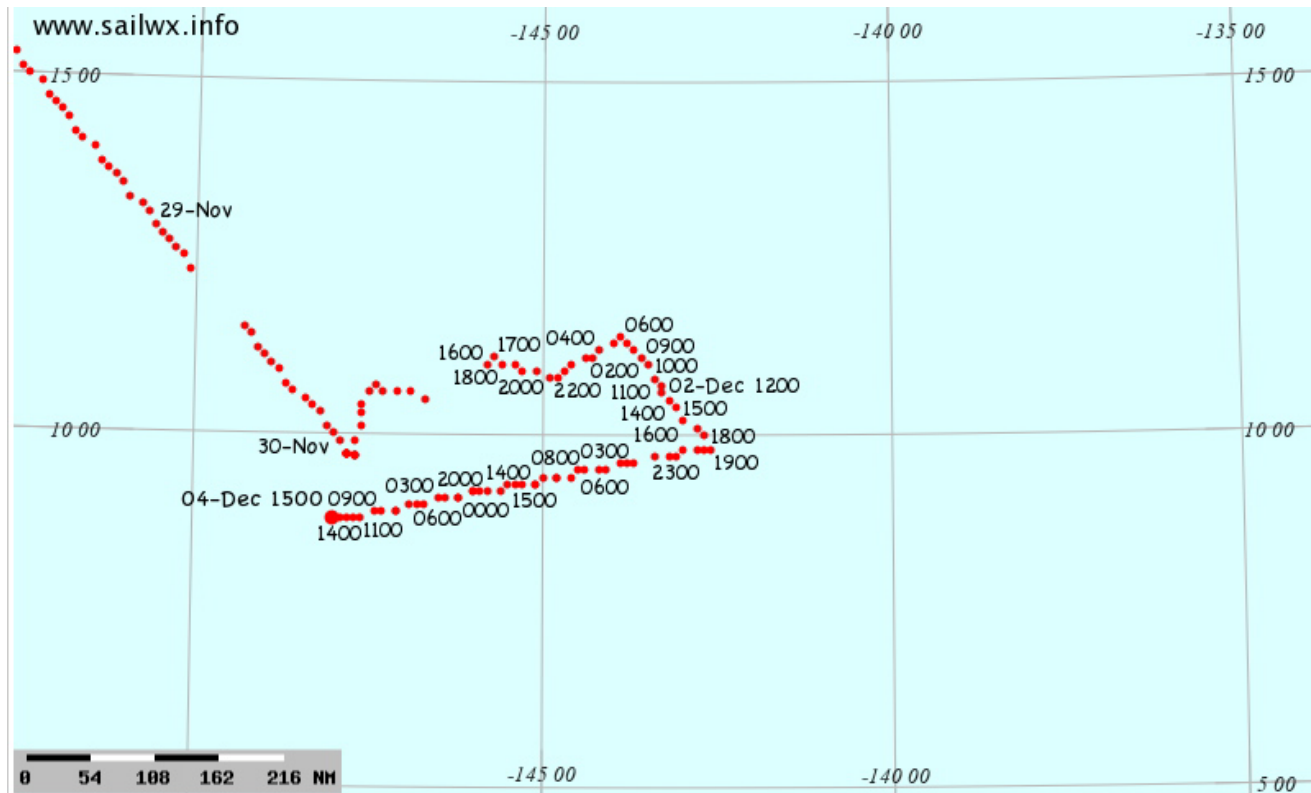


L-DEO Office of Marine Operations:
2011 MLSOC Meeting
San Francisco, CA



OMO Updates:

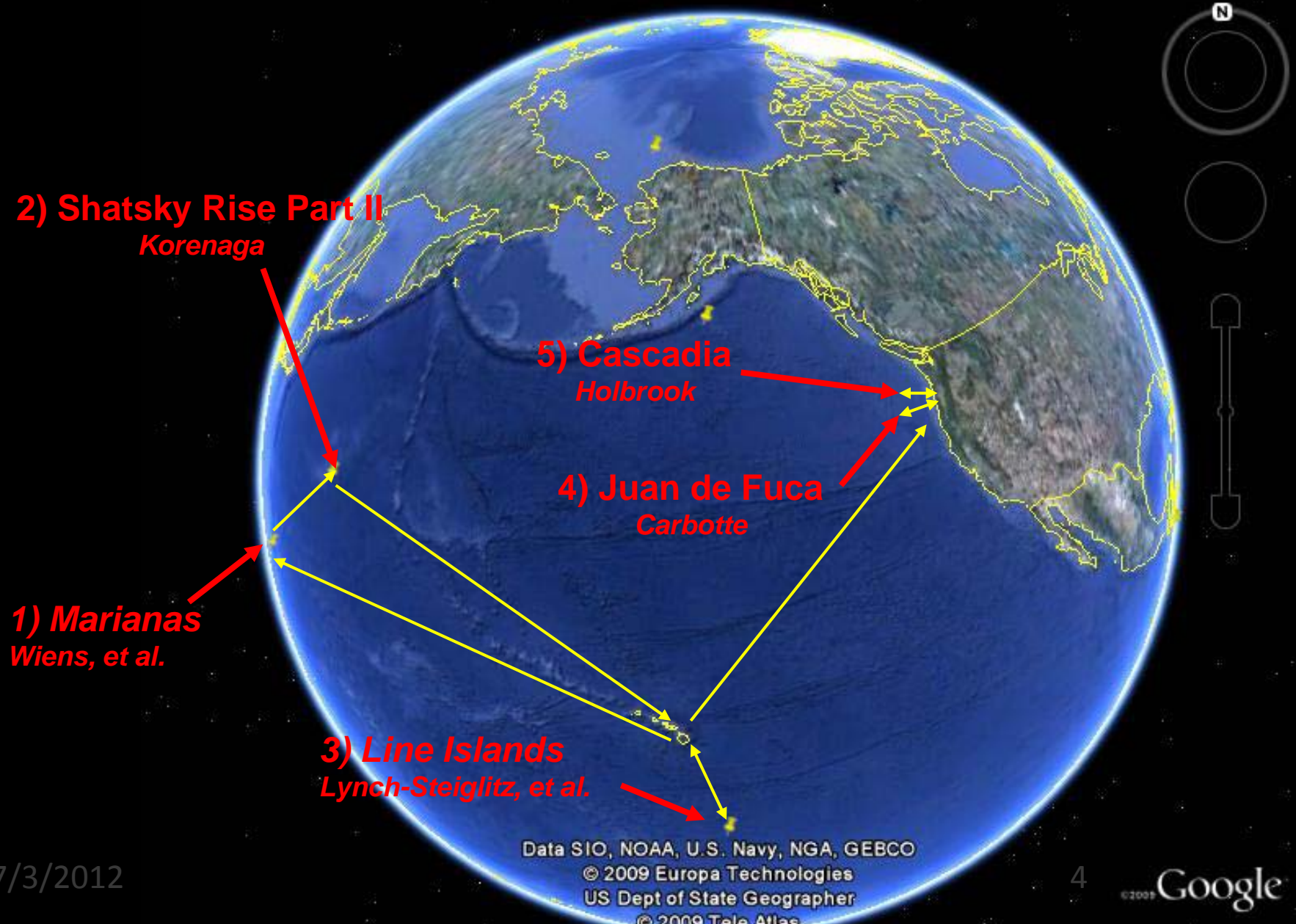
- 1) Business System Review Update
- 2) Gaherty Science Cruise: Project “No Melt” Underway:



Outline:

1. 2012-2013 Science Outlook
2. 2011 Science Review
3. 2011 Shipyard/Maintenance Review
4. Update on Glosten Winch Plan and Long Core Conceptual Design Study
5. 2012 SSSE and Ocean Instrumentation

Location of 2012 Science Missions



2012 Science Schedule (~195 Operating days)

- *January:* Transit to Guam
- *February/March:* Wiens – Marianas (Guam to Guam)
- *April:* Korenaga – Shatsky Rise (Guam to Honolulu)
- *May:* Lynch-Steiglitz et al.- Line Islands Coring (Honolulu- Honolulu)
- *June:* Carbotte/Abers – Juan de Fuca – (Astoria to Astoria)
- *July:* Holbrook – Cascadia Margin- (Astoria to Astoria)

Other Possible Work Pending:

- *Sept- Nov* - Pacific Gas and Electric - 3D Survey offshore of Diablo Canyon Nuclear Power Plant in central CA-(~80 days)

Possible Atlantic Projects for 2013

NSF Projects:

