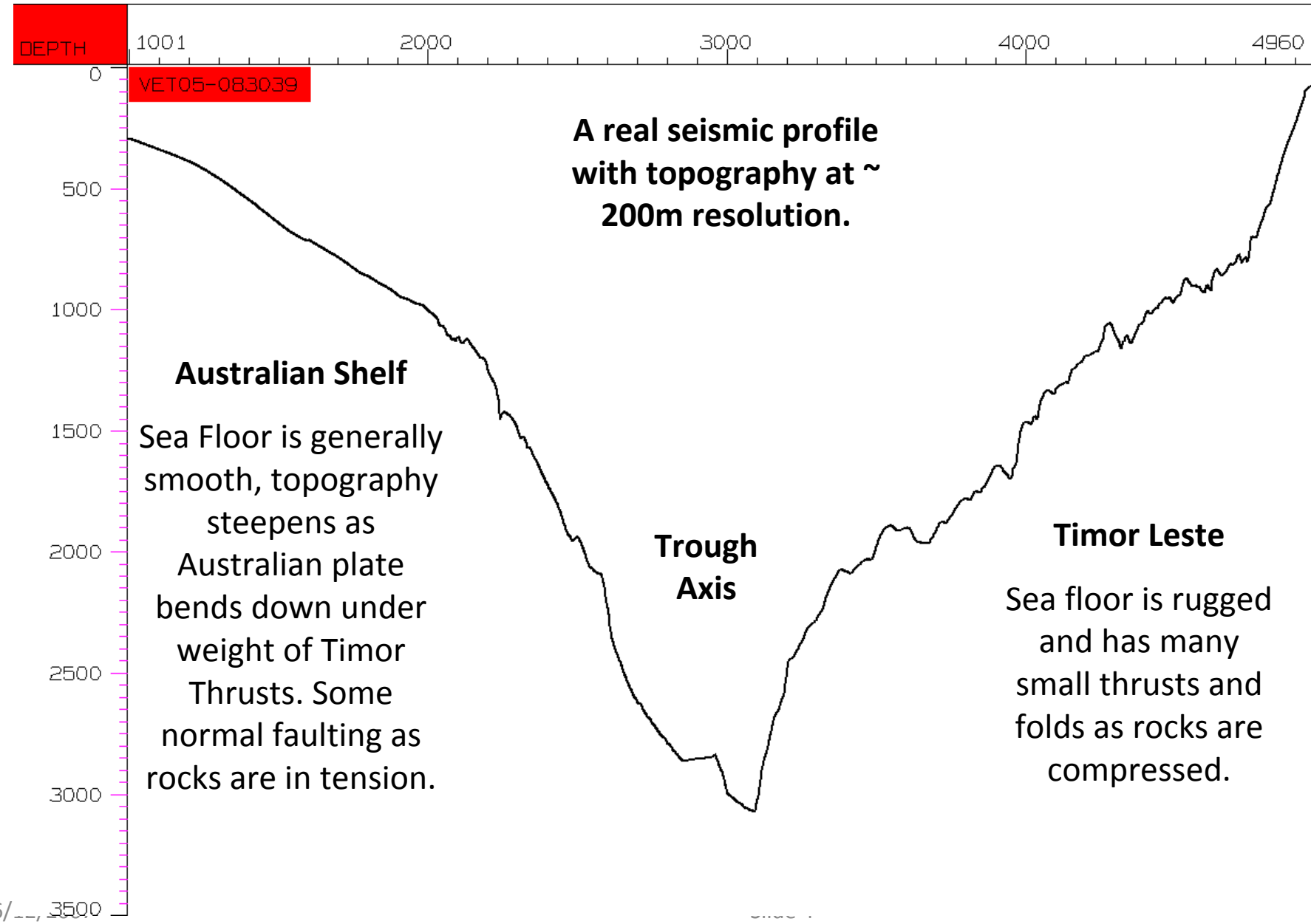
Offshore bathymetry: Yellow = GGS survey, Red = Geoscience Australia compilation (less accurate) Infill bathymetry from Satellite gravity and digitised general hydrographic contours (least accurate)



Sunrise Field is adjacent to the DEEPEST segment of the Timor Trough – 3300-3350 metres deep

The Trough MAY be shallower to the East, but there is limited data and territorial issues

Length scale Arbitrary



A real seismic profile with topography at ~ 200m resolution.

Australian Shelf

Sea Floor is generally smooth, topography steepens as Australian plate bends down under weight of Timor Thrusts. Some normal faulting as rocks are in tension.

Trough Axis

Timor Leste

Sea floor is rugged and has many small thrusts and folds as rocks are compressed.

