

*Marcus Langseth Science Oversight Committee
Chair's Remarks
AGU
December 14, 2008*



Overview

1. Summary of First 5 Cruises (w/ data examples)
2. Areas of Concern
3. Tasks for this Meeting



Summary of First Five Cruises

MGL0804 - Costa Rica I/Holbrook (Feb-March)

MGL0807 - Costa Rica II/Holbrook (March-April)

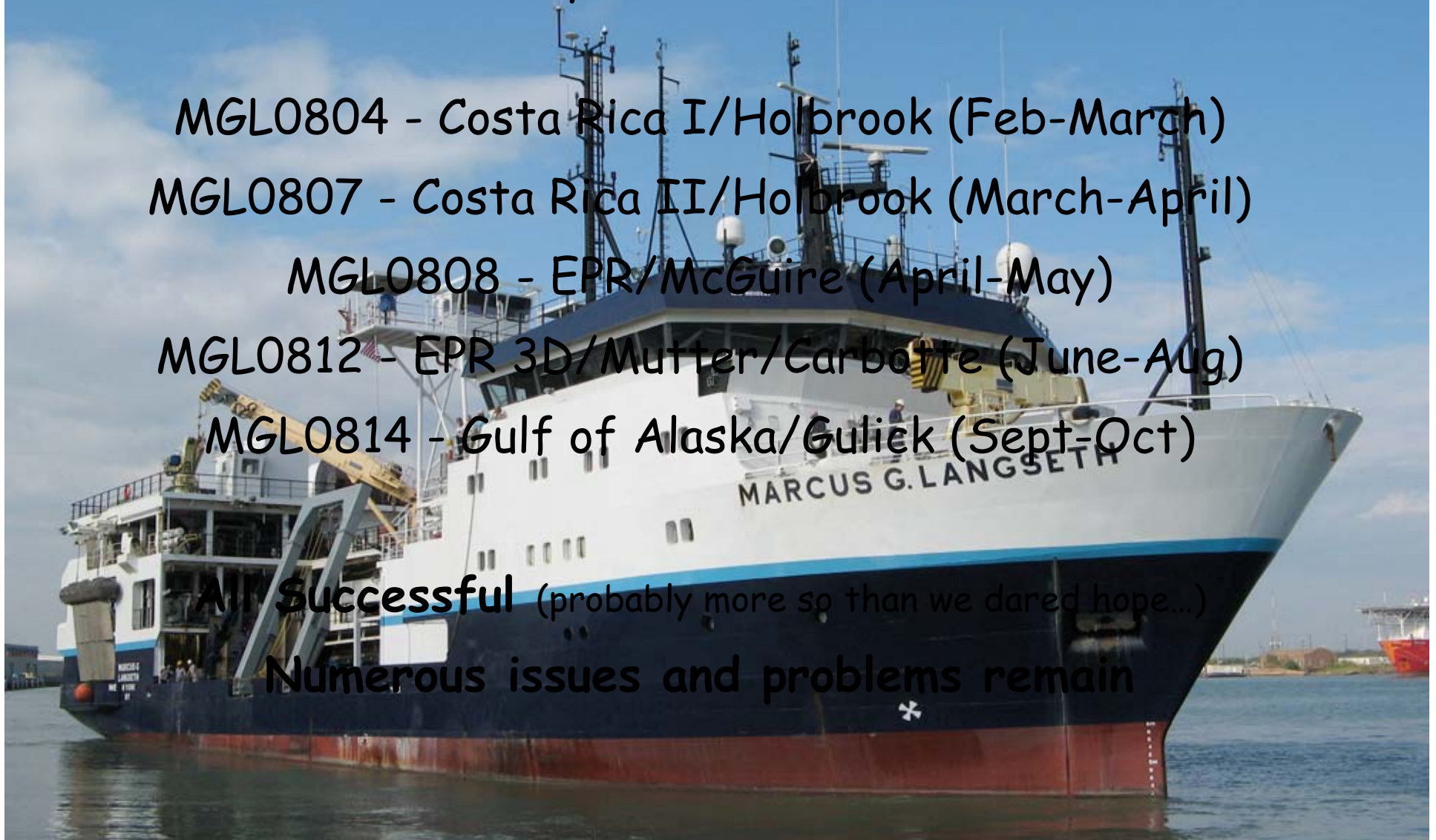
MGL0808 - EPR/McGuire (April-May)

MGL0812 - EPR 3D/Mutter/Carbotte (June-Aug)

MGL0814 - Gulf of Alaska/Gulick (Sept-Oct)

All Successful (probably more so than we dared hope...)