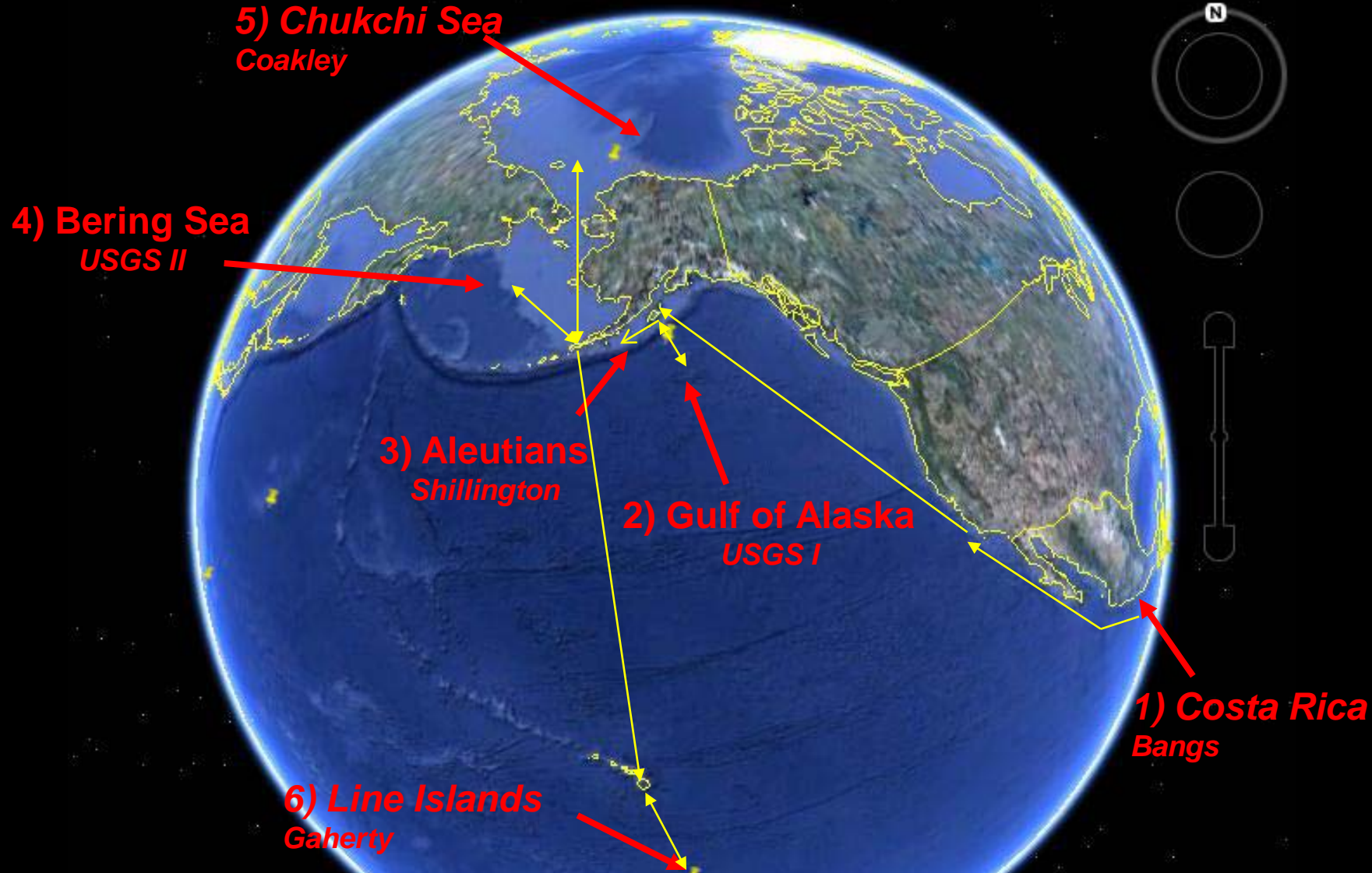
- **Sawyer - 3D Project – Portuguese Margin**
- **Canales – Azores**

Other Possible Atlantic Projects:

- Canadian Geological Survey – Hudson Bay (~25-35 days)
- 2 USGS Cruises – Extended Continental Shelf (ECS) Mapping Projects possible on Atlantic Coast. (~40-80days)
- IFREMER – GOLD 3D Project – Western Mediterranean
- Geoprism and related projects ? New Jersey Margin 3D, etc..



Location of 2010-11 Science Missions



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

© 2009 Europa Technologies

US Dept of State Geographer

© 2009 Tele Atlas

7

©2009 Google



Picture of OBS Equipment on main deck
2011 Gaherty Cruise. 61 OBS for this
science project.

New Developments:

- Equipment
- UNOLS Techs
- Science Support Plan
- New Chief Scientist:
Dr. Helene Carton
- New Staff for 2012

2011 *Langseth* Performance

Summary Statistics:

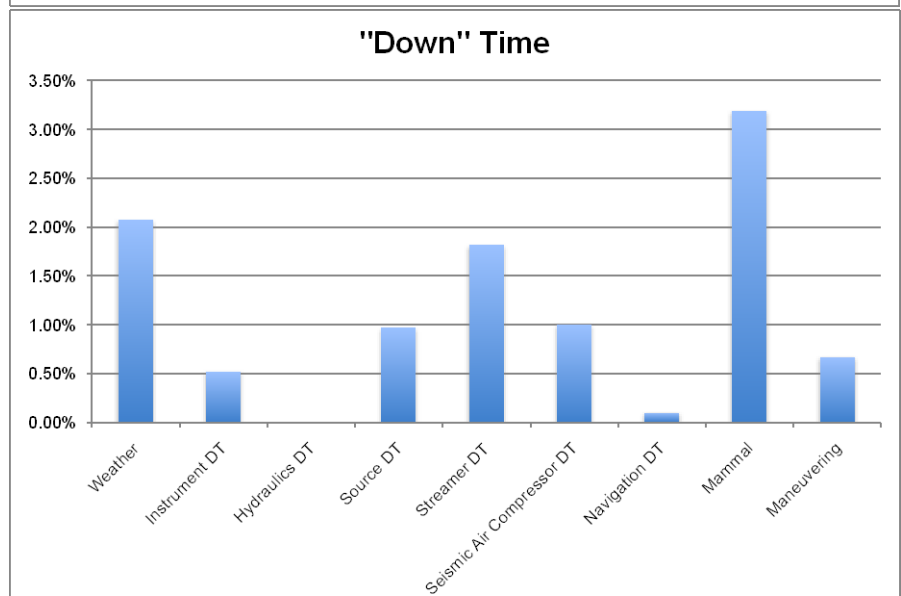
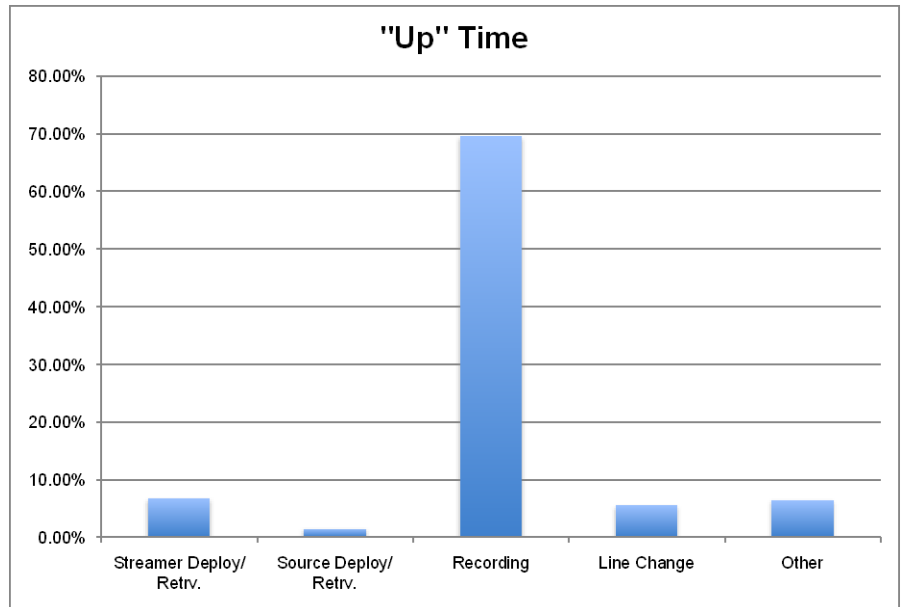
90% Overall "Uptime" for 2011

Operation	TOTALS(hrs)	PERCENTAGES
Streamer Deploy/Retrv.	194.05	6.76%
Source Deploy/Retrv.	42.02	1.46%
Recording	1997.15	69.53%
Line Change	158.55	5.52%
Other	183.82	6.40%
Weather	59.53	2.07%
Instrument DT	14.90	0.52%
Hydraulics DT	0.00	0.00%
Source DT	27.86	0.97%
Streamer DT	52.18	1.82%
Seismic Air Compressor DT	28.73	1.00%
Navigation DT	2.82	0.10%
Mammal	91.69	3.19%
Maneuvering	19.15	0.67%
	2872.46	100.00%