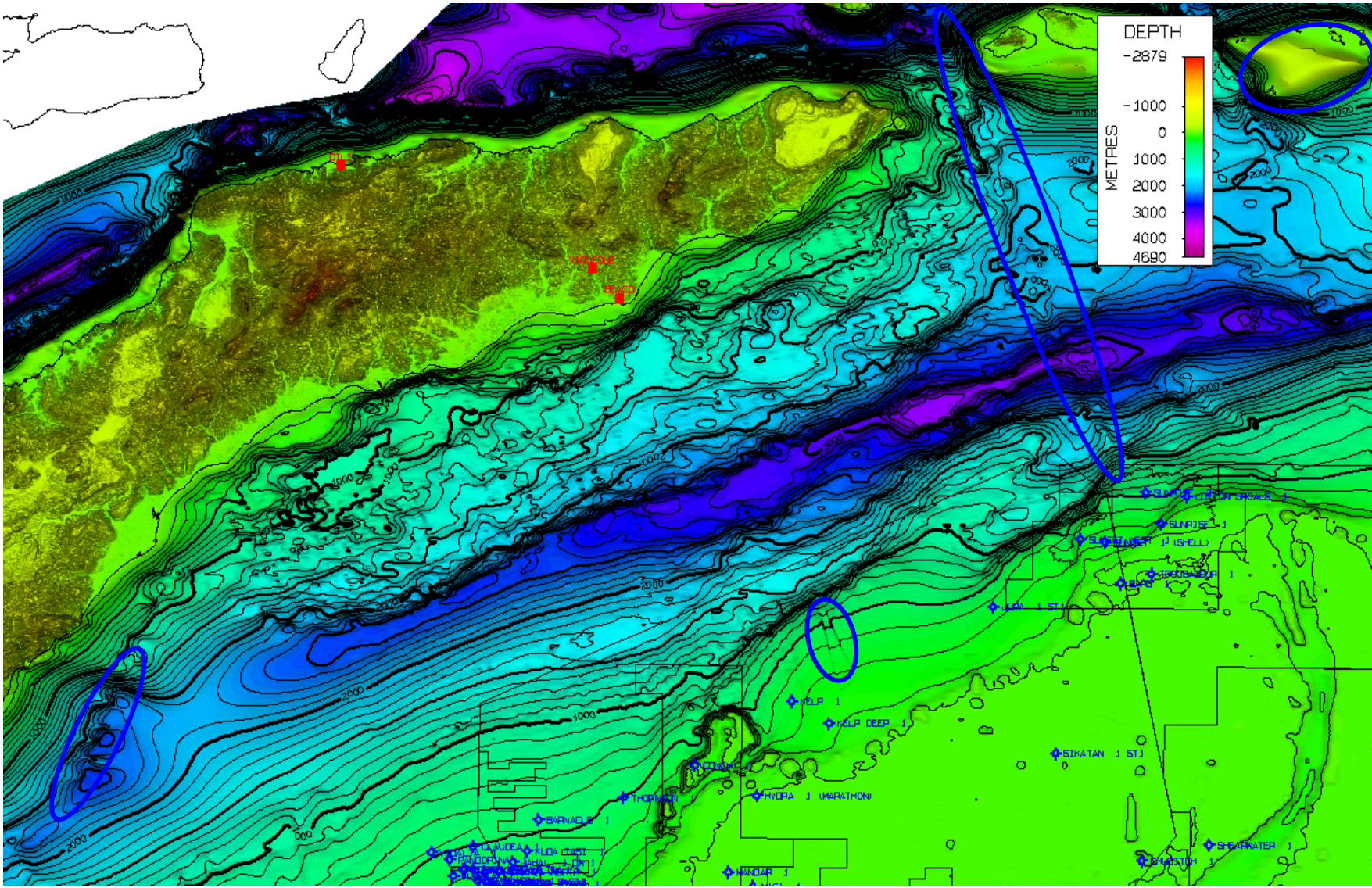
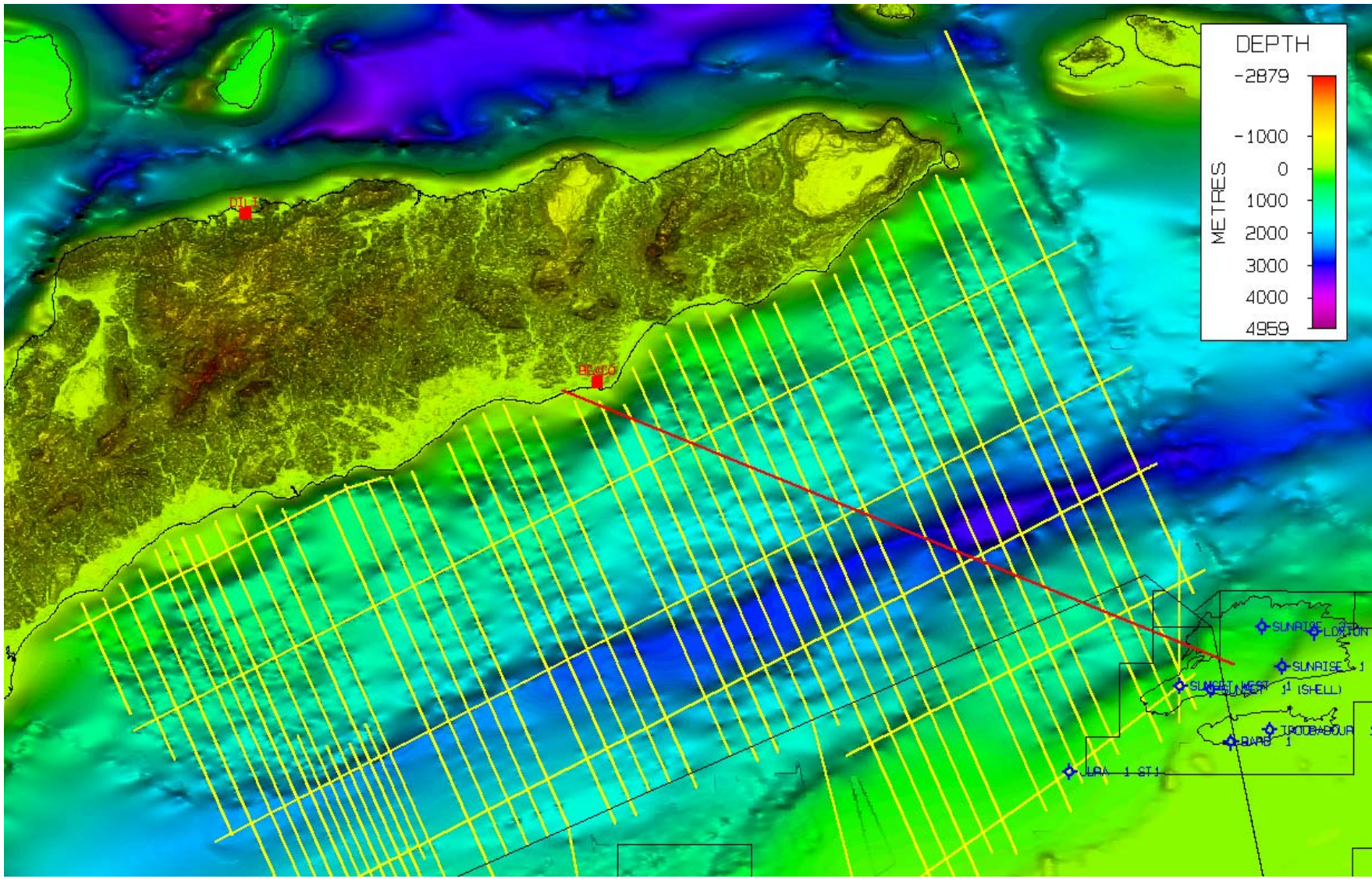
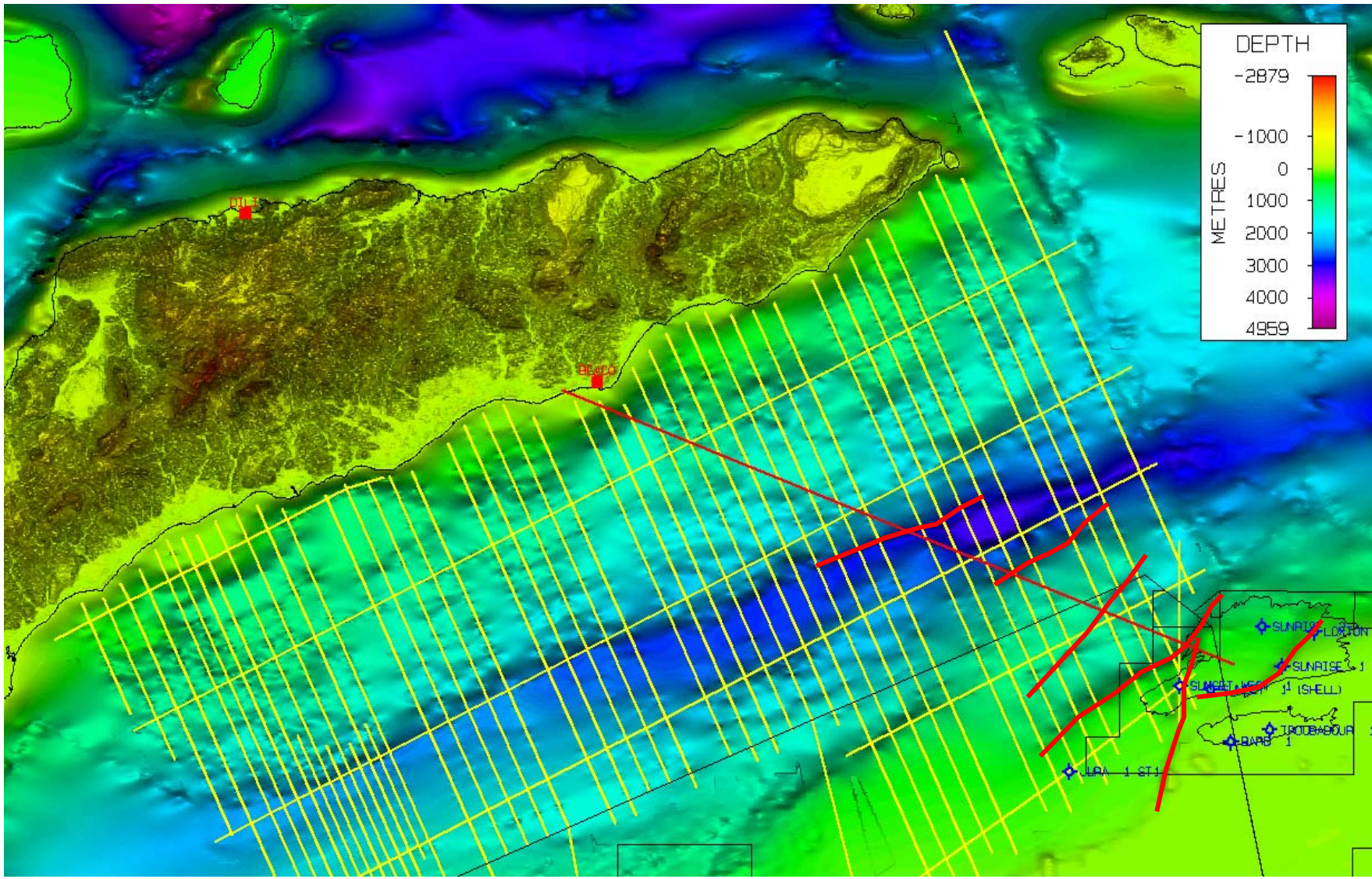