Numerous issues and problems remain



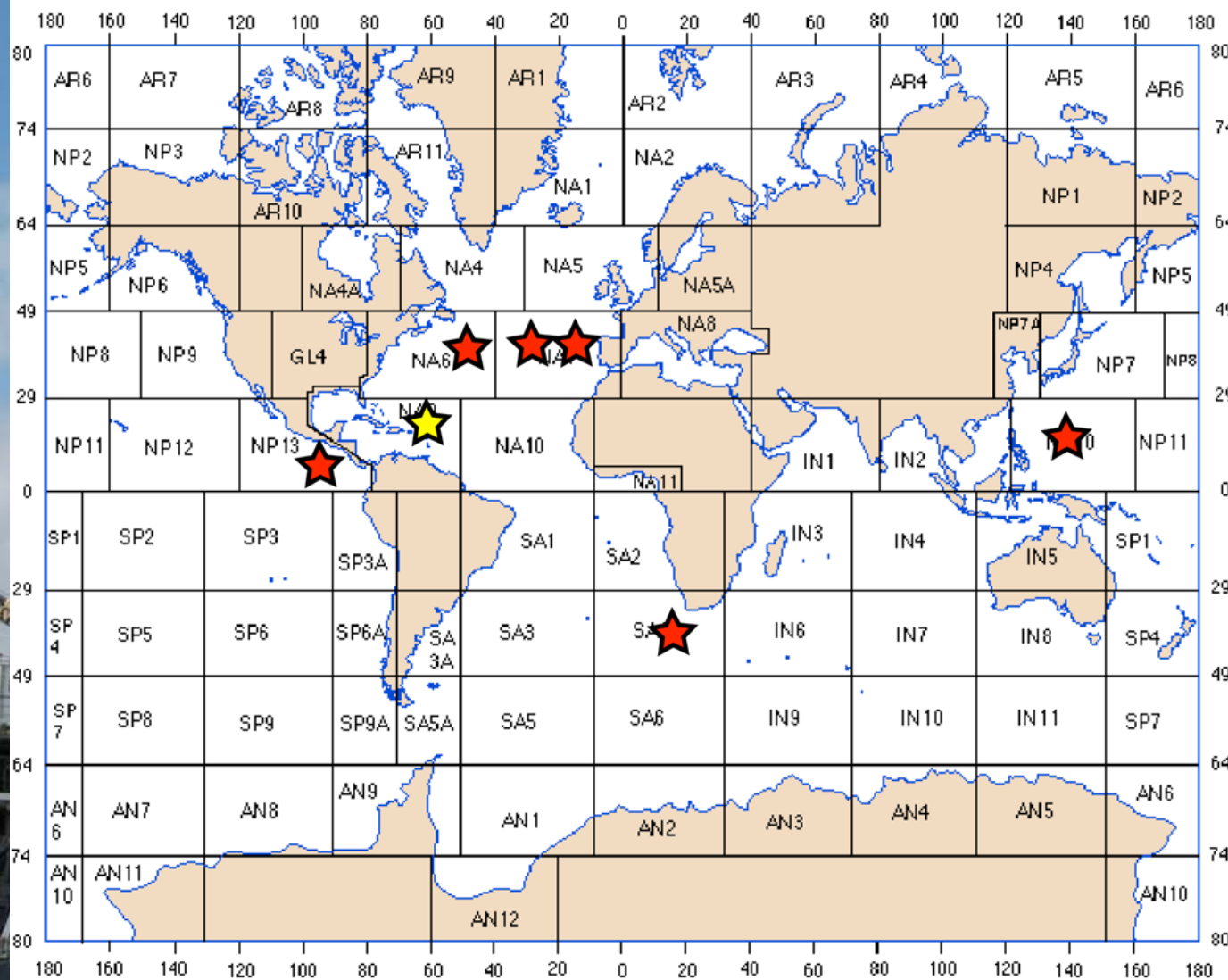
Future Operations

2009 LOI:

- 245 days funded (191 NSF, 54 other)
- Lau Basin; Taiwan; Juan de Fuca



R/V Langseth proposed cruises 2010 & 2012



★ Proposed for 2010 (237 days)

★ Proposed for 2012 (21 days)

Capabilities (all successfully tested)

- 3D acquisition: 4 x 6 km streamers; dual gun sources
- 2D acquisition: single 8-km streamer
- Hi-res (up to 1000 Hz) acquisition
- OBS deployment/recovery
- XBT/XCTD/XCP deployment during seismic operation
- High-quality sound source
- Onshore-offshore source capability



MGL0804/0808 - Holbrook /Costa Rica

- 2D MCS, OBS, onshore-offshore
- Ocean imaging ("seismic oceanography")
- High data quality

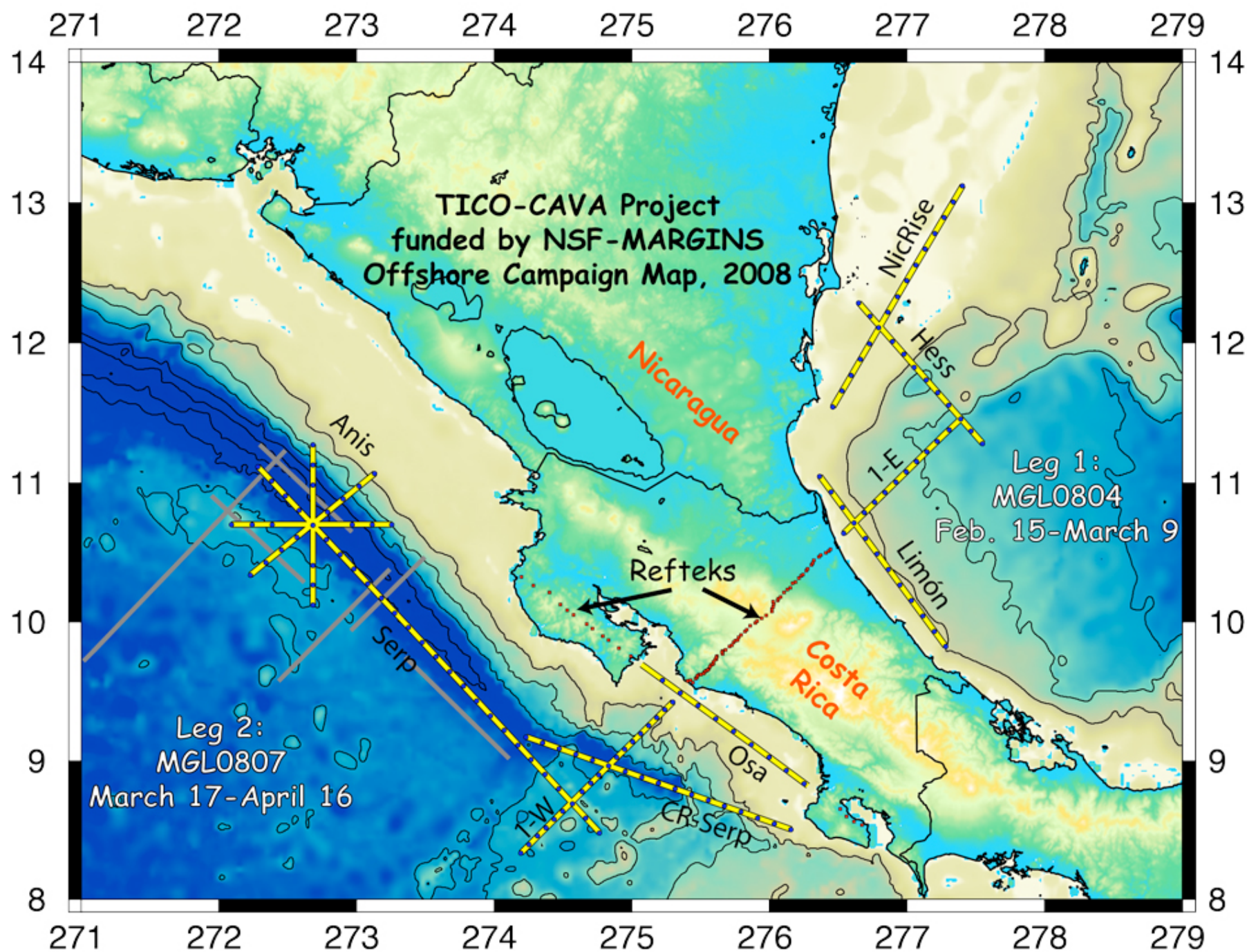
Operational capabilities verified:

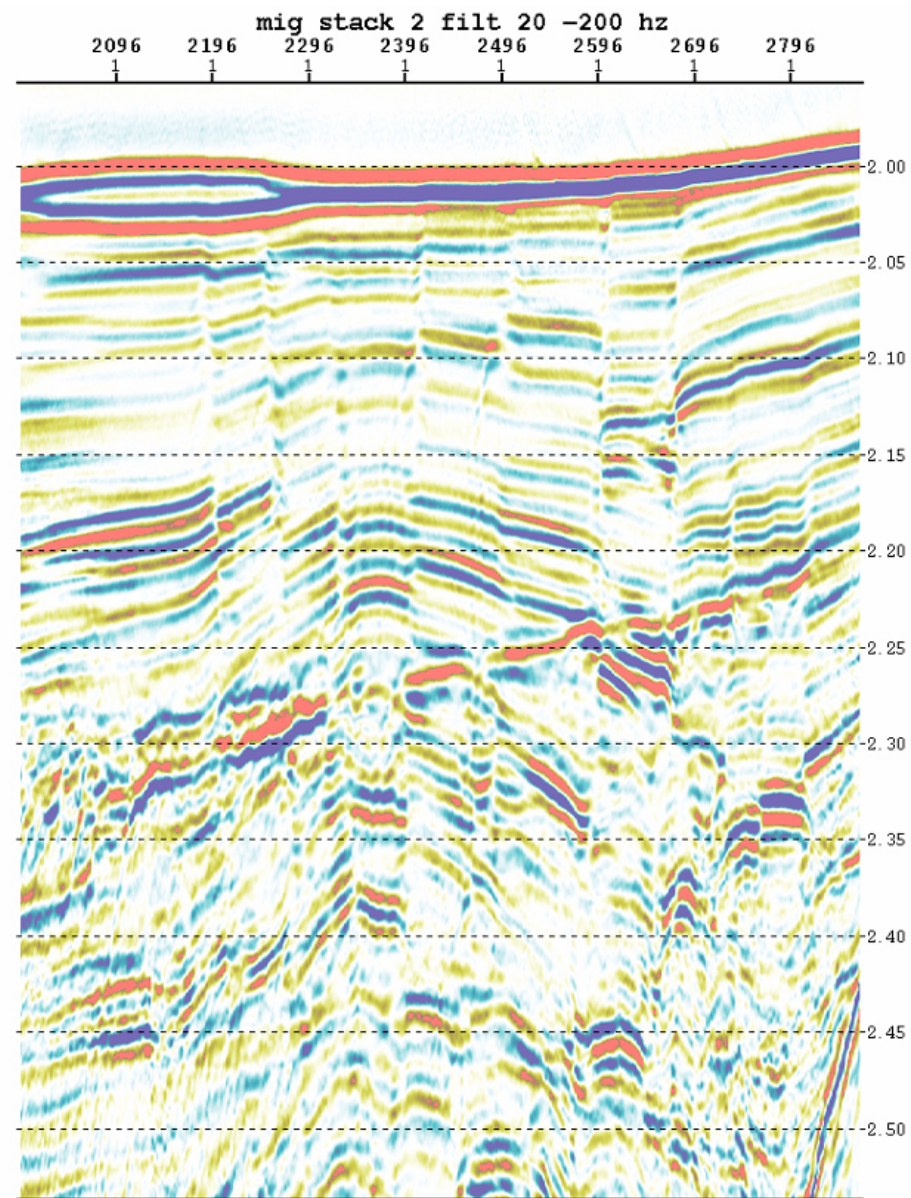
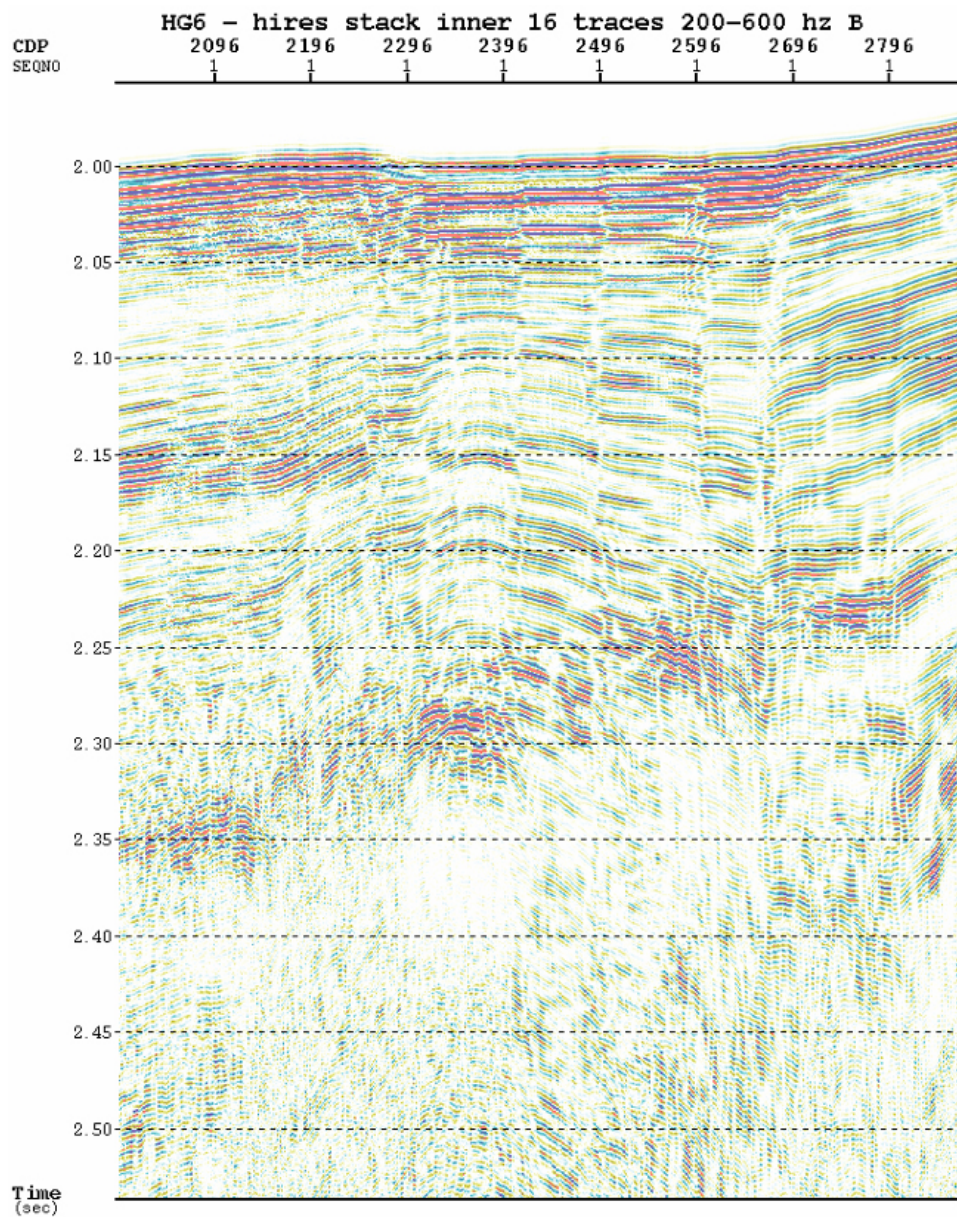
- 2D seismic
- OBS deployment/recovery
- XBT/XCTD/XCP deployment

New Capabilities tested:

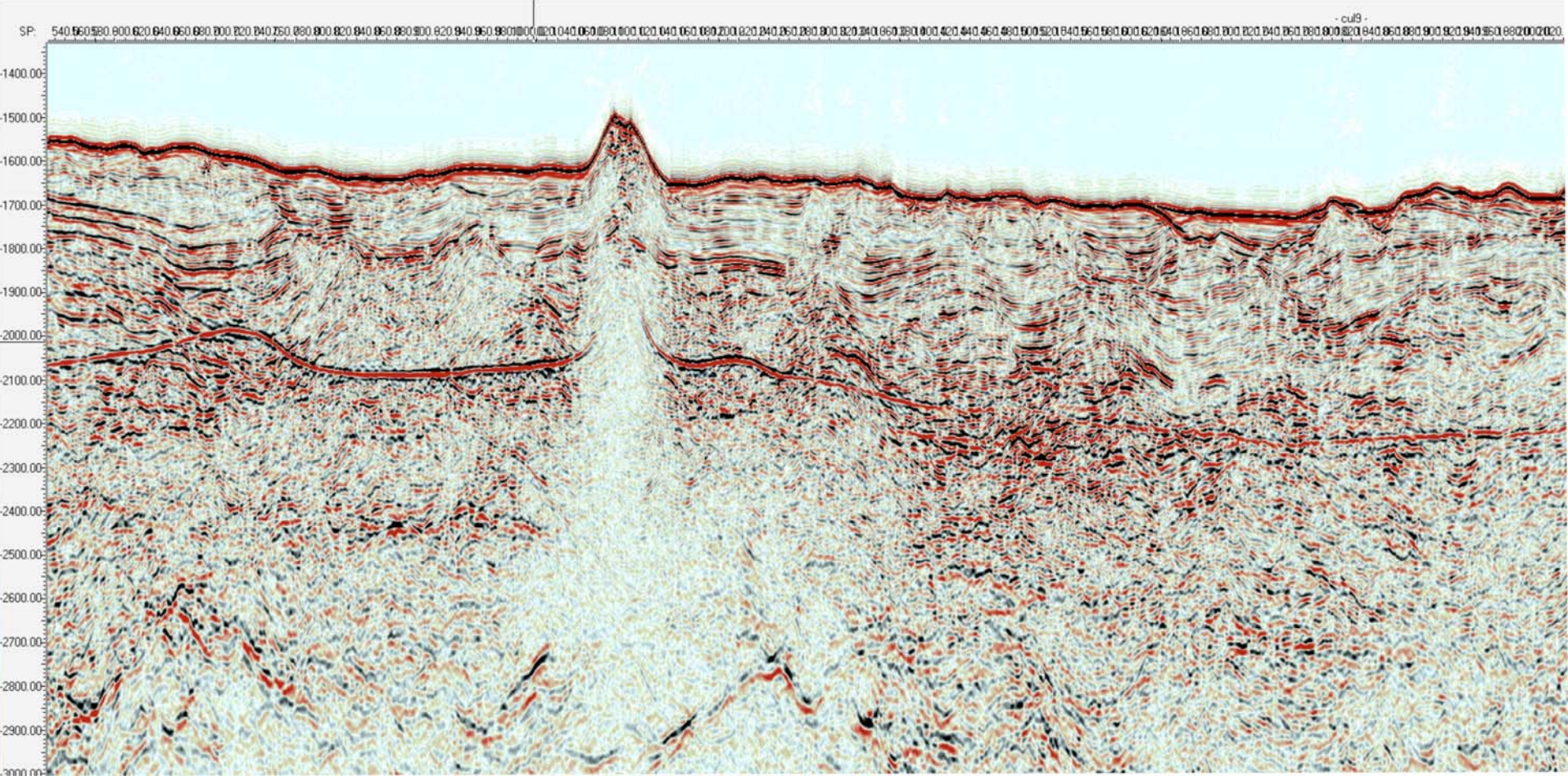
- 8 km long streamer
- high-res data (1000 Hz)