Note: Excludes Transit and Portcall

Operations Uptime in Red

Operations Downtime in Black

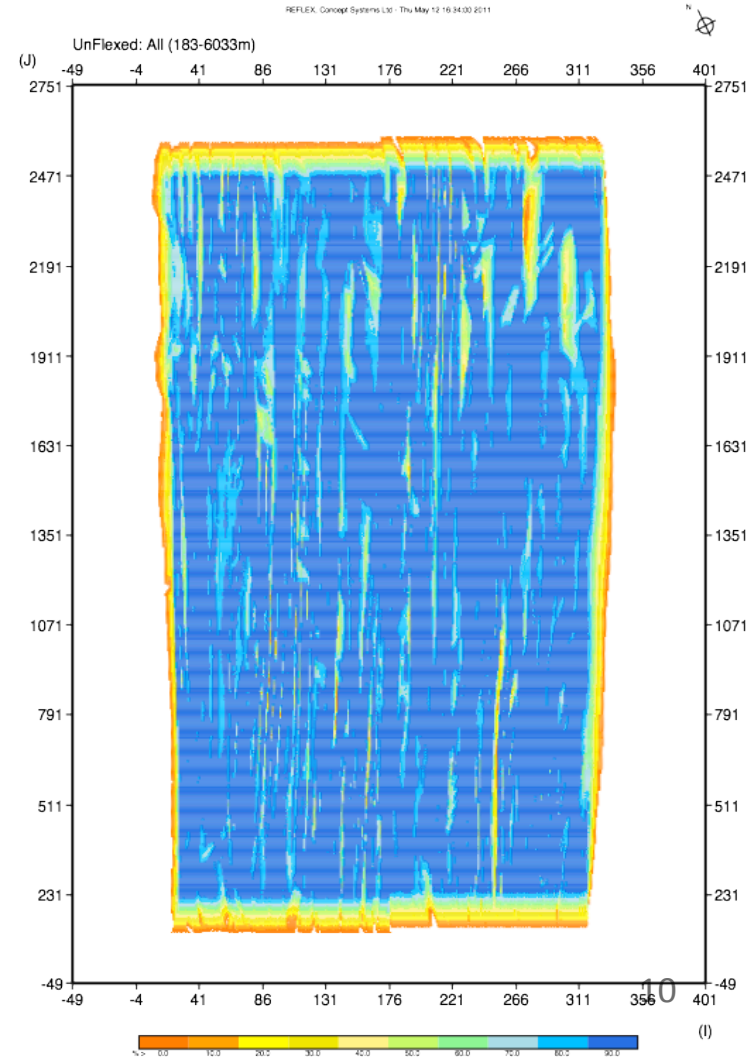
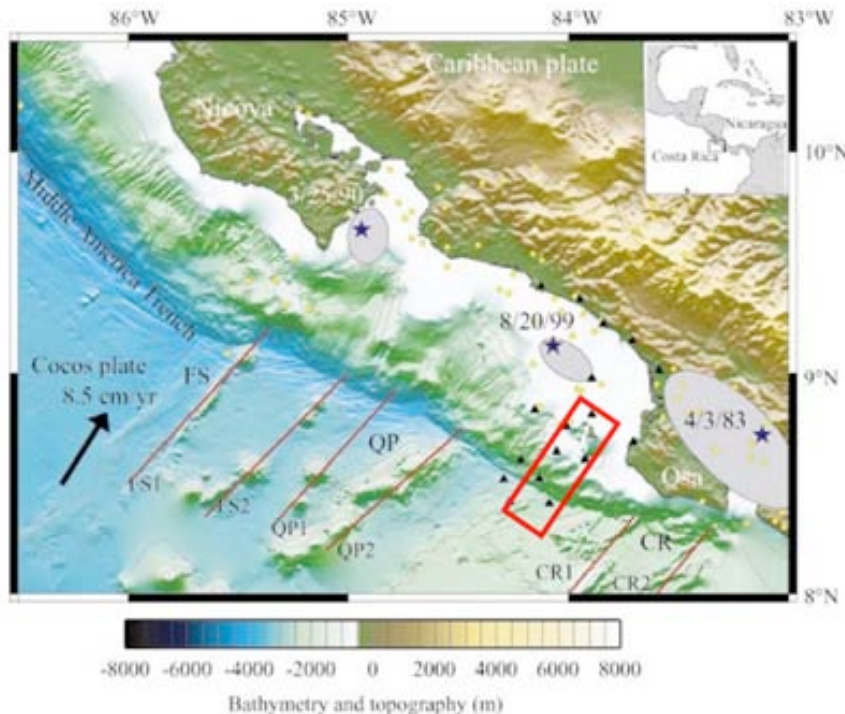


3D Survey (Bangs, et al.)

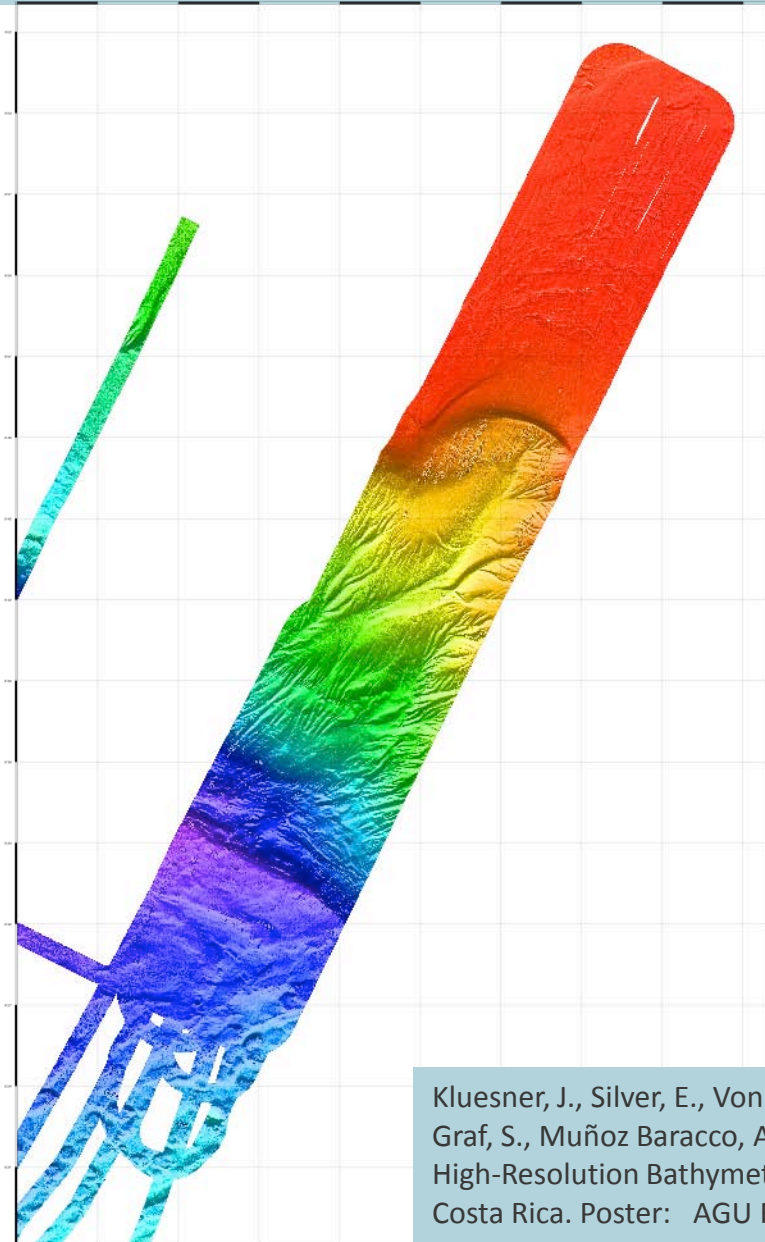
Pacific coast, Costa Rica - April/May 2011

This project acquired a 11 x 55 km volume of 3D seismic reflection data to examine the 3D structure of the Costa Rica convergent margin near Osa peninsula.

Below, regional map of the Middle America subduction zone. The gray ovals are recent earthquake slip areas. The red box is the planned survey area. **Right**, Final 3D coverage achieved over survey area where shades of blue = 70-100% coverage.