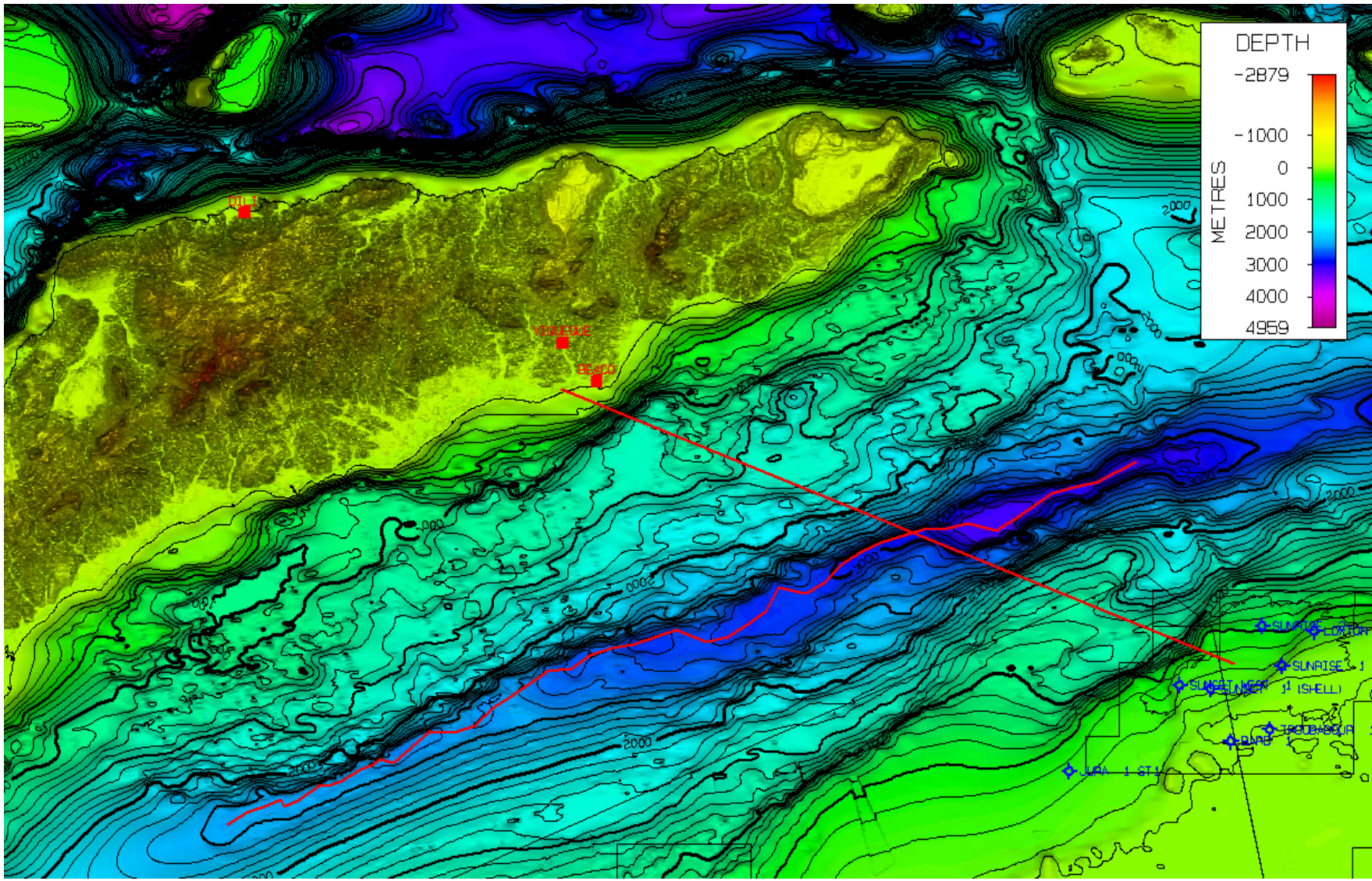
Image contains some local data and gridding artefacts



Pipeline Route will cross near deepest part of Trough and over steep slopes.

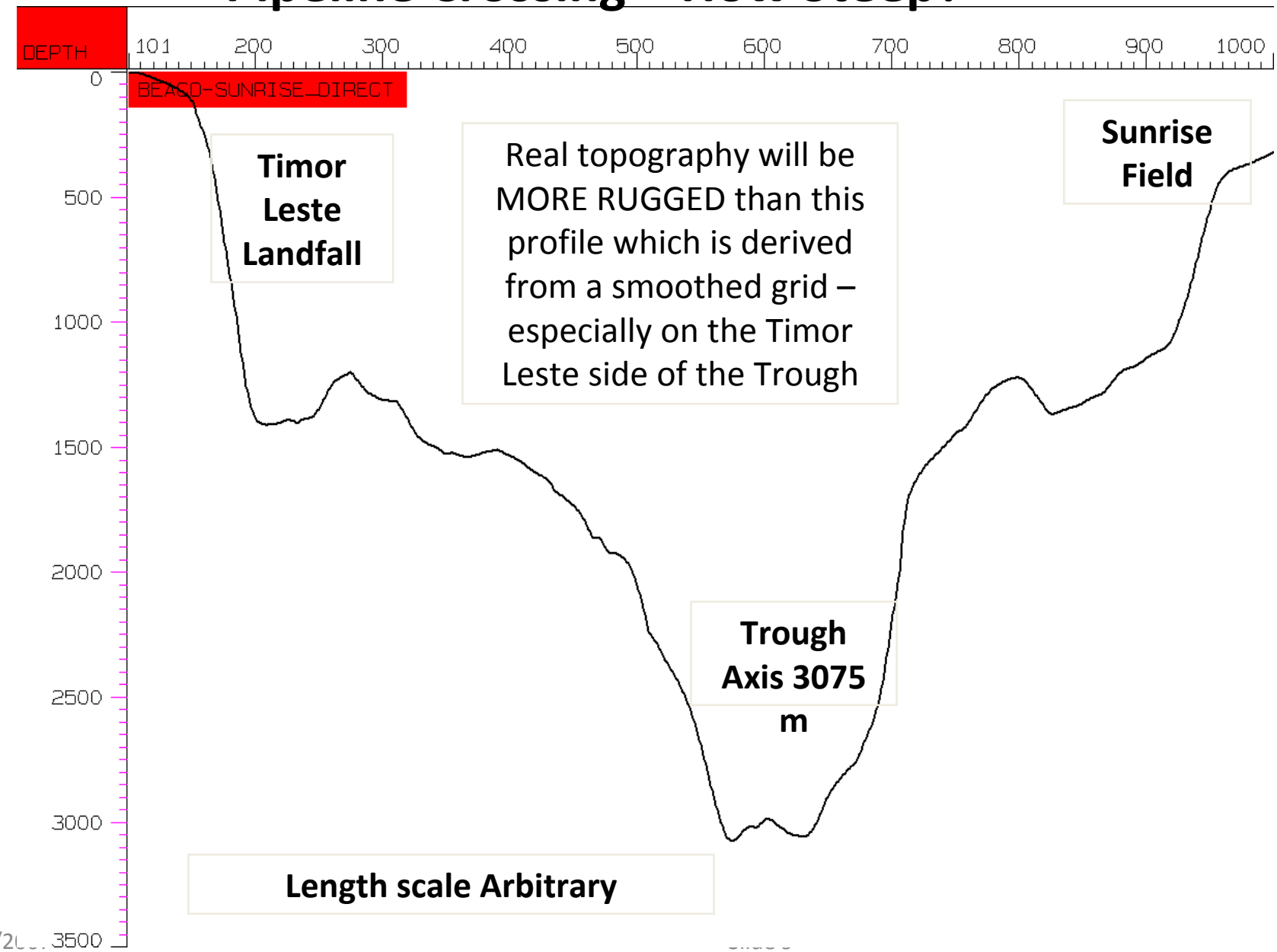


Sunrise Field is adjacent to major faults and topography at seabed, so pipeline routing WILL be affected

