

R/V Marcus G. Langseth



MLSOC AGU Meeting — December 13, 2015
L-DEO Office of Marine Operations

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

OUTLINE

LDEO OPERATORS REPORT :

- Maintenance and Upgrades, including Sercel Streamer upgrade
- 2015 Year in Review
- 2016 Projected Schedule
- Ocean Instrumentation- MLSOC input & recommendations

Maintenance/Inspections at WHOI and Jacksonville

Major overhauls of Caterpillar Engines

Overhauls of Ariel compressors

Overhaul of Cummins Diesel

NSF Ship Inspection, Brooklyn, NY (May 19-21)

Maintenance/Inspections at SUNY Maritime Pier (July)

Workboat Davit Hydraulics Completed– Commissioning completed

Install of 10 new Fire Dampers

Other General Repairs and Compressor Exhaust Repair

Incline/Stability Evaluation following Forepeak Ballast removal in 2014

Annual ABS ISM – Ship and Shoreside Audits Completed in June/July

Langseth at WHOI Pier – Winter 2014/15



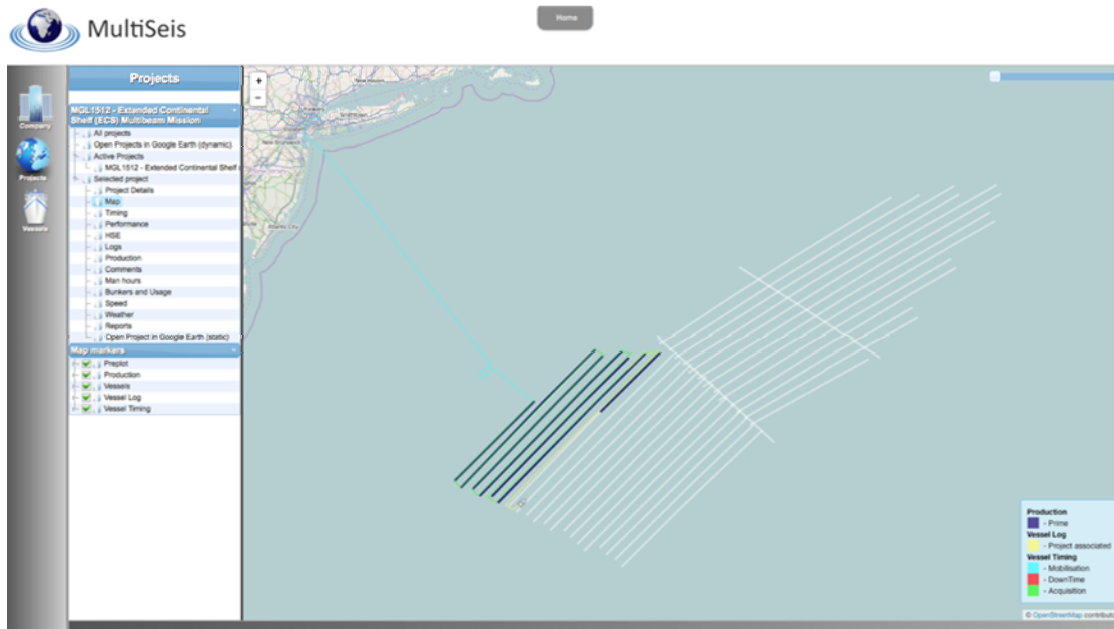
FINAL Langseth 2015 and Early 2016 Schedule

- USGS ATLANTIC ECS Project–Part 2- (April 8- May 4)
- NSF- NJ Margin 3D (May 22-July 8)
- NOAA-UNH MB –ECS Project (July 29- August28)
- NSF- Freshwater – (Evans/Key) – Sept. 1-15
- Sercel Streamer Installation- (Sept.16-Oct.19)
- Transit to Santorini (Oct 24- Nov.13)
- NSF - Santorini OBS/Crete Line – (Nov. 14 to Dec. 16)
- Transit to Cape Verde (Dec.20- Jan.1)