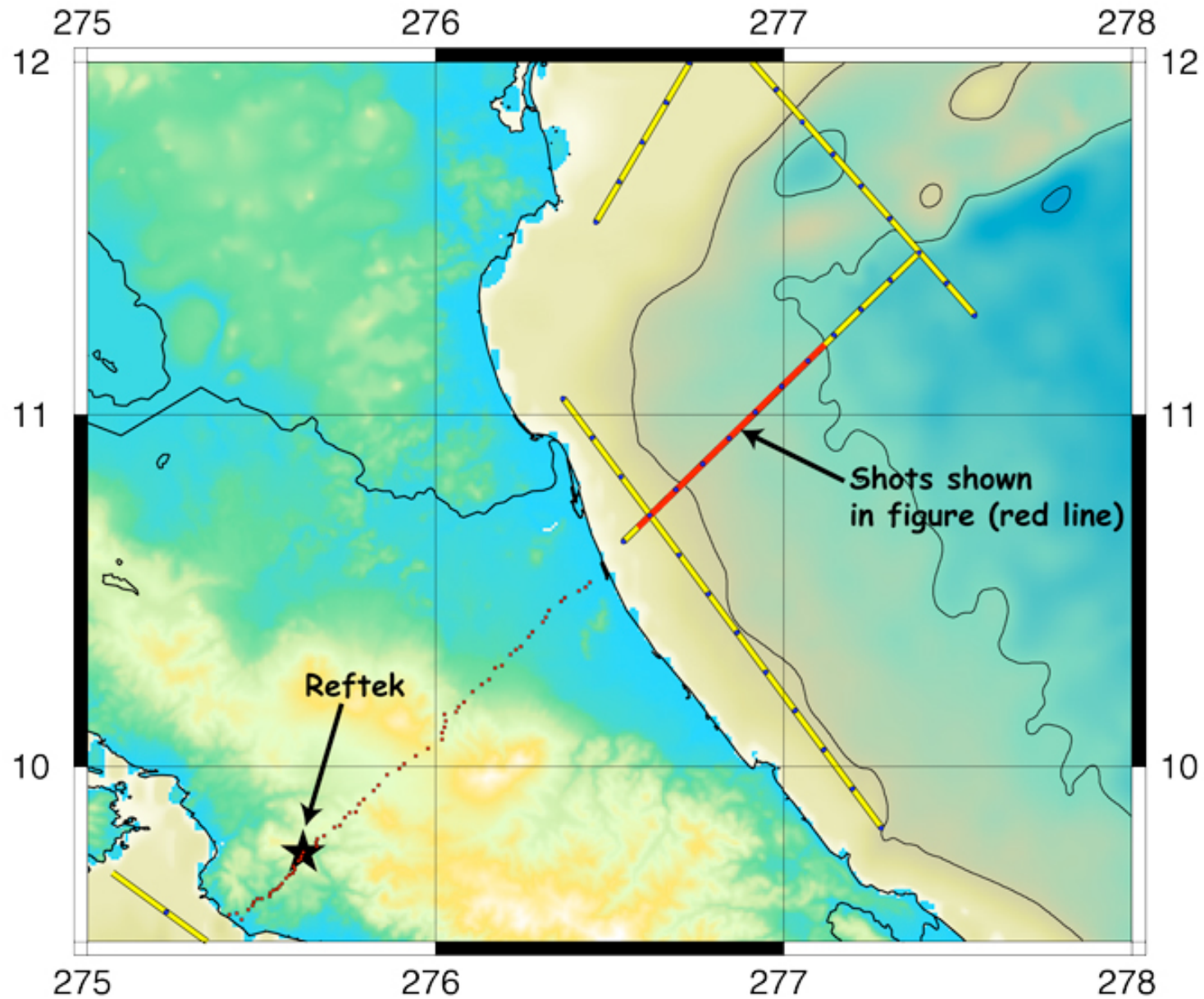




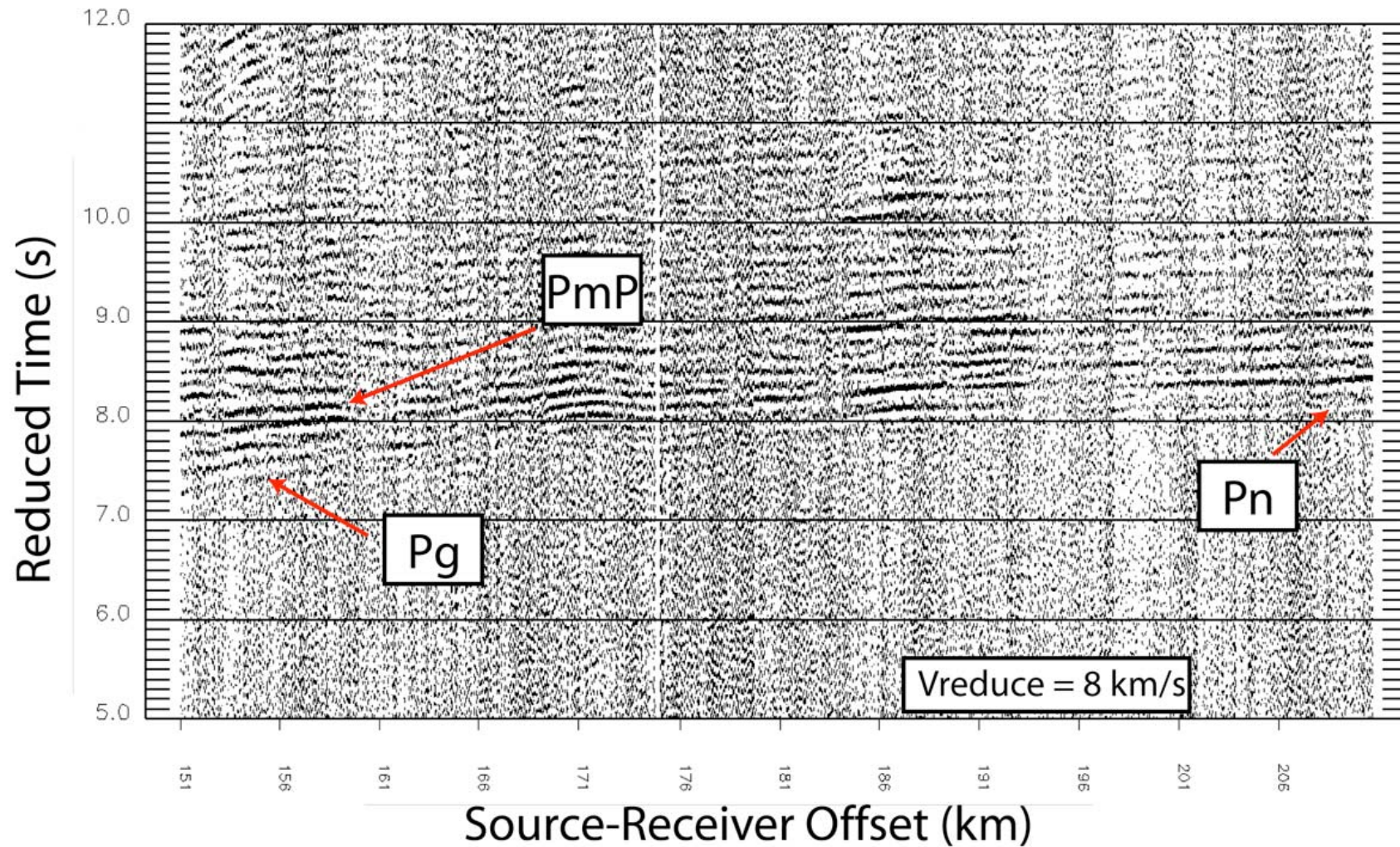
Mound Culebra Line 9: Prestack Depth Migrated