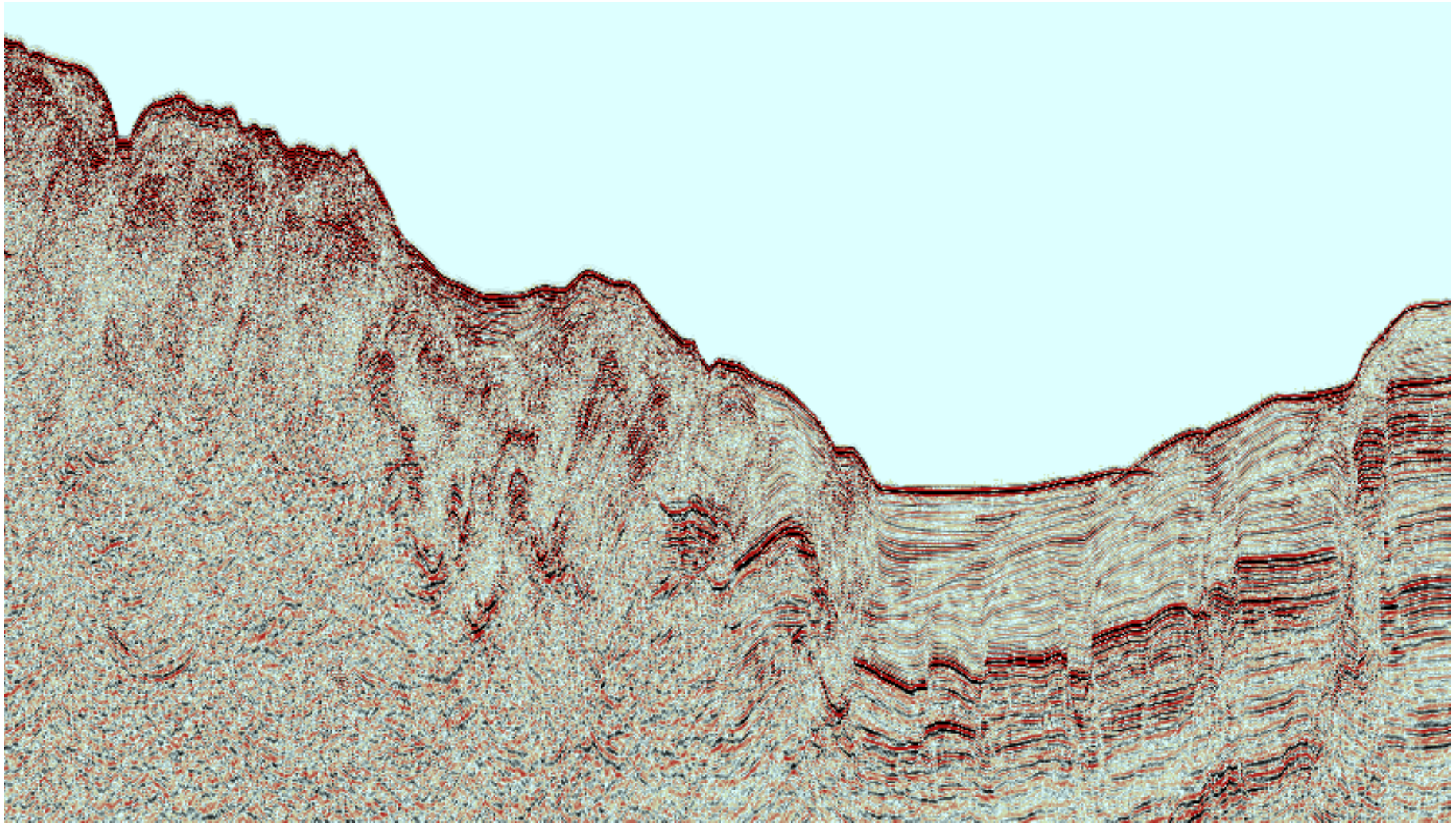


Bathymetric profiles across and along Trough

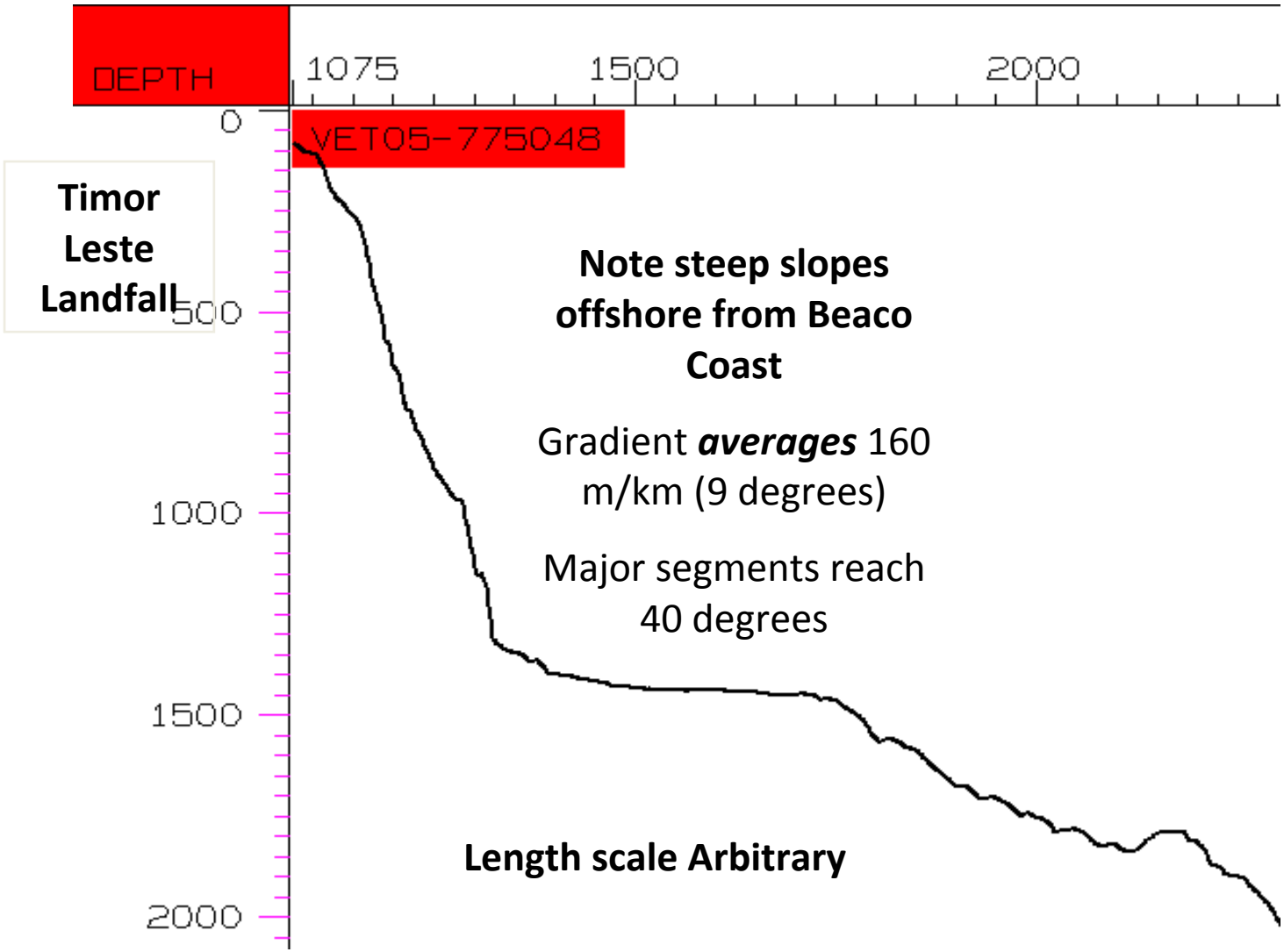
Pipeline Crossing – How Steep?