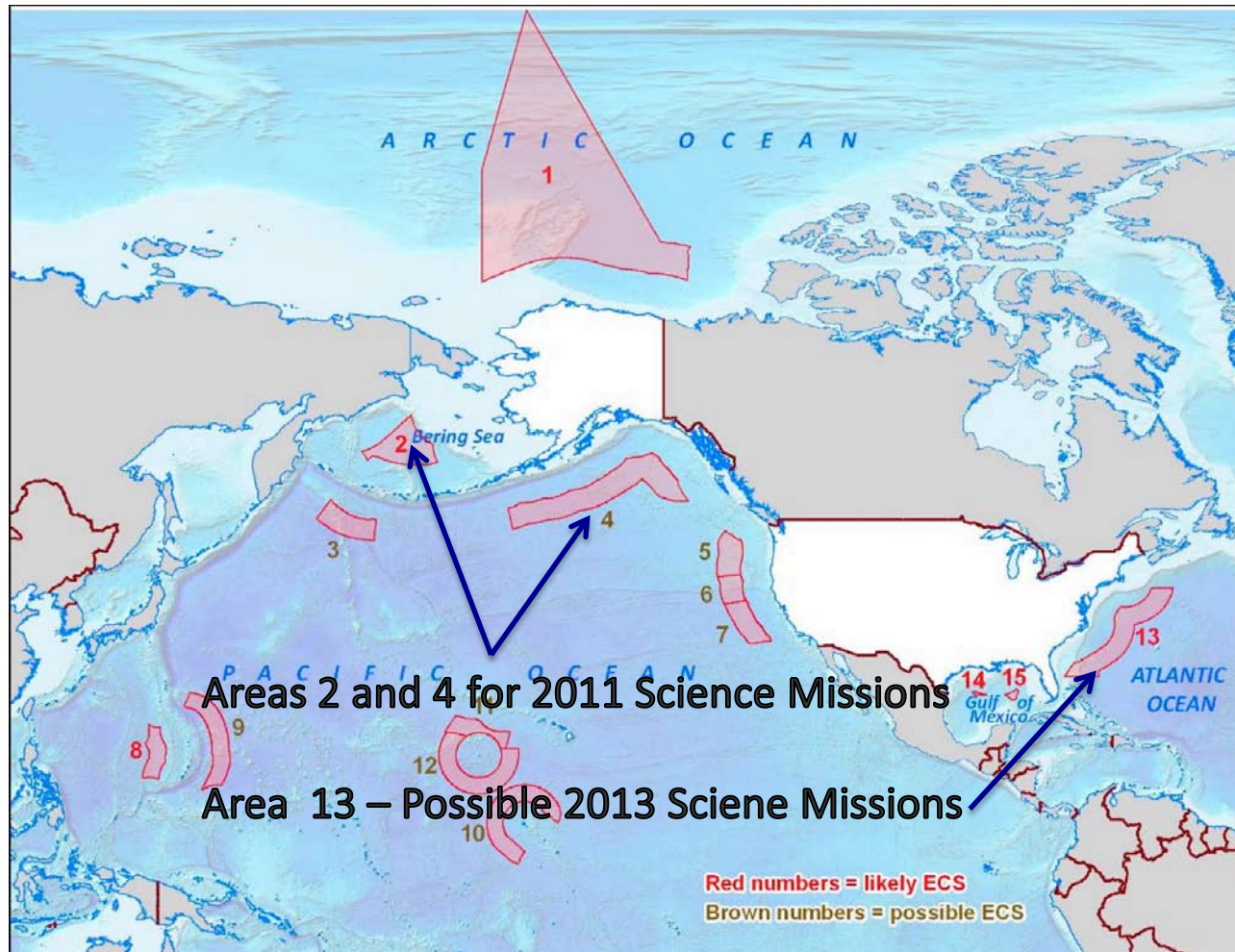


CRISP 3D– Multibeam Results



Kluesner, J., Silver, E., Von Huene, R., Bangs, N., McIntosh, K., Ranero, C., Orange, D., Cavanaugh, S., Graf, S., Muñoz Baracco, A., Cameselle, A., Gibson, J., (2011). Detailed Surface Structure in High-Resolution Bathymetry and Backscatter from the CRISP 3D Seismic Experiment, Offshore Costa Rica. Poster: AGU Fall Conference (2011)

Location of USGS Science Missions, Bering Sea and Gulf of Alaska (Map courtesy of USGS)

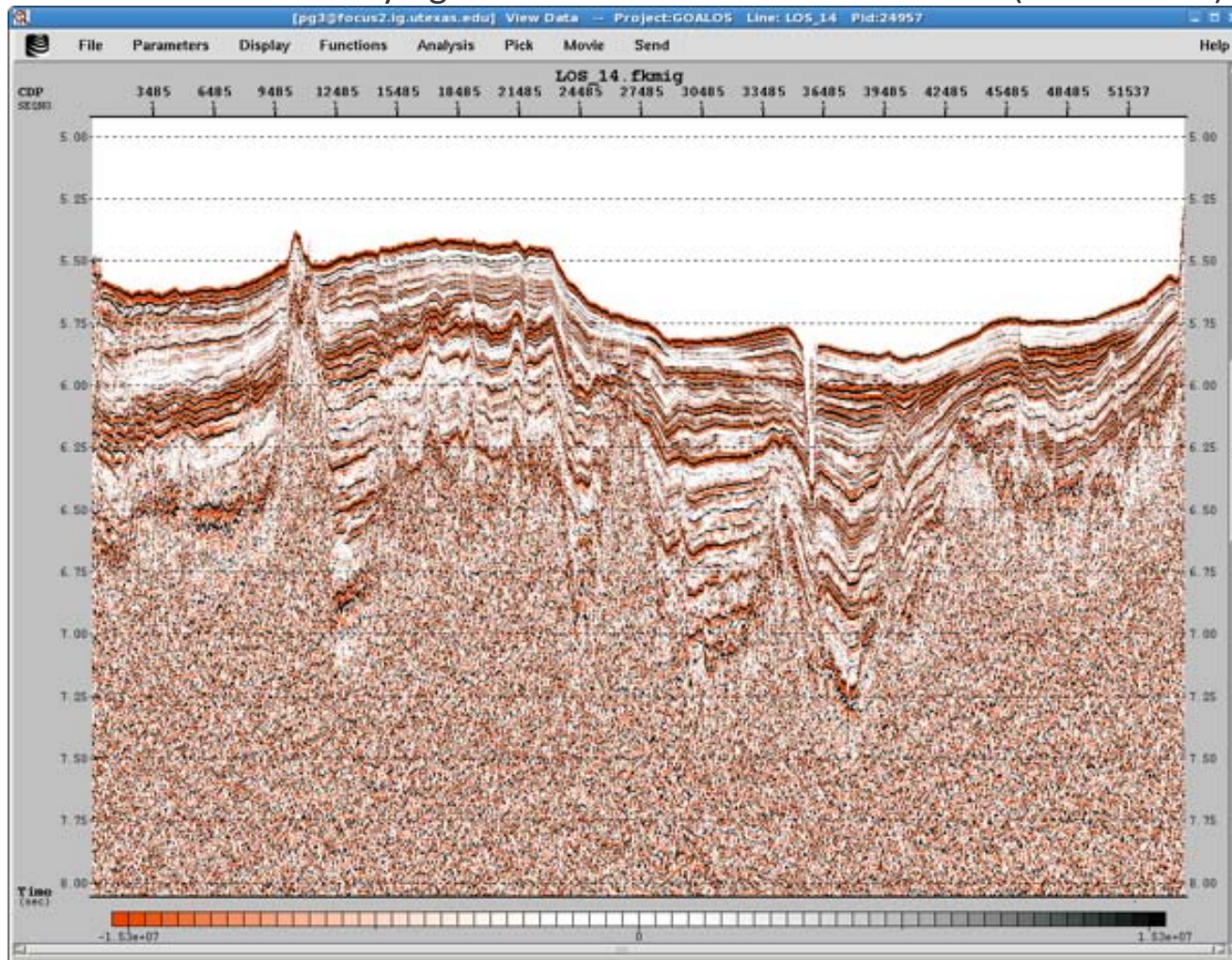


Extended Continental Shelf Project :
Marine geophysics for the purpose of determining geologic framework, crustal nature and sediment thickness in support of delimiting the US extended continental shelf under provisions contained in Article 76 of the Convention on the Law of the Sea.

The shaded area on this map illustrates where the U.S. is considering collecting and analyzing data and does not represent the official U.S. Government position on where it has extended continental shelf. This map is without prejudice to boundary depictions and future negotiations.

Gulf of Alaska, June 4 – 26 , 2011 (Childs, Barth, and Gulick)

Image from MGL_1109 shot across the southern end of the Baranof Fan showing an unconformity about midway down the section that predates the Fan, an older extensive channel that likely helped build the Fan, and two small modern channels overlying the older more extensive channel (Gulick et al.)