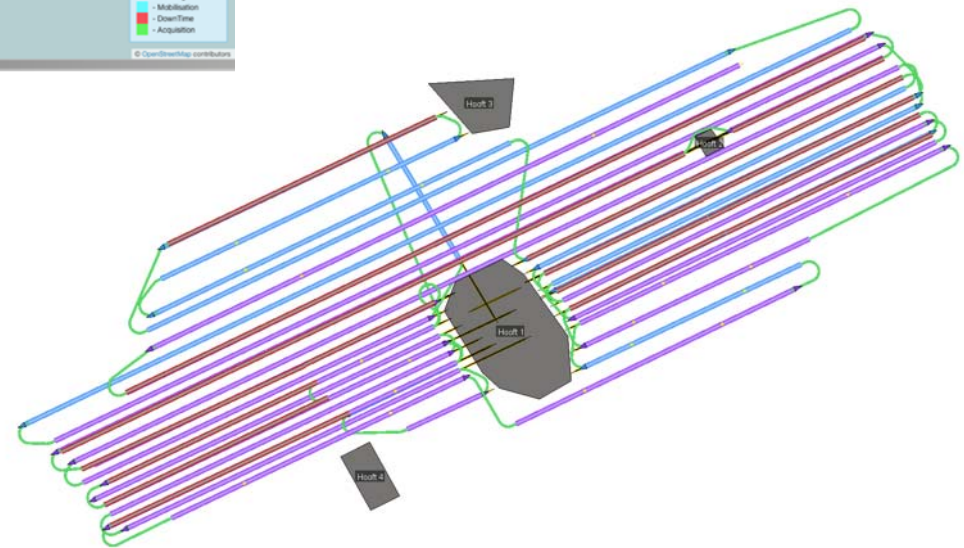
2016

- NSF –Reece 2D/OBS –S.Atlantic – (Jan.2- Feb.25)
- NSF-NERC- Rychert Passive OBS Deployment- Cape Verde – (Feb.28-April 1)
- Transit from Cape Verde to Panama. April 2-11
- Possible NOAA Mooring Cruise
Panama to Chile April 14- 26
- NSF - Trehu – Final Dates Pending- April- June