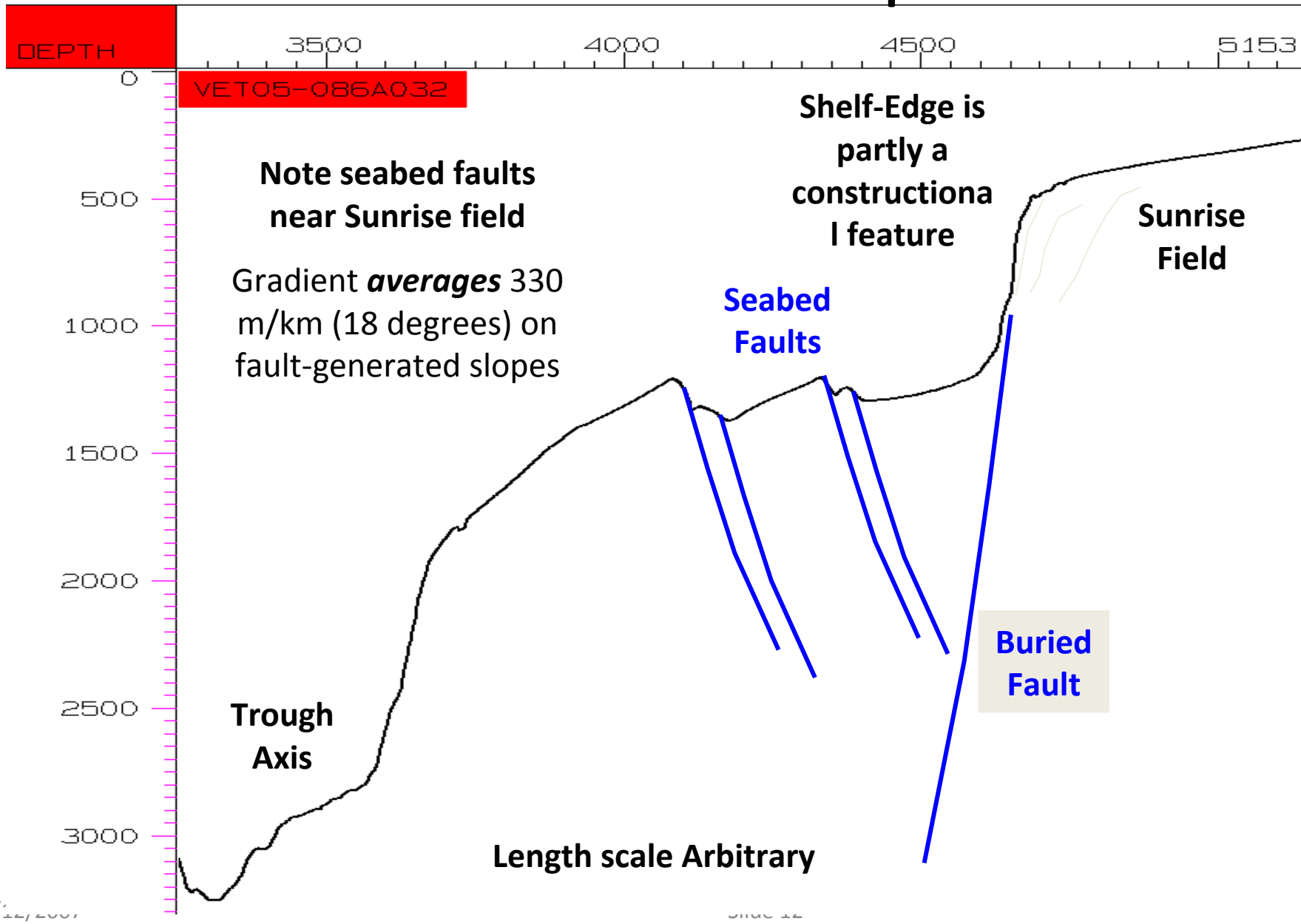
Example Seismic Profile



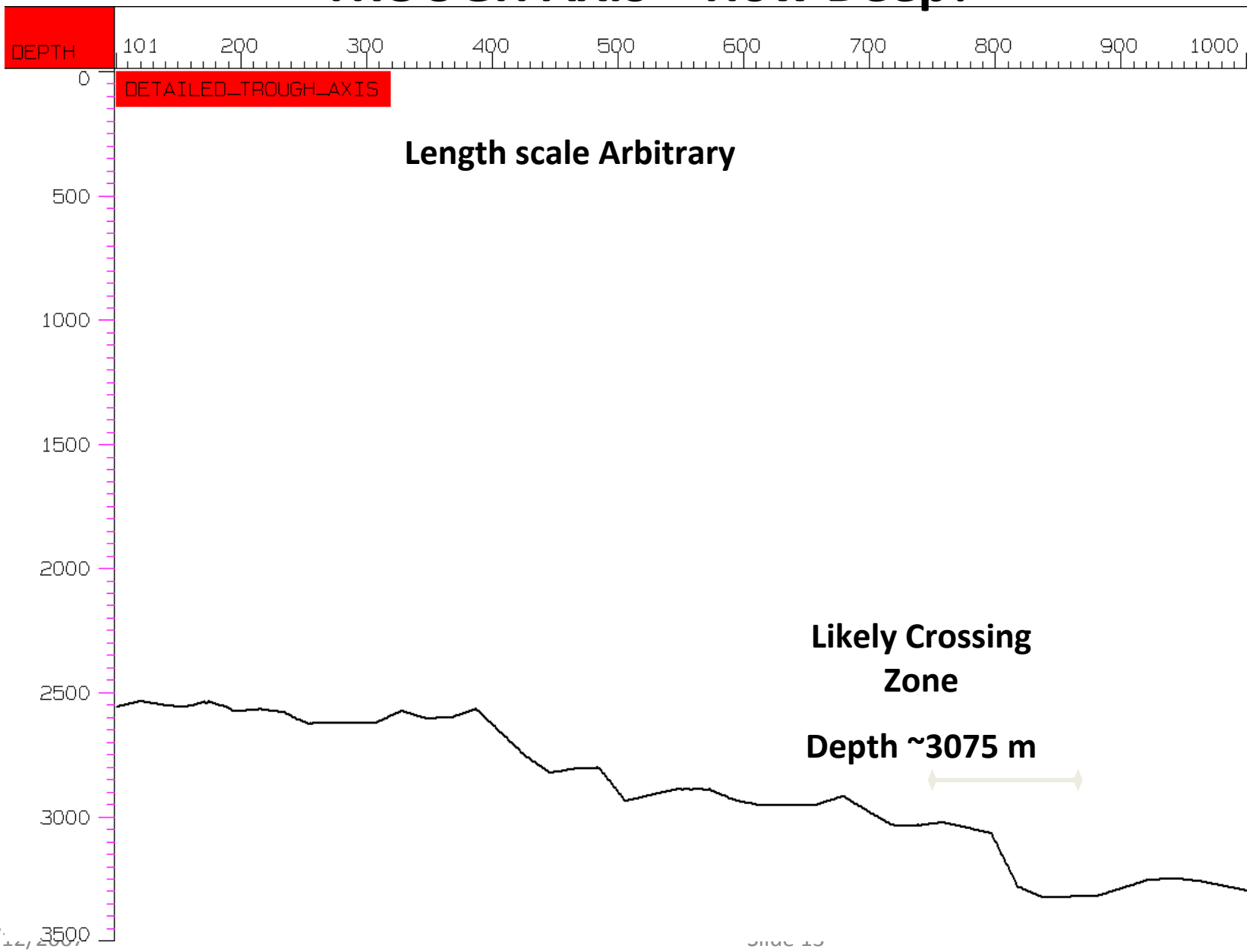
Landfall Area – How Steep?