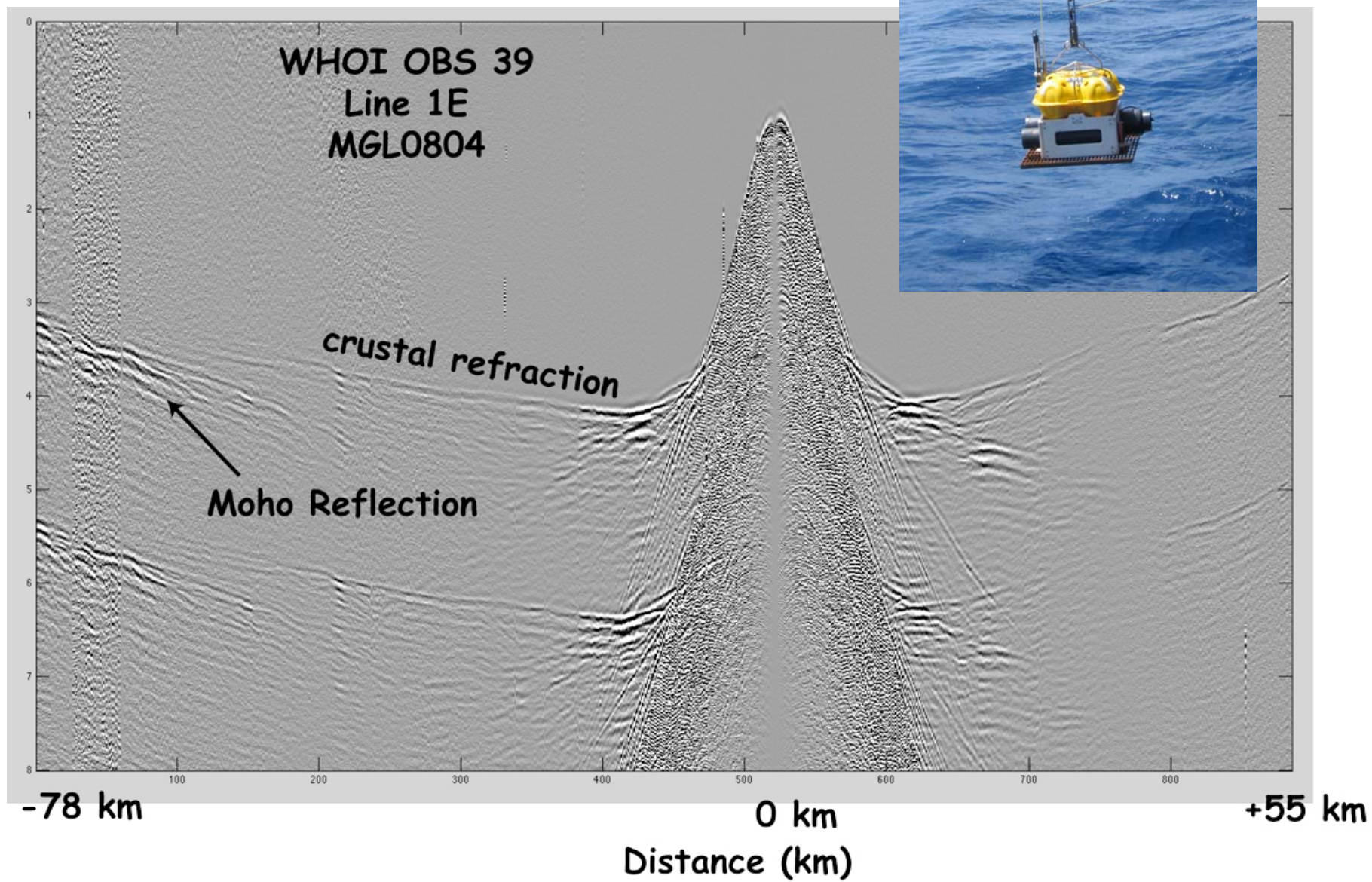


Onshore-Offshore Seismic Data



Onshore-Offshore Seismic Data





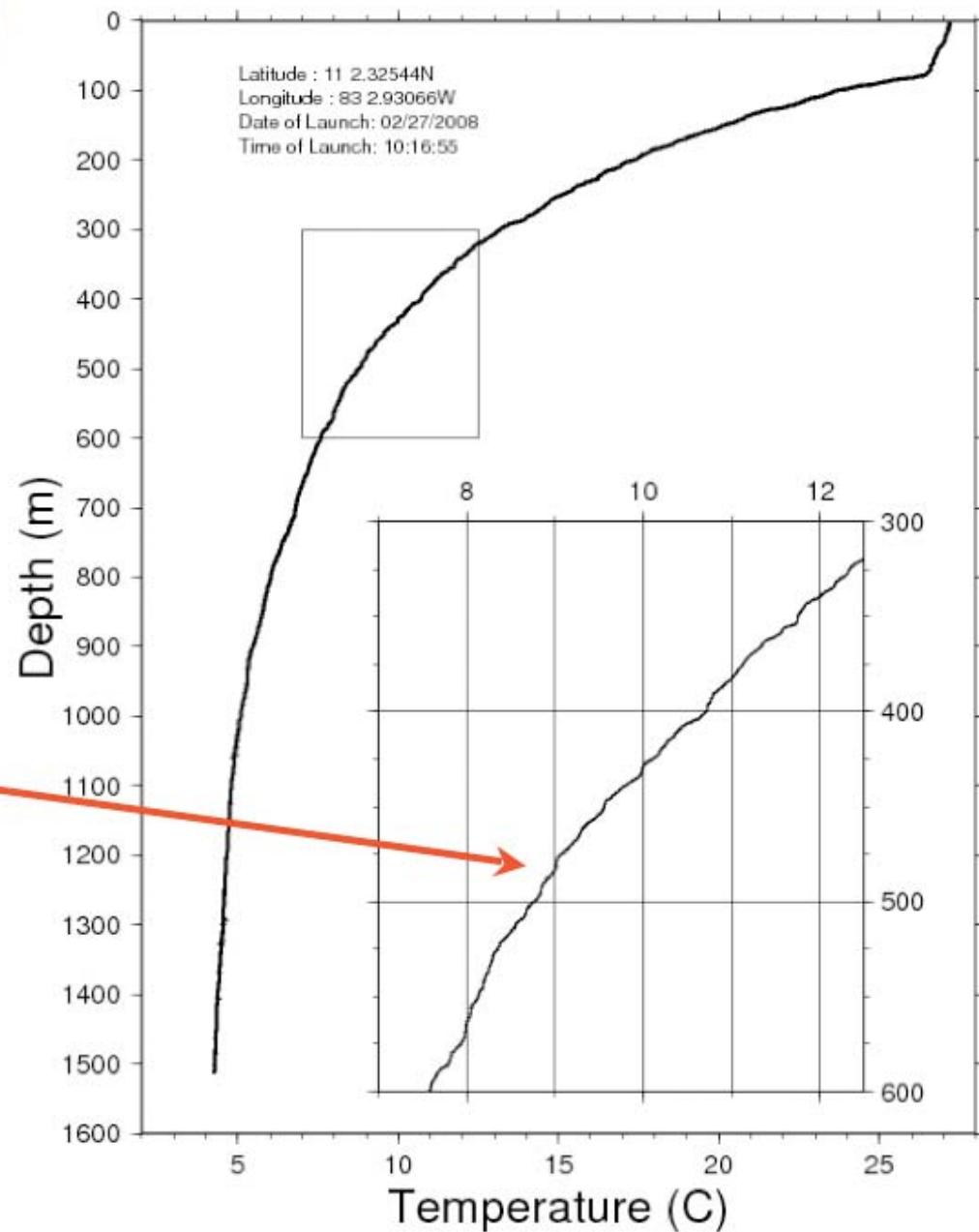
A photograph taken from the deck of a ship, showing oceanographic equipment. A long, dark, cylindrical instrument, likely a CTD (Conductivity, Temperature, and Depth) rosette, is suspended by a red lifting strap from a white metal crane arm. The background is the deep blue ocean under a clear sky. The text "Ocean Temperature Measurement and Imaging" is overlaid in the center of the image.

Ocean Temperature Measurement and Imaging

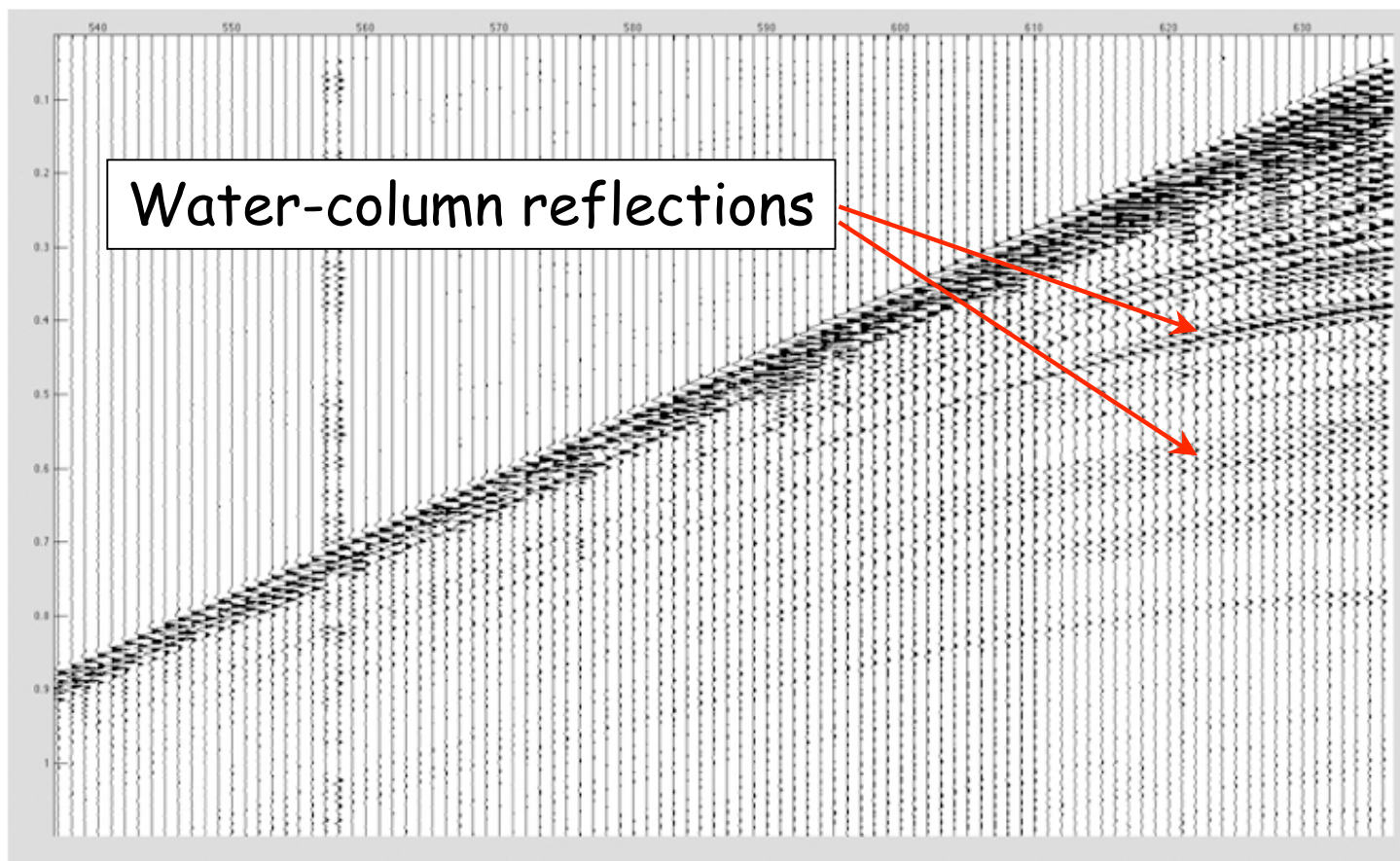
Sensitivity of Method

XBT temperature profile in Caribbean from MGL0804.