New Tools for communicating and tracking project



SurvOpt Planning Software

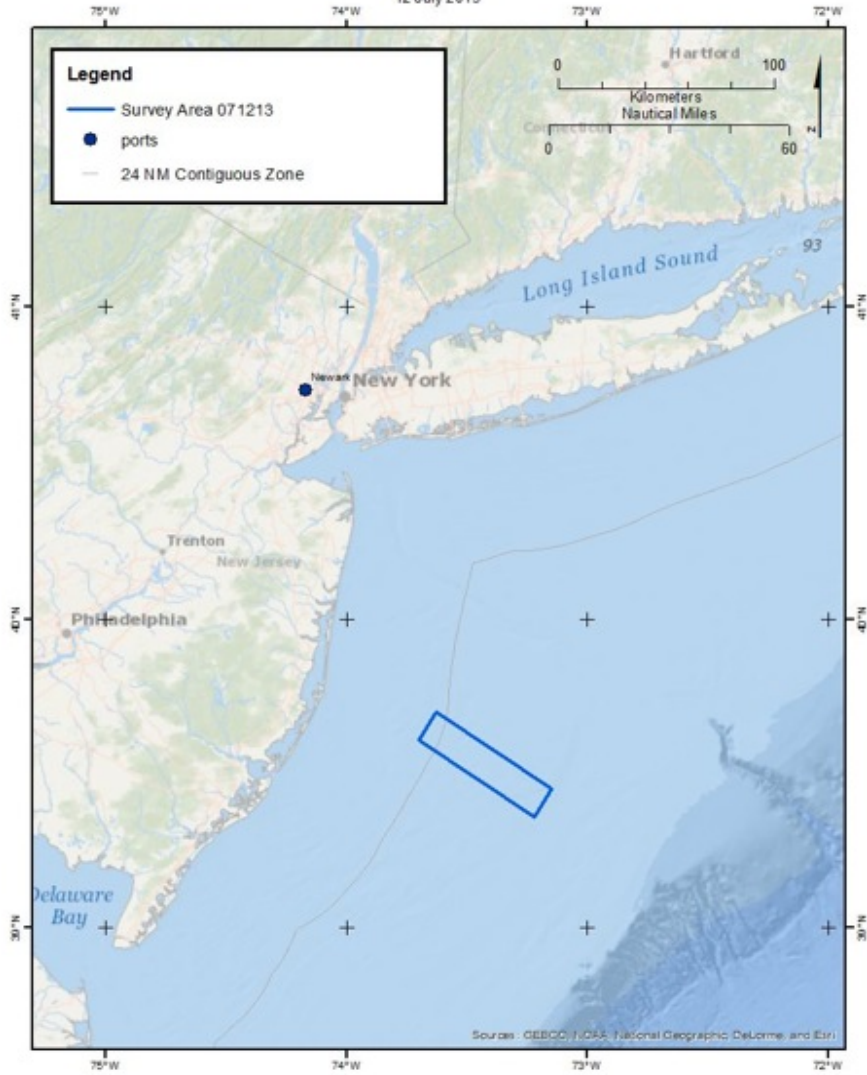


Langseth Main Lab



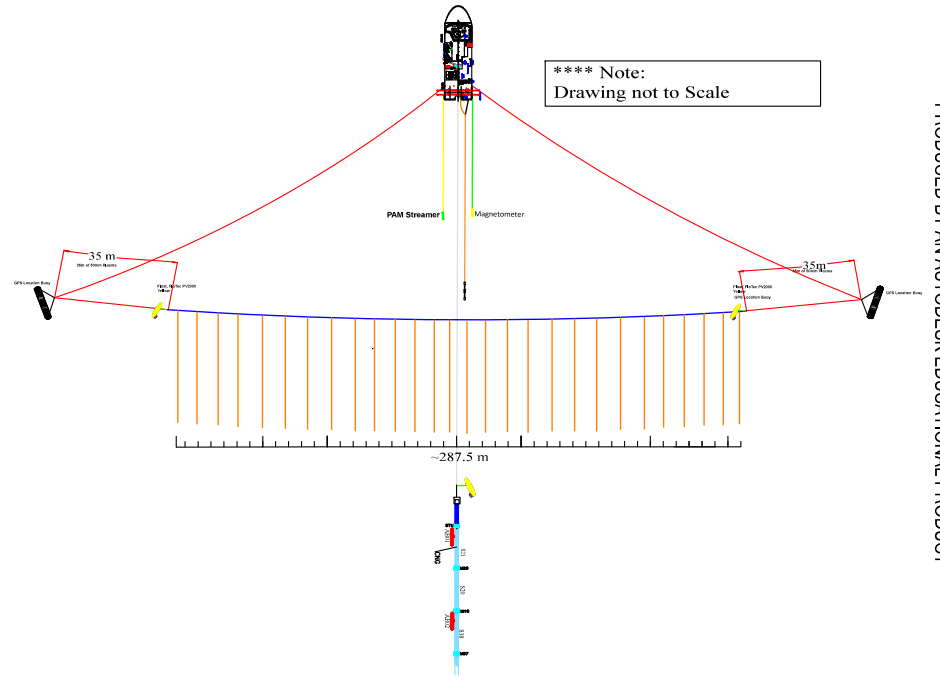
Mountain Project

12 July 2013



NJ MARGIN High Resolution 3D Project

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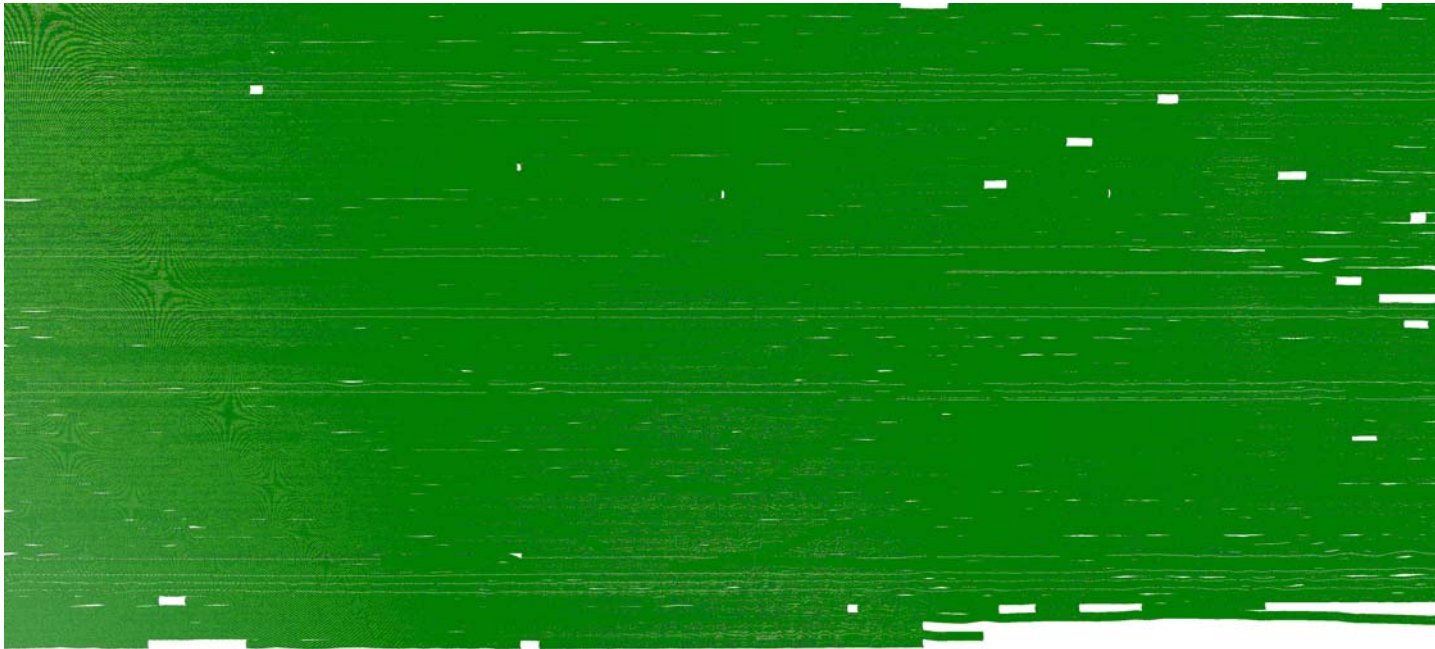
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Final Data Summary Coverage Plot for NJ Margin 3D