Sunrise Area – How Steep?



TROUGH AXIS – How Deep?

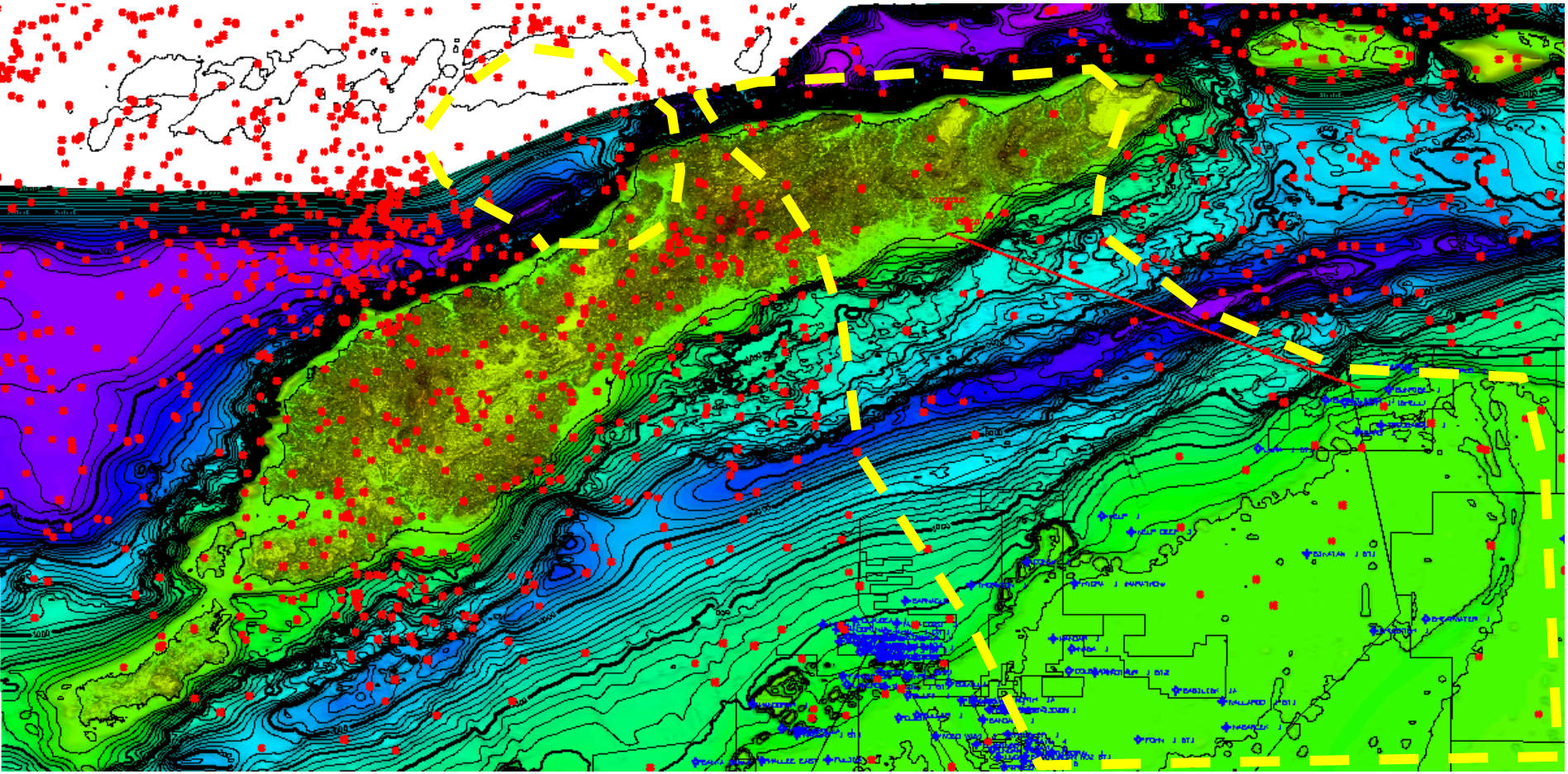


Length scale Arbitrary

Likely Crossing Zone

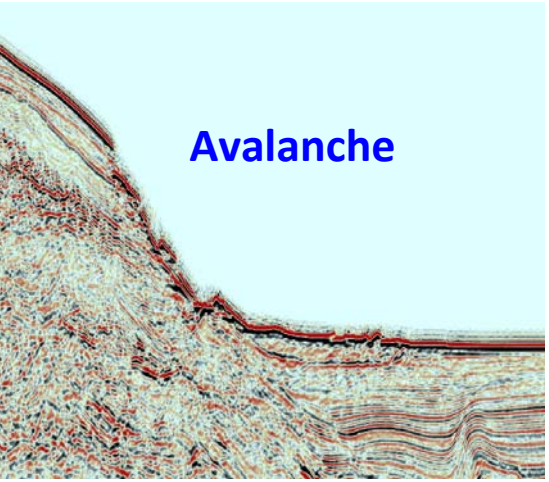
Depth ~3075 m

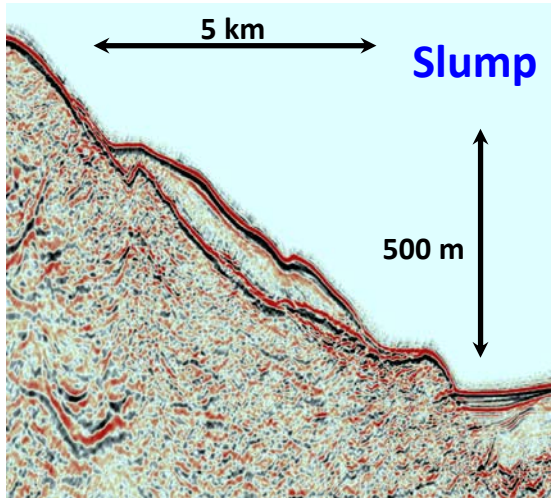
EARTHQUAKE RISK

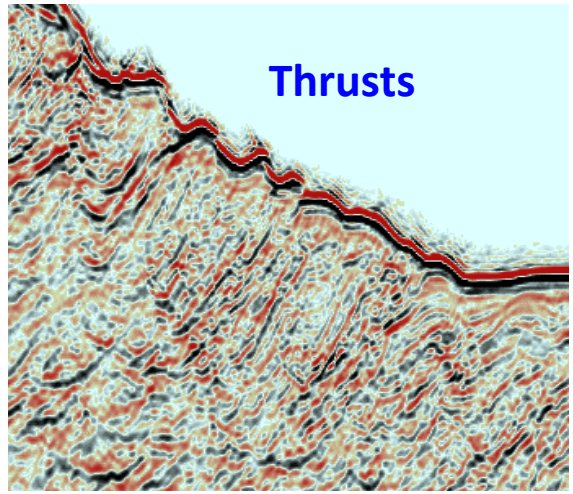


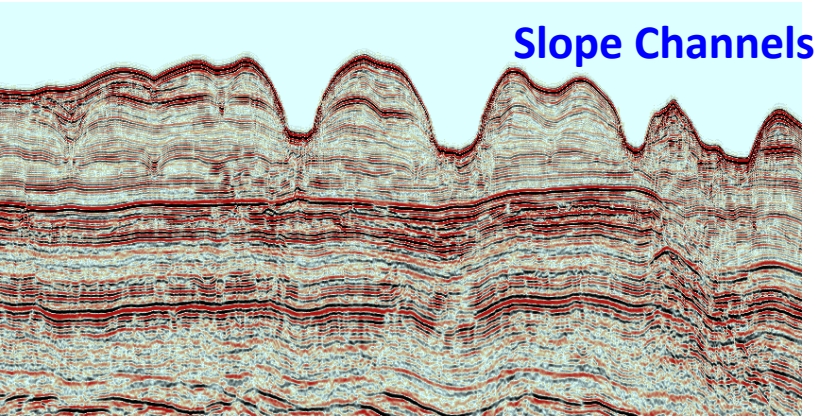
Seismic gaps may either be future major fractures, or could be geologically quiet. A major seismic quiet zone accomodates our pipeline route