USGS Bering Sea – ECS Mapping

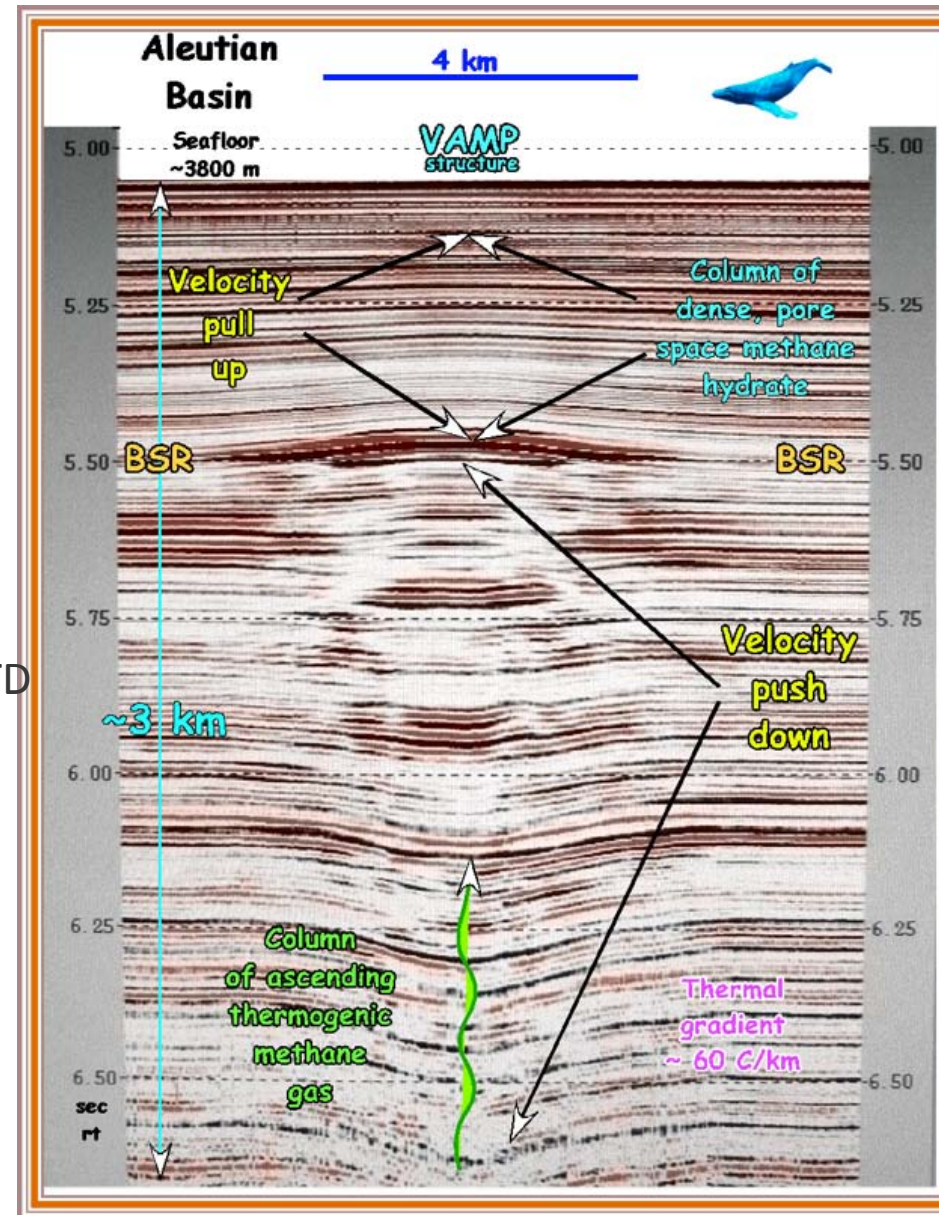
Bering Sea- Aug 2011 (Barth and Scholl)

Right, Large velocity amplitude (VAMP) anomaly structure on Line 1.

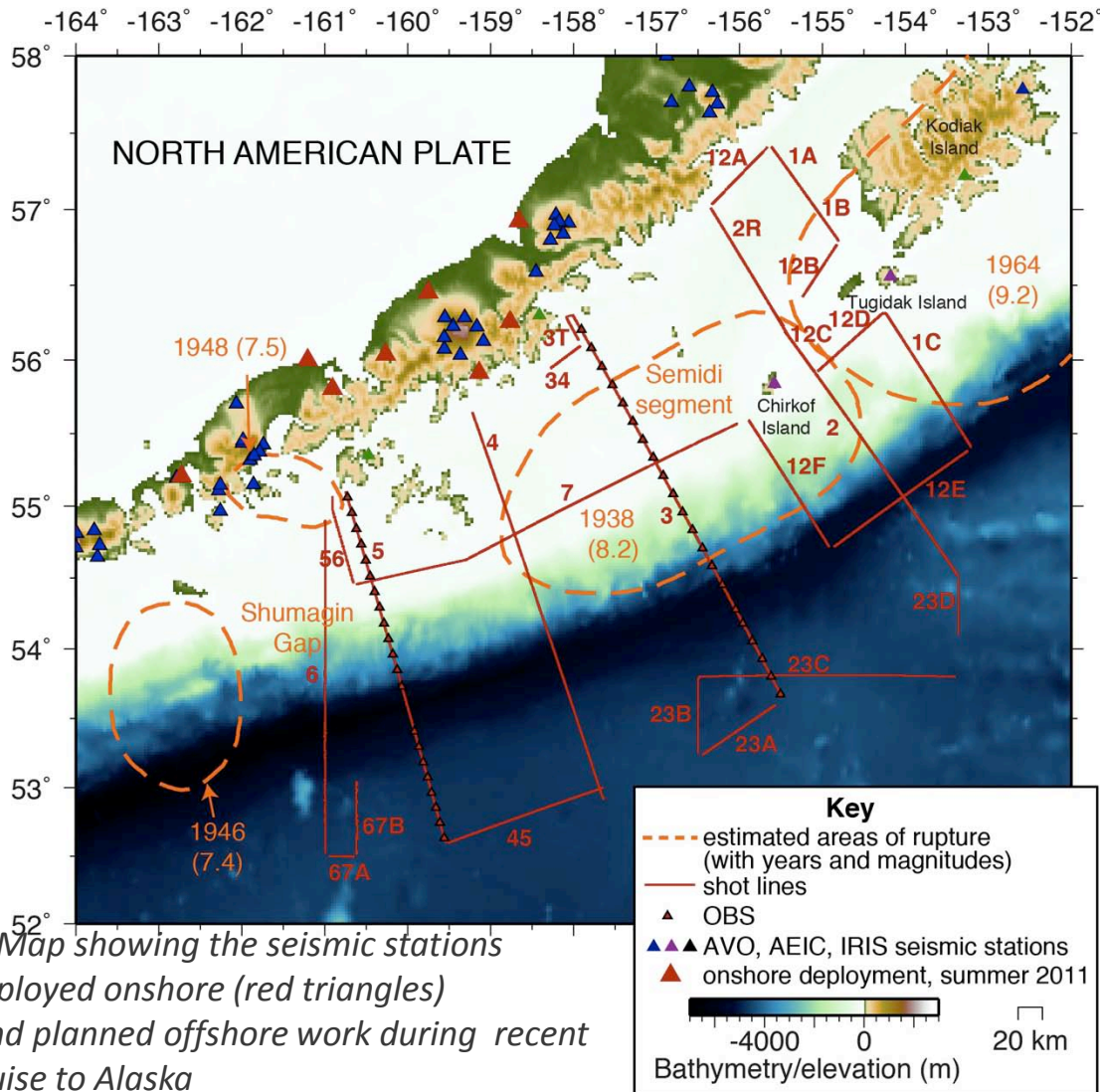
VAMP structures like to center themselves over basement knolls or maybe deeply buried seamounts.



Left, Crew getting ready to launch CTD rosette to collect water sample and velocity profiles from deep part of Bering Sea



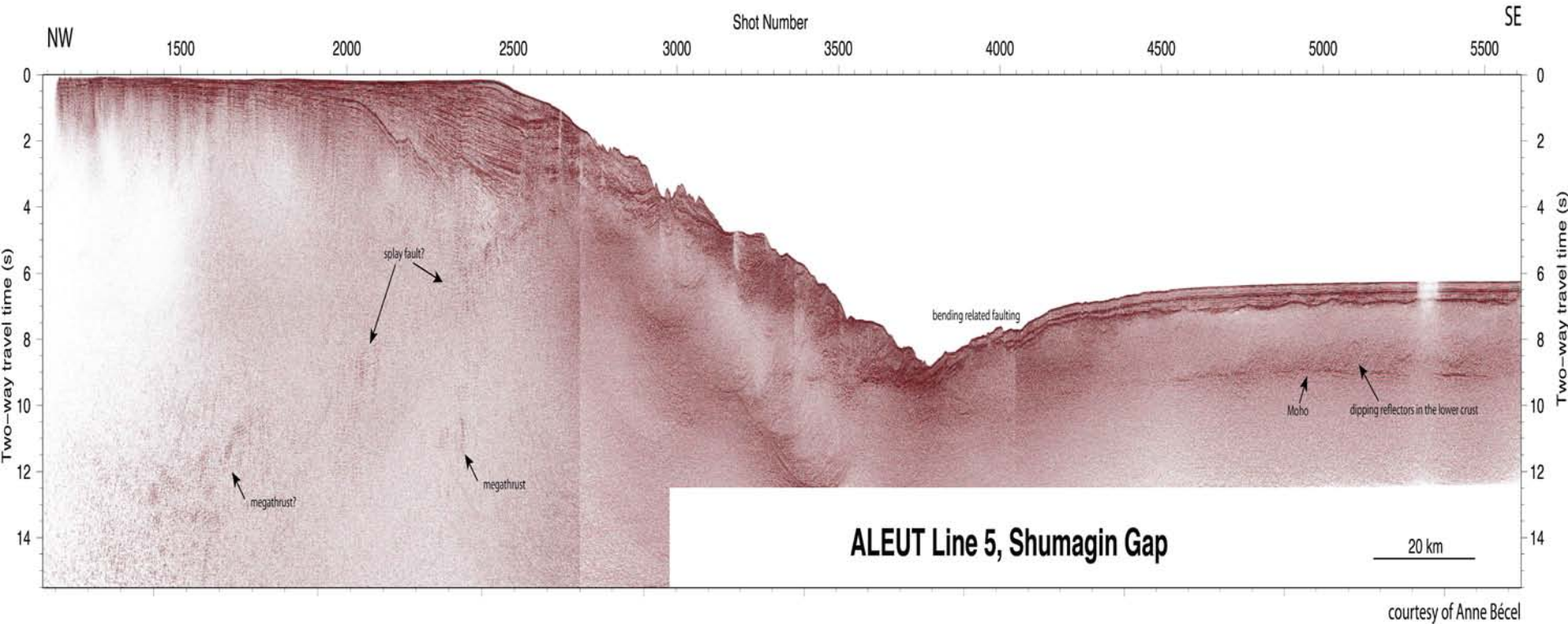
2011 Imaging the Sources of Great Alaskan Earthquakes