Acquired Sail Line:

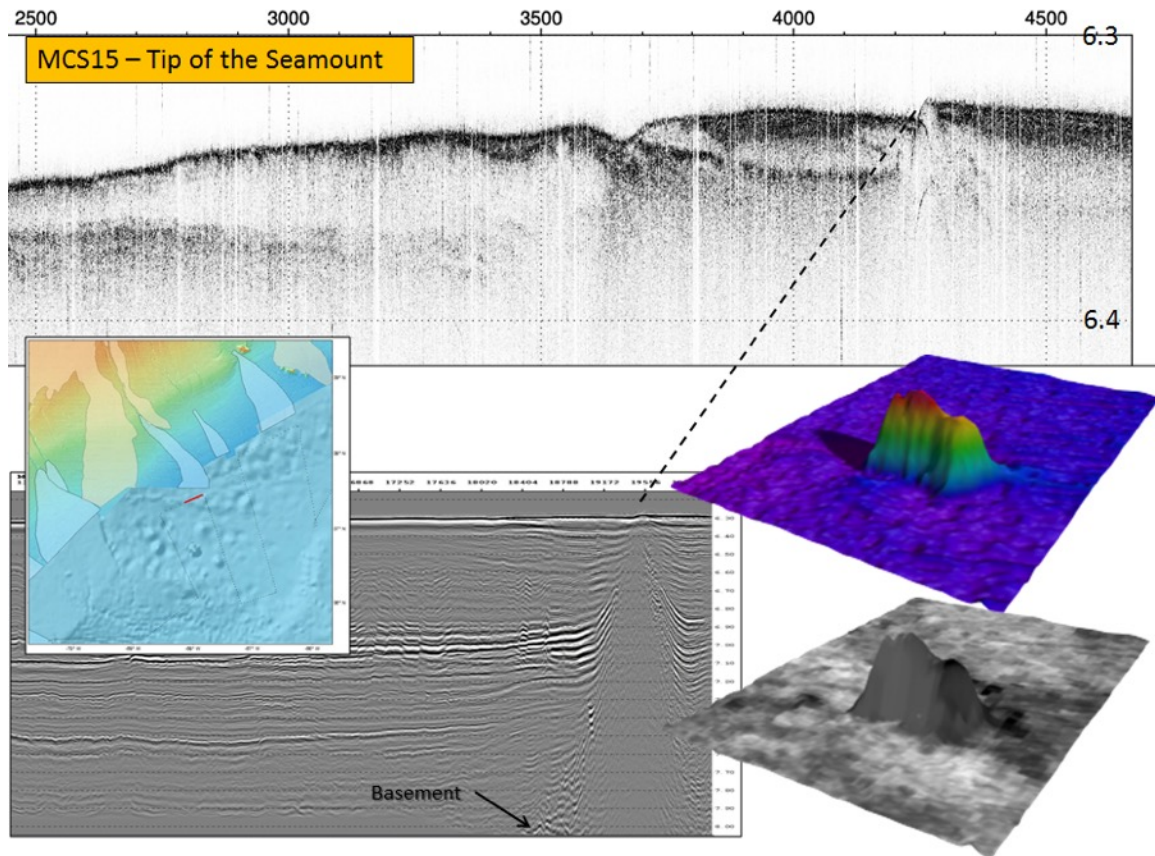
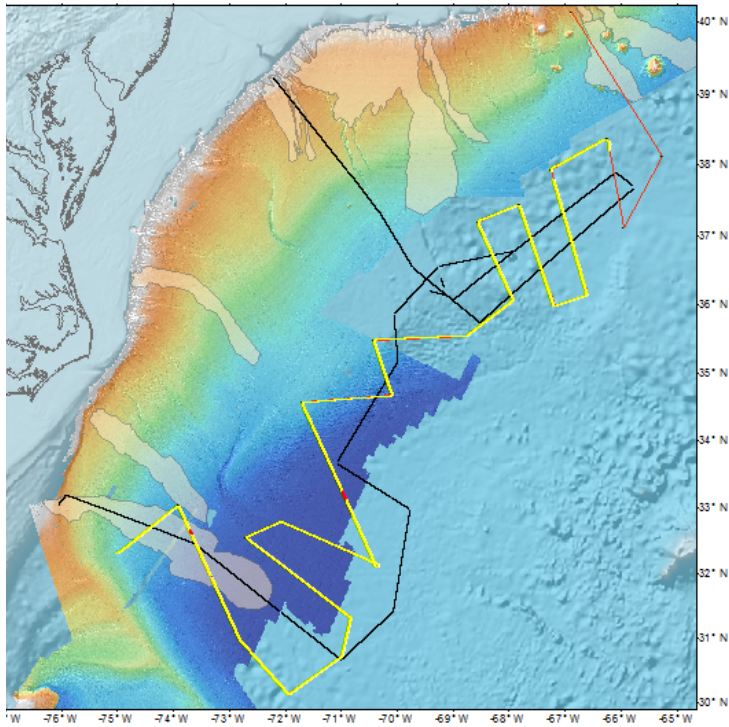
Prime : 3525.462 km
Infill: 357.65 km
Reshoot: 377.113 km