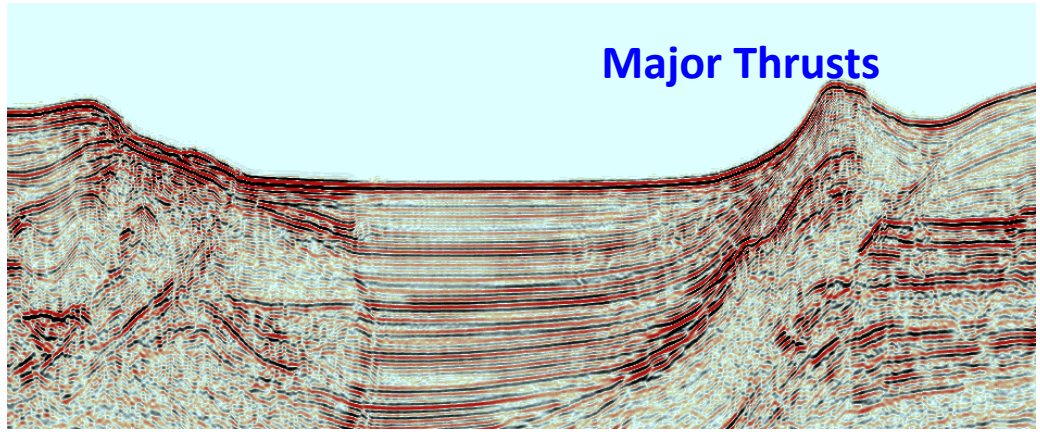
Seismic Hazards

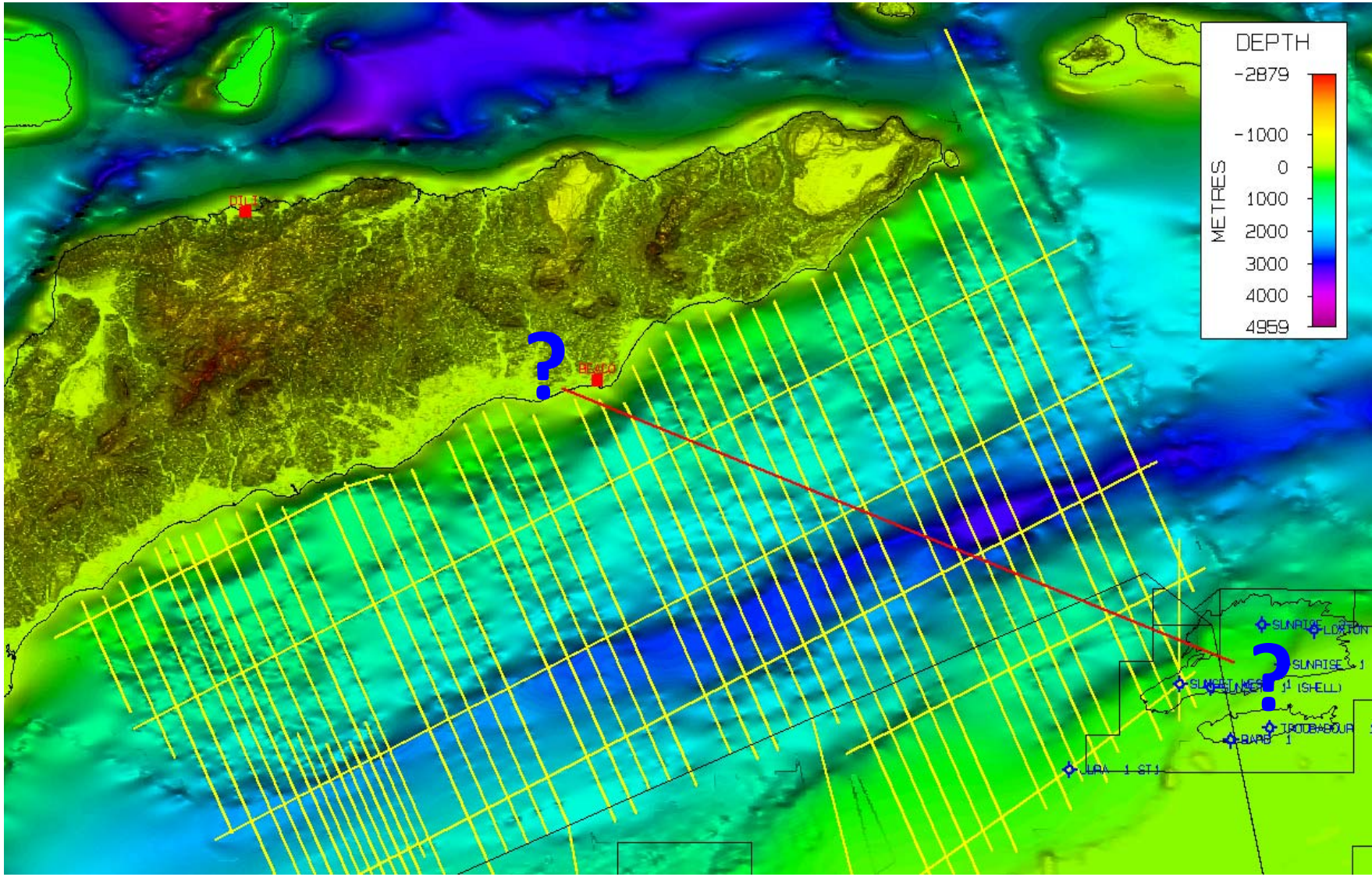






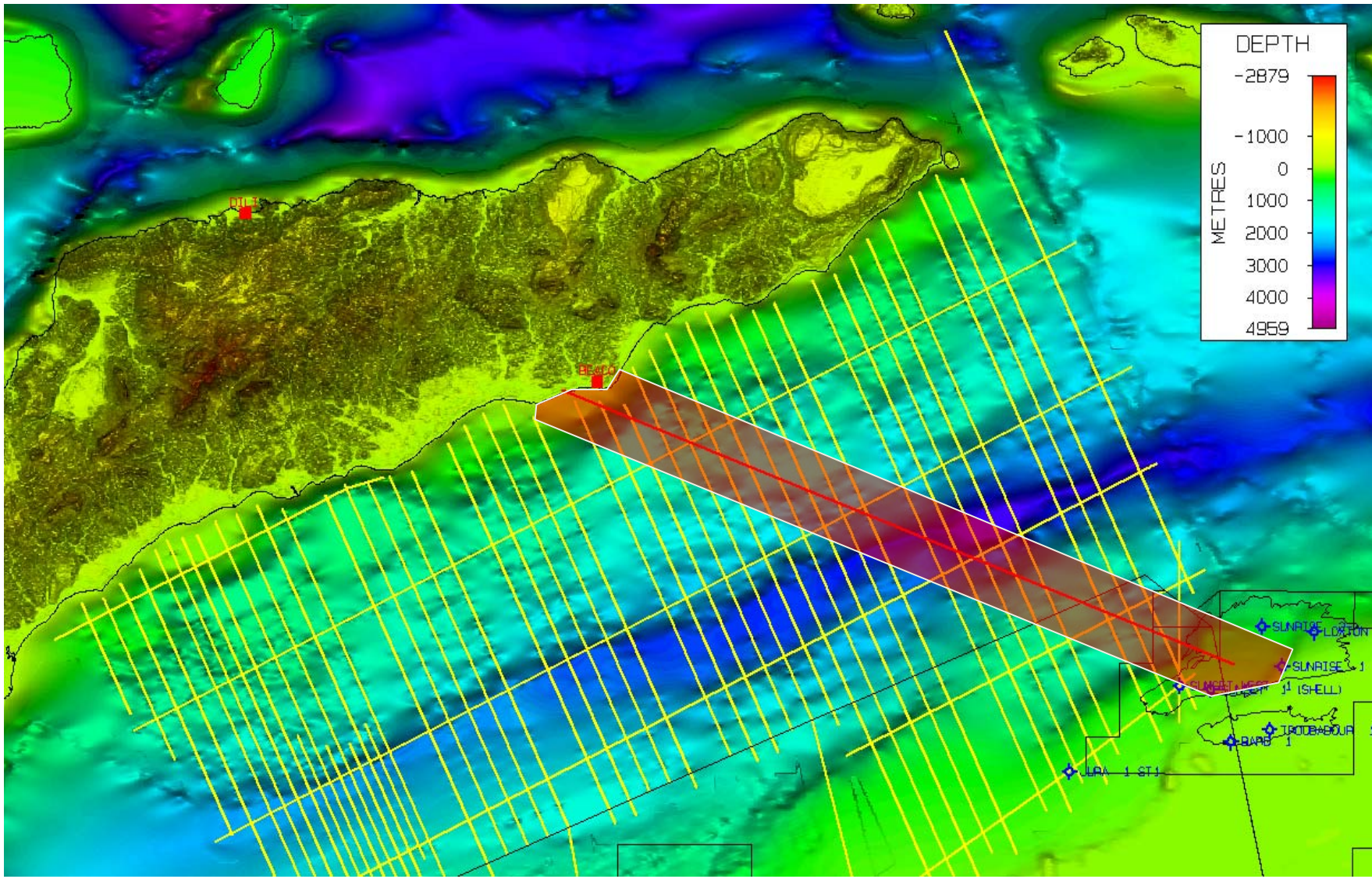




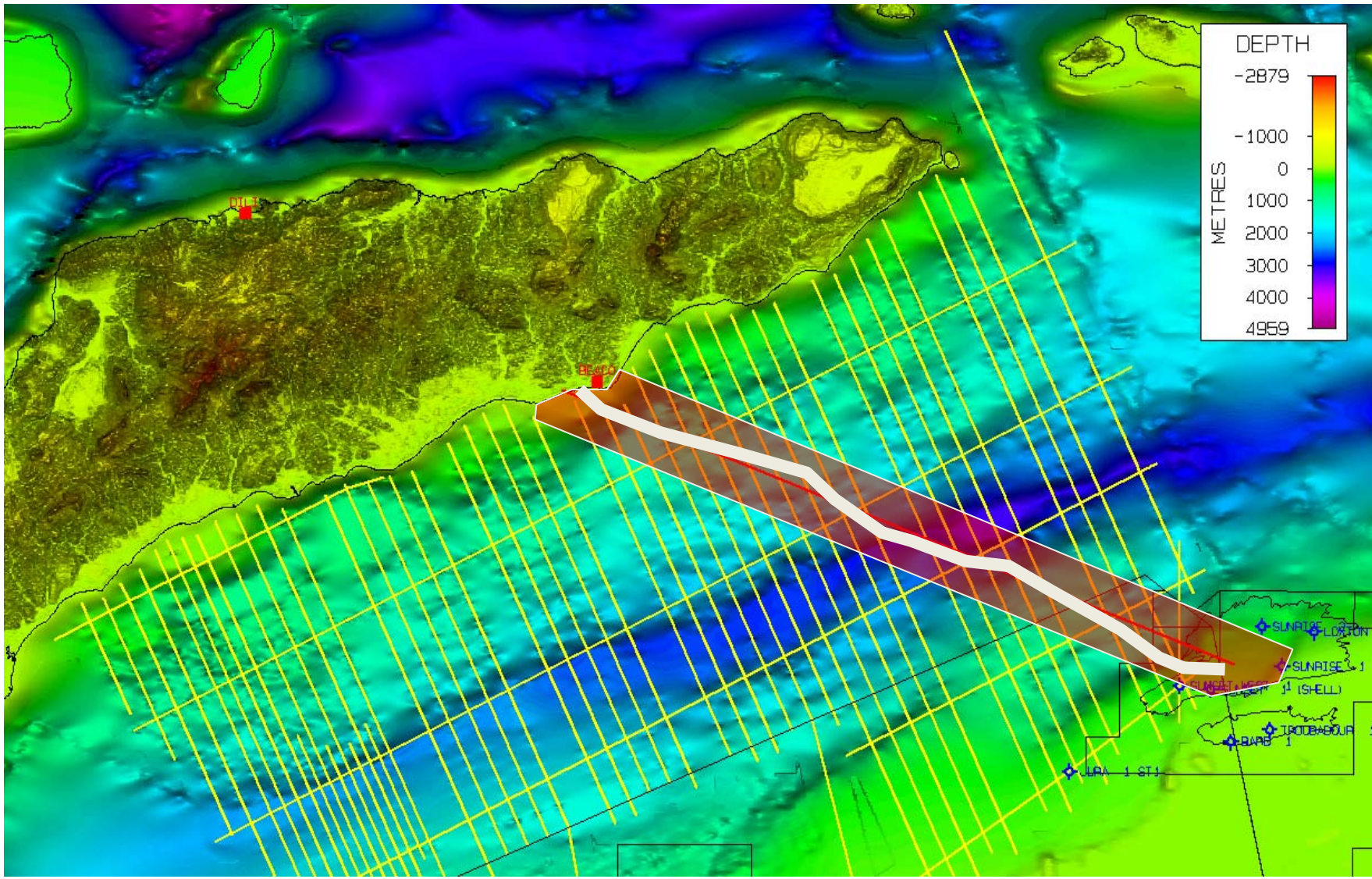


Recommended next steps – 1) Confirm end points of pipeline route (± 5 km)

- Define landfall zone and range of options for compressor platform location



Recommended next steps – 2) acquire ~ 1km spaced bathymetry profiles in 20 km wide belt



Recommended next steps – 3) Use 1km profiles to define area for detailed swath bathymetry

- **Bathymetry database needs further work**
- **The final map will change in detail but a DEEP crossing is inevitable (likely ~3075 m)**
- **Beware of artefacts in the database and grid – some features are NOT real**
- **There are many recent (possibly active) faults at seabed. These are very high risk zones and should be avoided if possible**

Next steps:

- Incorporate additional seismic and other bathymetry
- Update Earthquake and seabed risk maps
- Refine locations of pipeline end-points
- Acquire ~1 km-spaced bathymetry profiles
- Interpret and map new data and define broad pipeline corridor
- Acquire swath bathymetry over corridor (needs specialised vessel)
- Geotechnical interpretation of pipeline route