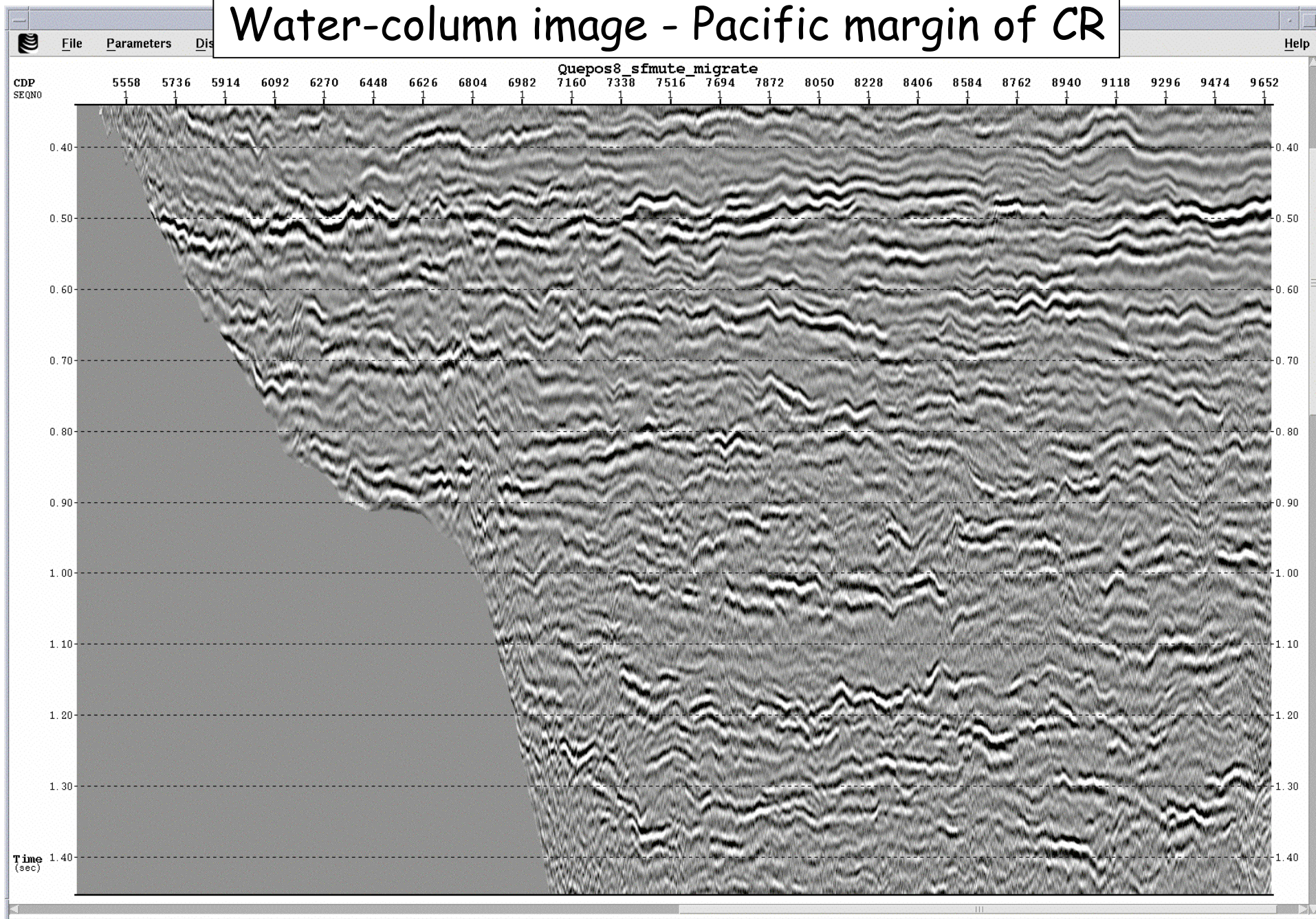
Note how smooth the temperature profile is, with very subtle finestructure.



This shot gather, co-located with the XBT, shows very clear, high S/N reflections from even this subtle finestructure. (The secret here is a 36-gun, well tuned, linear gun array. Enjoying a calm sea state doesn't hurt either.)



Water-column image - Pacific margin of CR



MGL0808 - McGuire EPR

- Airguns-only, 2 transects across TF's
- Airguns functioned well; high-quality data
- 16 of 17 OBS recovered