- Total Sail line Kilometers acquired was 4260 km
- Total CMP Line Kilometers Acquired was 102,245.40 km (63532 Miles) or 2.55 Times around the earth if the CMP lines where laid end to end.
- The above numbers only include the numbers for the 3D (P-Cable Array) and not the 2D lines. If those numbers where added in there would be ~3000 more miles to the over all numbers.



USGS ECS Atlantic Margin II

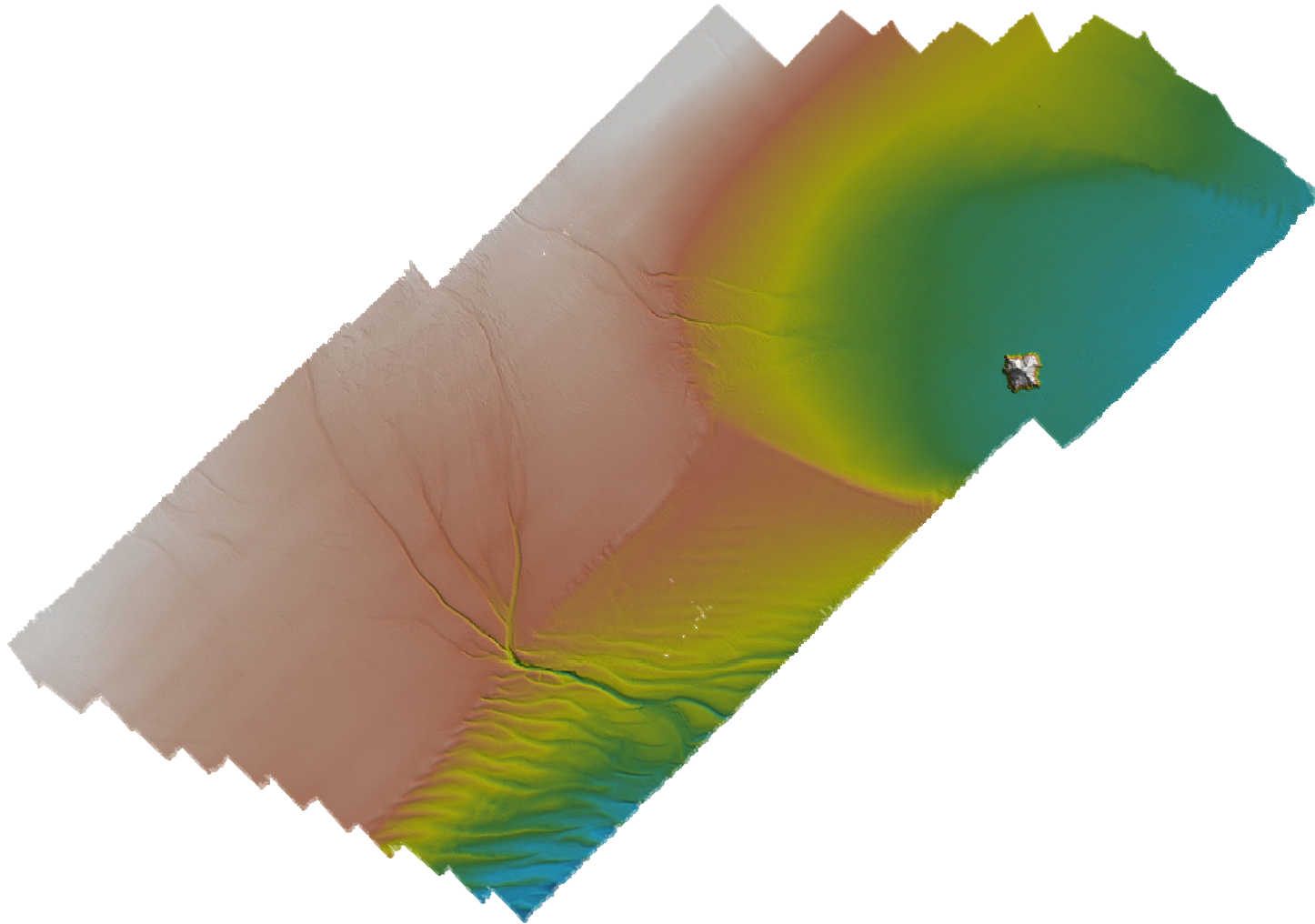
<- Project Track of April 2015 highlighted in yellow
~3000km