Map showing the seismic stations deployed onshore (red triangles) and planned offshore work during recent cruise to Alaska

Aleutian Megathrust Project- July 2011

A major tectonic boundary on the seafloor off Alaska has produced fatal earthquakes and tsunamis similar to the recent one in Japan. In 1964, the second largest quake ever recorded happened here, and other parts of the fault may be building energy for another event. Scientists from Lamont-Doherty Earth Observatory are aboard the R/V *Langseth* to better understand what causes these quakes, which will help assess the hazard for Alaska and beyond. (Shillington)

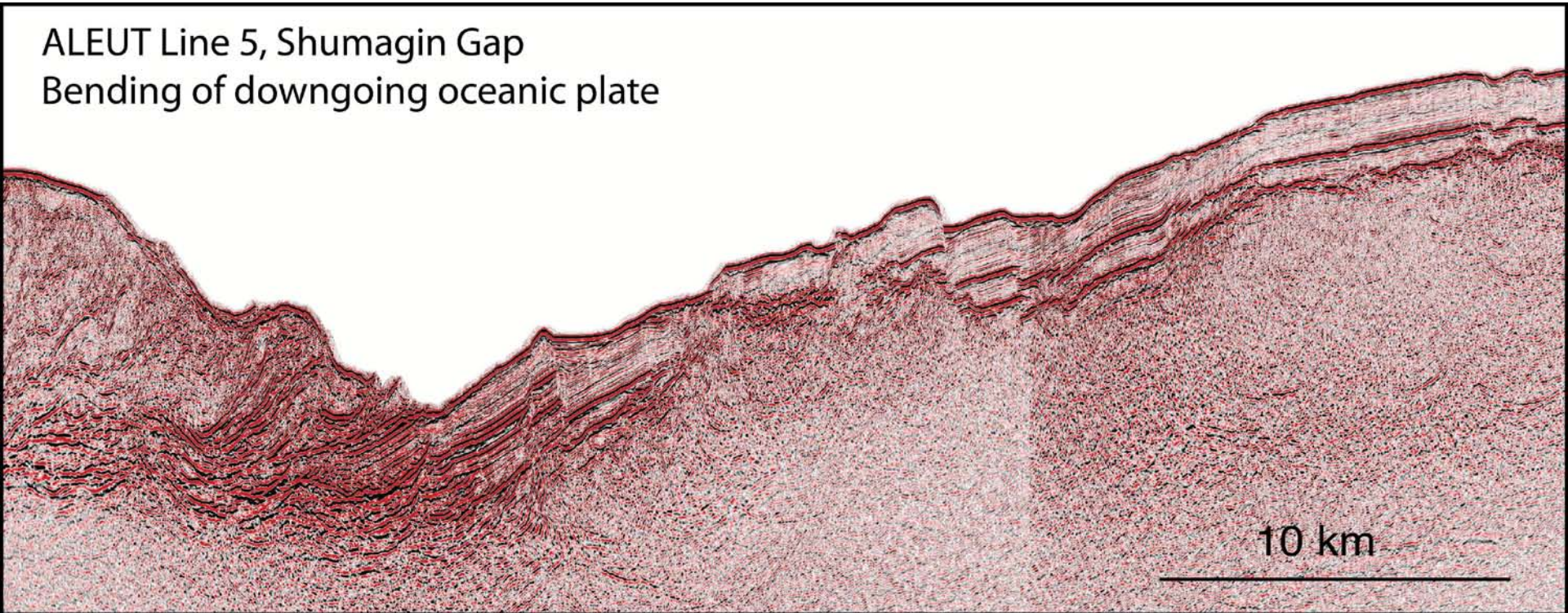


T33A-2387. Constraints on the Aleutian Subduction Zone from the Shumagin Gap to Kodiak Asperity from New MCS and OBS Data of the ALEUT Project [Donna J. Shillington; Mladen R. Nedimović; Spahr C. Webb; Anne Bécel; Matthias Delescluse; Jiyao Li; Harold Kuehn; Berta Biescas; Andrew Wessbecher; Aaron Farkas; Celia Eddy; Kelly Hostetler; Hannah Perls; Jack Zietman; Katie M. Keranen; Keith E. Loudon](#)

T33A-2388. Pacific plate seaward of the western Alaska trench: A view into the structure of a fossil triple junction [Mladen R. Nedimović; Donna J. Shillington; Spahr C. Webb; Matthias Delescluse; Anne Bécel; Harold Kuehn; Jiyao Li; Berta Biescas; Andrew Wessbecher; Aaron Farkas; Celia Eddy; Kelly Hostetler; Hannah Perls; Jack Zietman; Katie M. Keranen; Keith E. Loudon](#)

2011 Imaging the Sources of Great Alaskan Earthquakes

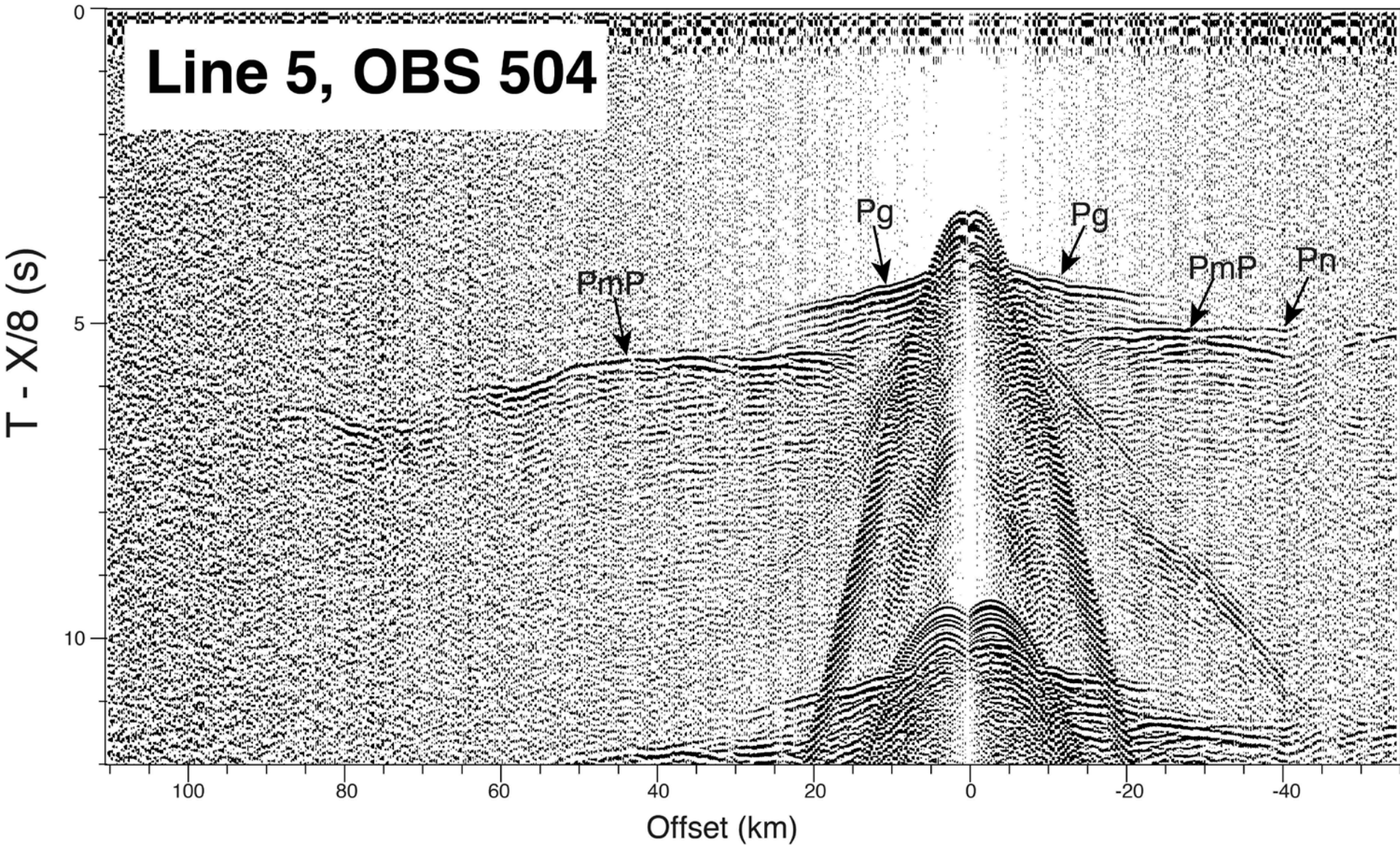
ALEUT Line 5, Shumagin Gap
Bending of downgoing oceanic plate