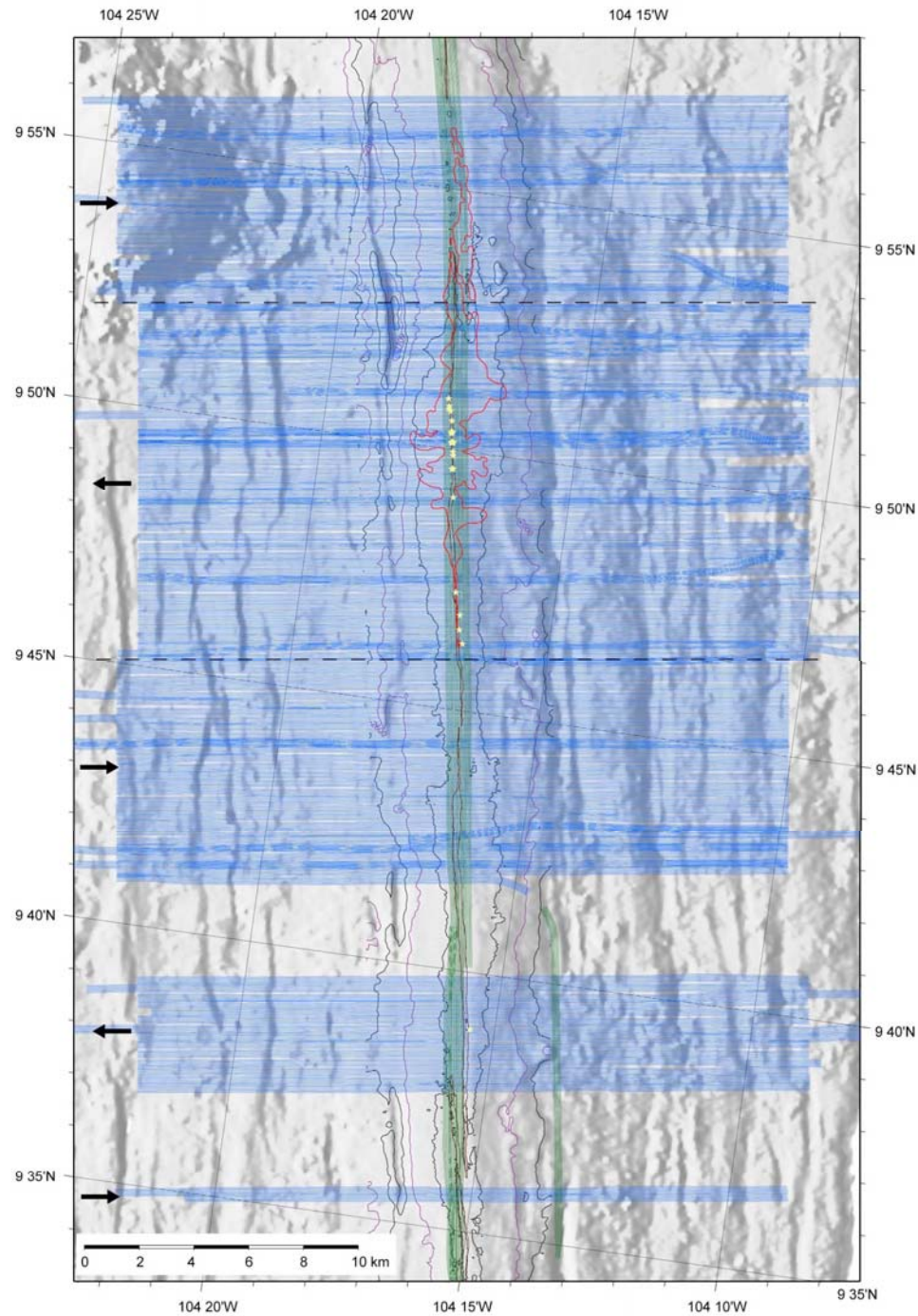


MGL0812 - Mutter EPR 3D

- Successful 3D Acquisition: 2 sources, 4x6 km streamers
- Cruise interrupted by dual compressor failures -
workaround accomplished in port
- 3,782 km of sail line data acquired
- 2 grids: $\sim 25 \times 29$ km; $\sim 25 \times 4$ km
- Very high data quality
- High praise for technicians and crew



MGL0812 - Mutter EPR 3D Track Map



Improvements since MGL0804

- PAM spare onboard (but apparently failed during MGL0812)
- New shot-time logger acquired and tested (but problems during MGL0814)
- 2D towing arrangement refined & improved (float head of streamer)
- Additional gun tow ropes acquired for full suite of tow depths (3, 4.5, 6, and 9 m)
- Progress in SEGD → SEG-Y conversion (headers etc)
- Shipboard website ("how-to") improved
- Real-time QC shot monitor installed
- Gravimeter working
- **Science staffing hires:** Dave Martinson, Robert Steinhaus, Robbie Gunn



Areas of Concern/Risk

- Personnel

- IT support
- recruiting/retention

- Equipment

- winches
- magnetometer towing
- streamer replacement
- airgun spares

- Software/data flow

- SEG-D → SEG-Y
- Focus standalone license
- Matlab
- Seisnet USB key

- Habitability

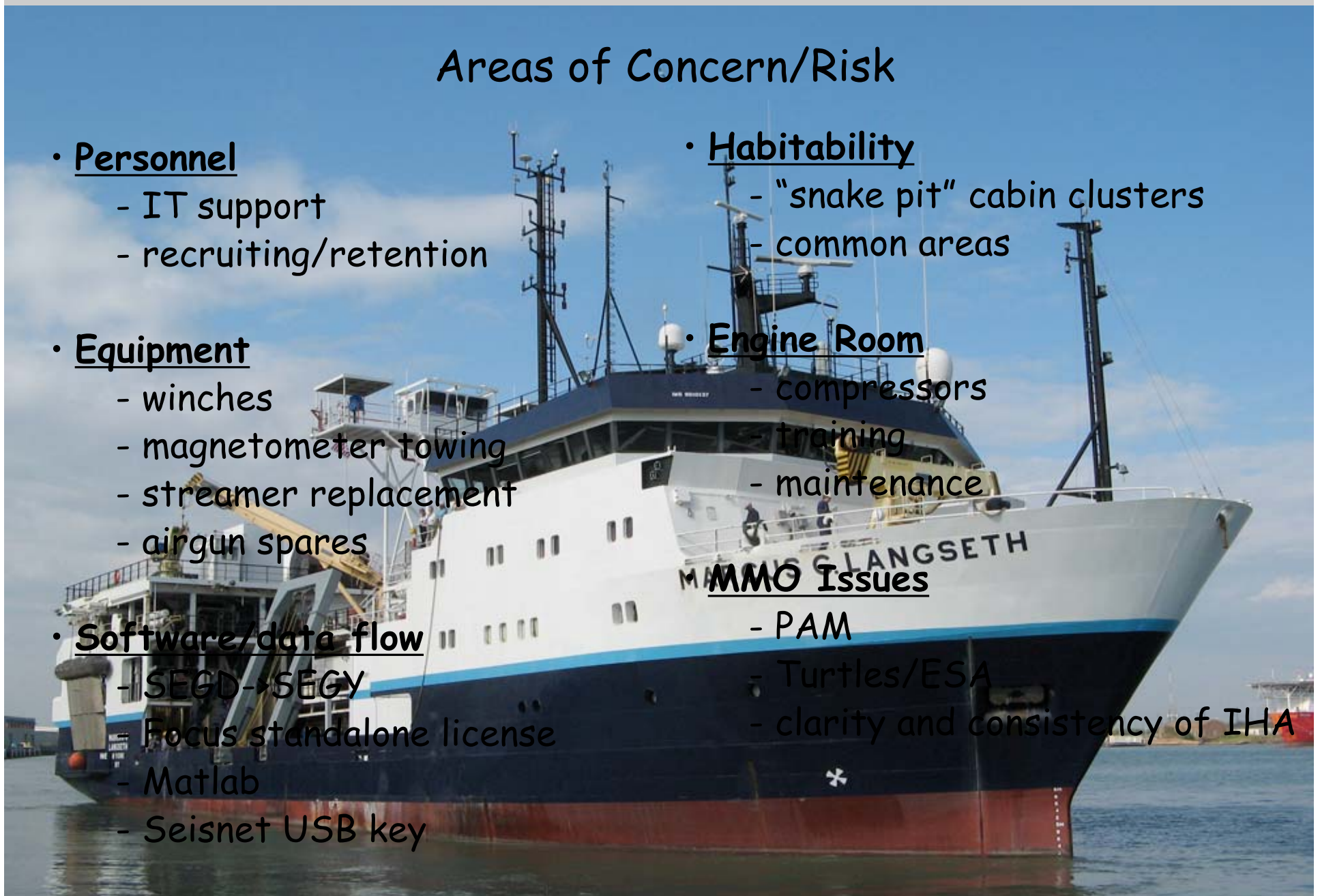
- "snake pit" cabin clusters
- common areas

- Engine Room

- compressors
- training
- maintenance

- MMO Issues

- PAM
- Turtles/ESA
- clarity and consistency of IHA



Long-Term Issues

- Upgrade path for streamer (already beyond rated age)
- Improvement of habitability
- Role of MLSOC in scheduling/solicitation
- How do we broaden funding base beyond NSF?
- "Lowering the bar" to access



Tasks for this meeting

- Updates on more recent cruises (Mutter/Carbotte; Gulick)
- Discussion of issues & concerns
- Subcommittee on Seismic Data Flow?
- Membership rotation:
 - Staggered rotations beginning Oct. 2009