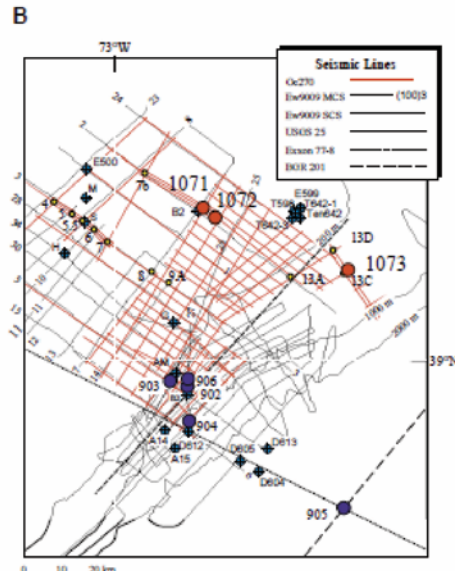
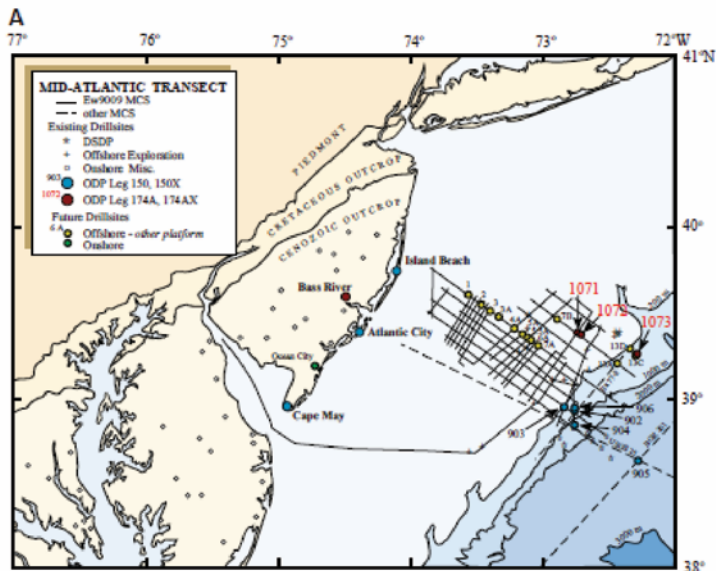