10 km

courtesy of Anne Bécel

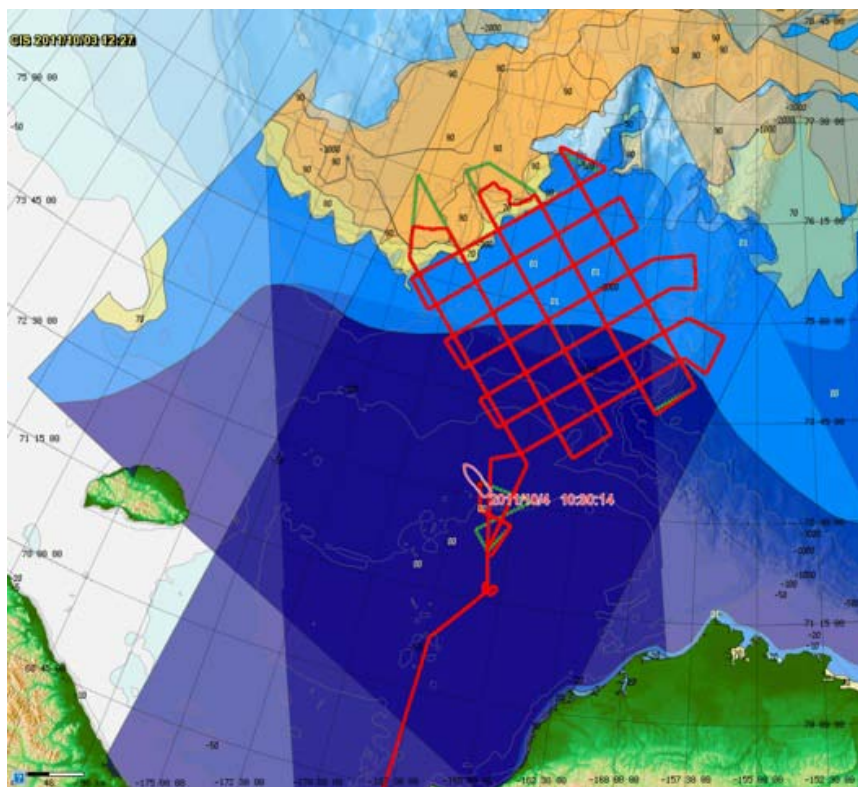
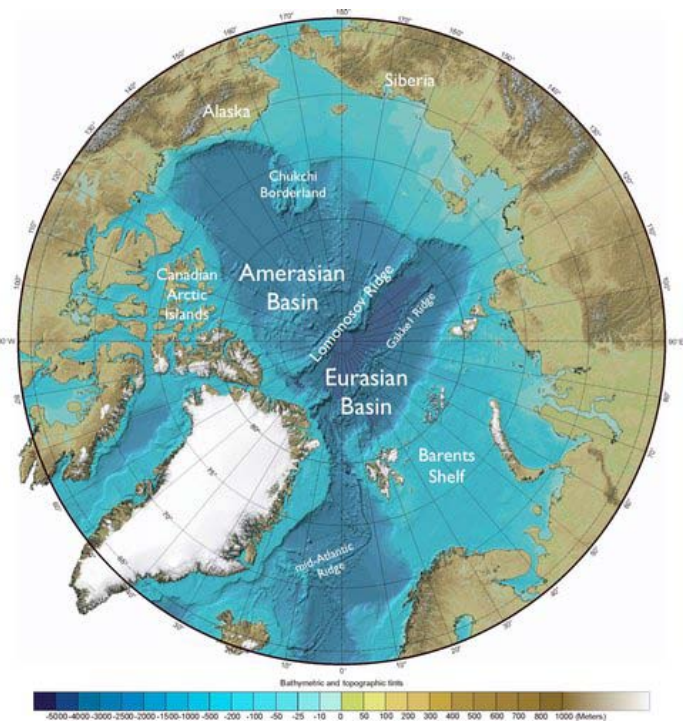
2011 Imaging the Sources of Great Alaskan Earthquakes



Chukchi Borderlands, Arctic Ocean—(Coakley)

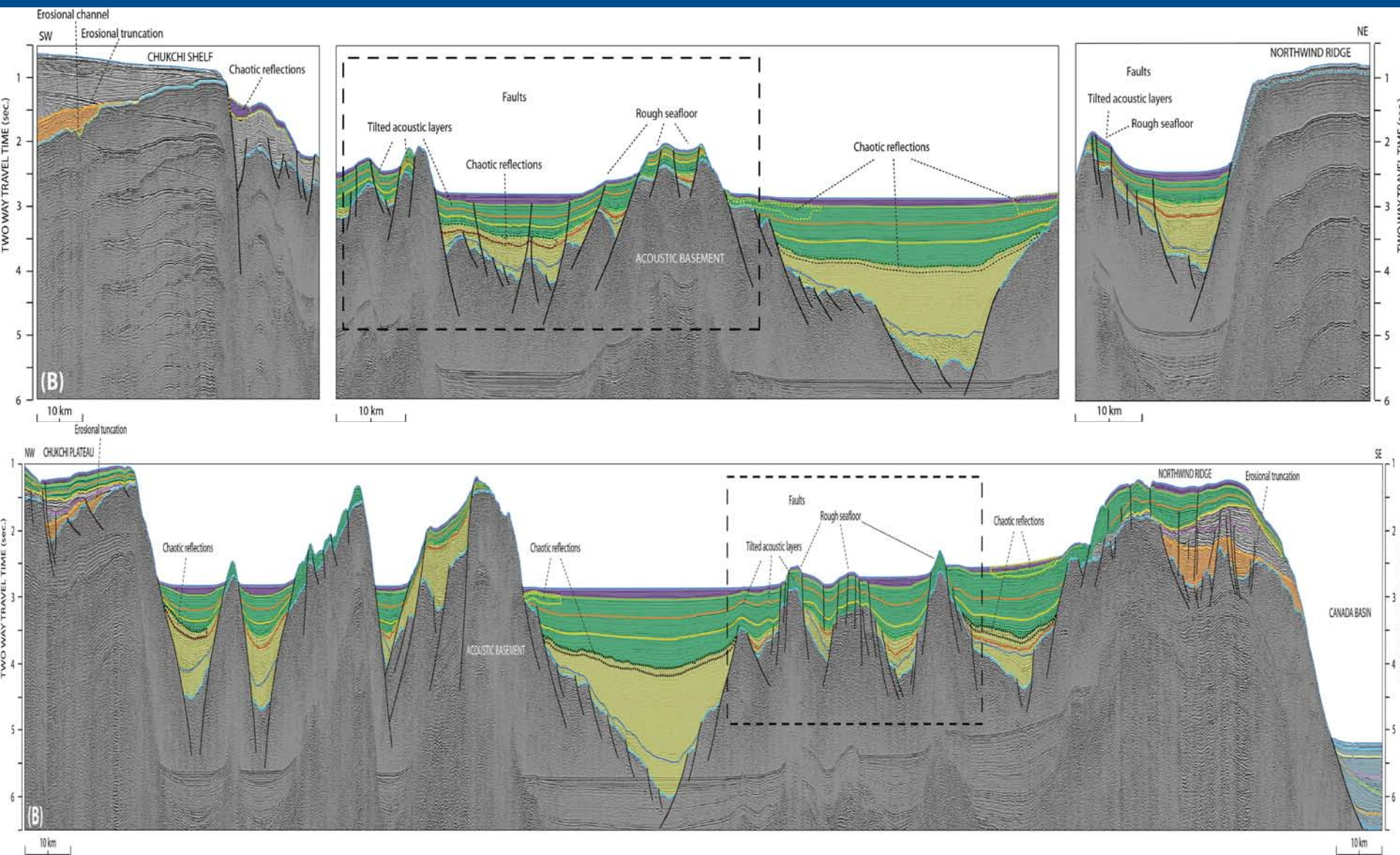
Cruise Goals:

- Image Southern Edge Structure and Inter-correlate wells
- Test models for the opening of the Canada Basin
- Develop age controls on Arctic Ocean Stratigraphy