Comparison of seamount
Mapping with NOAA-UNH ->

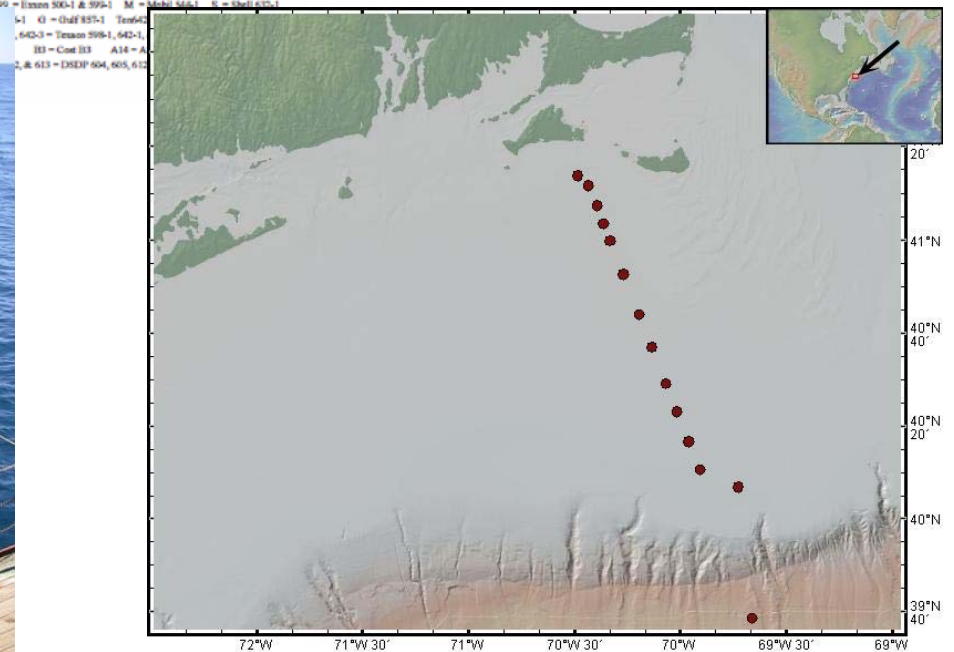
NOAA-UNH Multibeam ECS Project

~11,000km planned along 35 lines at 15km spacing





“Freshwater Project”
 Kerry Key and Rob Evans
 EM Source project on Atlantic
 Coastal areas off of NJ and MA



SERCEL Seal 408 Streamer System Upgrade

****In July 2015 - NSF Funded Seal 408 with Sentinel Solid Streamers
Seismic System Upgrade****

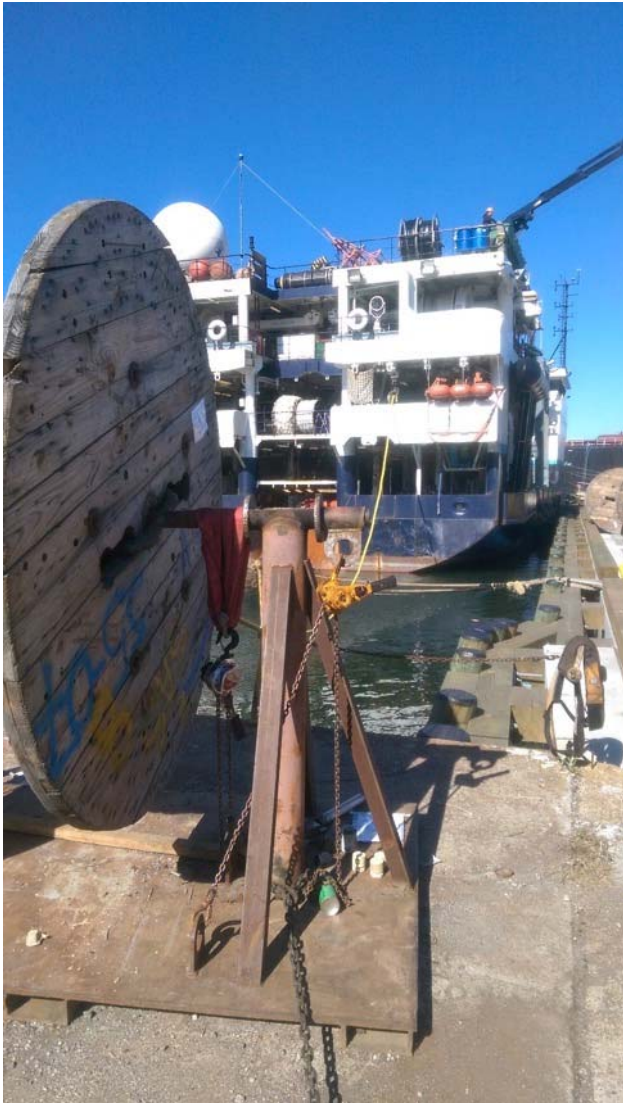
**\$1.8M to replace existing SYNTRAK
System with Sercel SEAL 408**



Installation Summary:

- Final Contract – Issued in August
- Electronics Testing scheduled for week of August 18th in Houston
- Installation planned for Mid-Sept. to Mid-Oct in US –NY or RI
- completion of install – sea trial to deploy all equipment for evaluation.