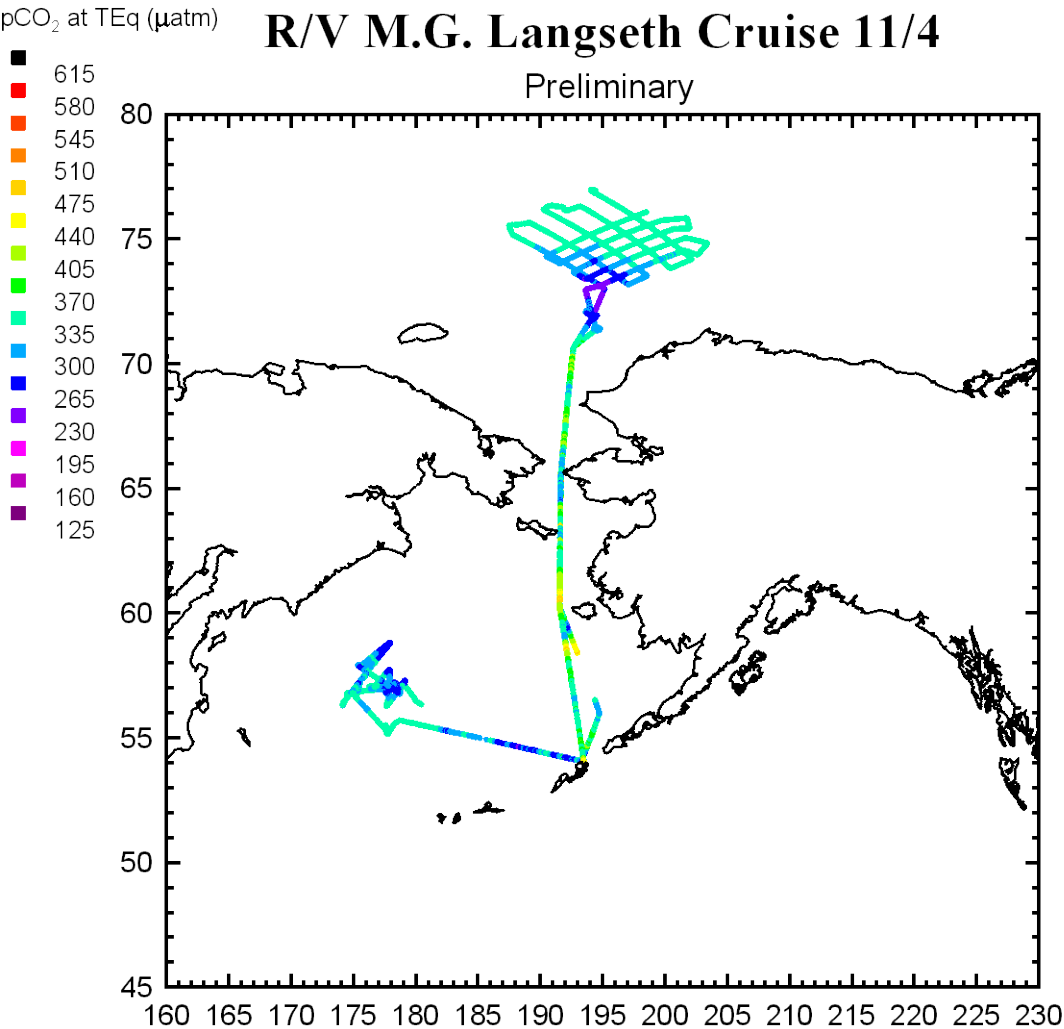
~5200 km of MCS reflection data in 5 weeks.

Chukchi Borderlands, Arctic Ocean—(Coakley)



T33A-2365. Chukchi Edges Project - Geophysical constraints on the history of the Amerasia Basin. *Bernard Coakley; Ibrahim Ilhan*

Chukchi Sea – Coakley



Processed multibeam data, showing iceberg gouges on the Chukchi Shelf. The depths are color-coded: Blue is deep and red is shallow. (Coakley, NY Times – Scientist@Work blog)

Langseth – San Francisco

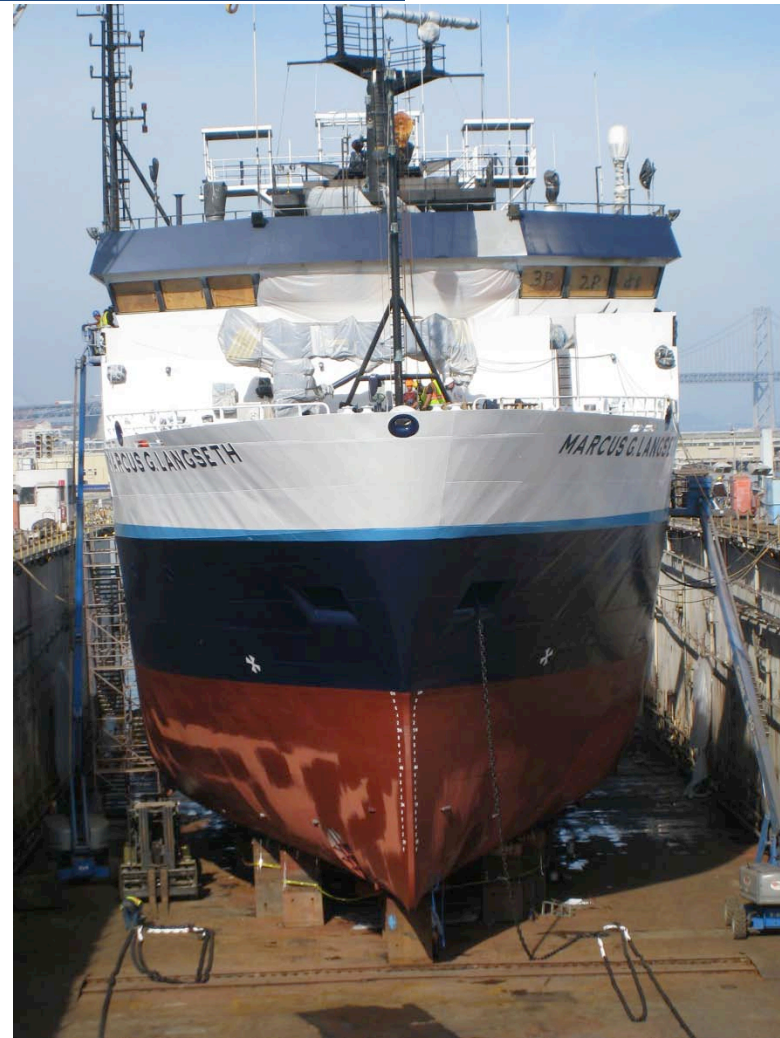
Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE



January – BAE Shipyard, San Francisco

Major Accomplishments:

- Painting entire superstructure
- Rudders
- Refurbishment of Galley and accommodations
- Tank work
- Gearbox and shaft inspections
- Environmental inspections/cleaning
- Anchor Chain and Chain Locker preservation
- ADCP Installation
- New Knudsen Transducers



SIO-MARFAC, San Diego, CA

February-March Maintenance Period

Clutches

Wireless Seismic Streamer Winch Control System

ABS/USCG Ship inspections

New PAM and Magnetometer Winch Installations

Rolls Royce Control System Troubleshooting

NSF Ship Inspections

3D Setup Cruise

Hydraulic Repairs



Univ. of Hawaii Facility, Honolulu, HI *October-November Maintenance Period:*

- UMAS- Engine Alarm Control System Installed and Commissioned
- Seismic Compressor and Fisher Valve Repairs
- Rescue Boat Repairs
- Hydraulic and Piping Repairs
- ABS/USCG Inspections– Annual COI – with No outstanding items
- Transitioning to Alternative Compliance Program with ABS



Update on Glosten Winch Plan:

- New CTD Winch Approved in 2011 SSSE
- New turning block design currently under review-Installation by April 2012 sediment coring cruise.
- Paravane Deck modifications to be completed in 2012 to allow for the 2 new permanent winches.
- New winch control house in new location to be completed in 2012

Other 2011 SSSE Projects:

- New Science Workboat- *Selected for purchase*
- Single Sideband Radio- *Installed*
- New ABS Nautical Systems fleet management software- Installed
Initial training at OMO and vessel accomplished.

Update on Long Core Conceptual Design Study:

- NSF funded study as part of 2011 SSSE with Glosten naval architects.
- Stability Profile evaluation is ongoing now
- Meeting in January with WHOI, Glosten, NSF, and OMO to discuss next steps.

2012 SSSE Proposal Projects:

OMO Priority:

1. MG sets replacement with UPS for Main lab clean power	\$ 72,000
2. Streamer Reel #4 Bearing replacement	TBD
3. Wireless controls for A-Frame and Paravane winches	\$ 70,000
4. Commercial label sign maker	\$ 9,000
5. Portable vibration analysis tool	\$ 9,000
6. Replace water heater and pressure water tank	\$ 28,000
7. <u>System to prevent bio-fouling of cooling water systems</u>	<u>\$100,000</u>
OMO Sub-Total: \$288,000+	

SSSE 2012 Group Purchase:

Tempus IC Telemedical Device (8 Units @ \$50k each)	\$400,000
LDEO, U. Hawaii, Oregon St., U. Washington, WHOI, and SIO	

OMO Total Request: \$688,000+

2012 Ocean Instrumentation Proposal Projects:

OMO Priority:

- | | |
|--|---------------|
| 1) BOLT Heavy Duty Fire Chambers and Spreader Bars | \$250K |
| 2) GPS Antenna for POSNet (2) | \$ 16K |
| 3) 50%-Diverter Doors for Towing Airgun Arrays (3) | \$ 30K (est.) |
| 4) Rosette Components for CTD Package | \$ 15K (est.) |
| 5) <u>EM122 Water Column Logging module</u> | <u>\$ 10K</u> |

Total Request: \$321K

Discussion Topic for MLSOC:

“OTHER Work”

PG&E and San Onofre 3D Surveys

ION Geophysical

International Work

CGS & IFREMER 3D Survey