Sercel SEAL 408 System Install and Testing

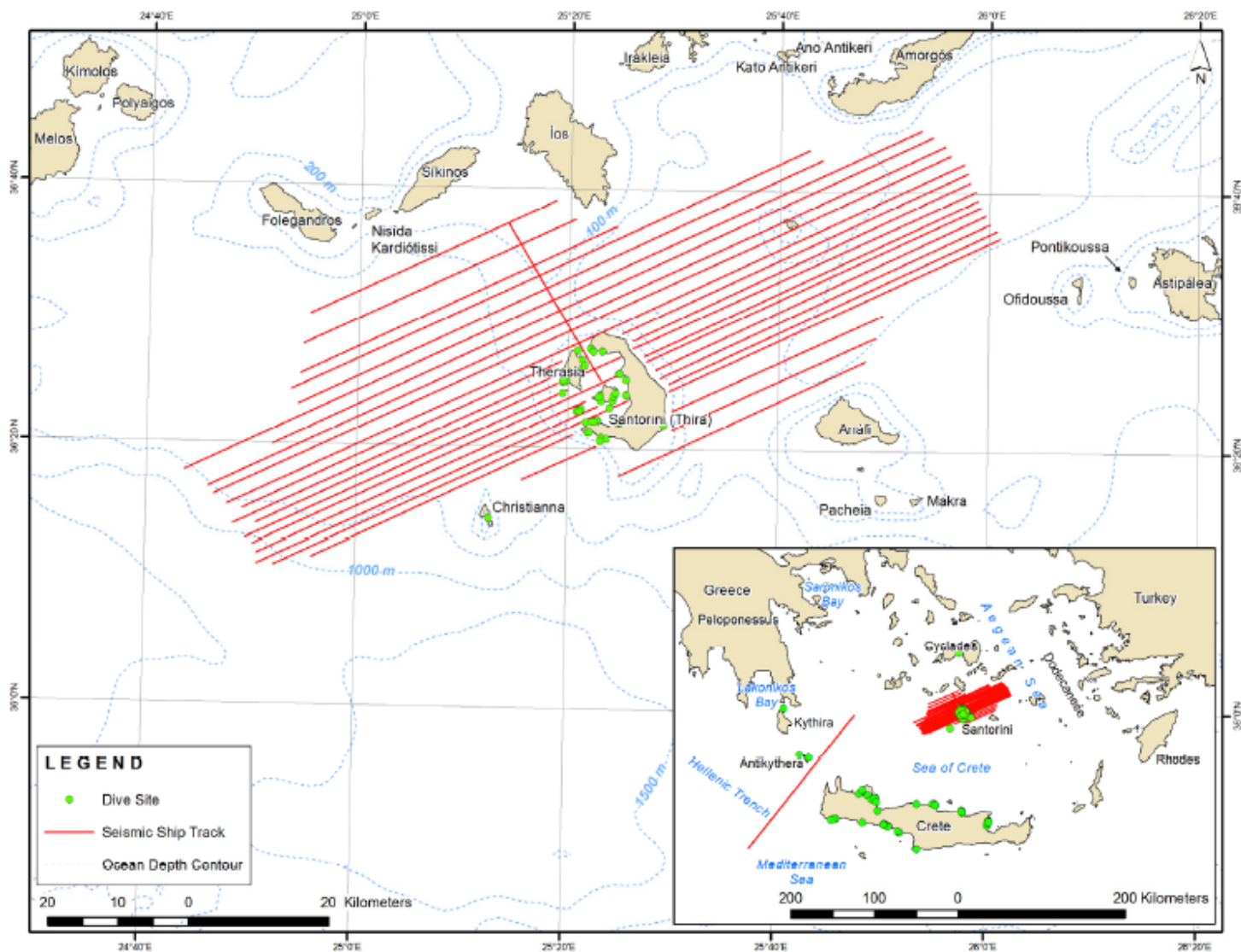


Highlights

- De-rig of onboard Syntrak electronics at WHOI
- Electronic tests with CGG in Houston in August
- 27 miles of cable in total were spun off and on vessel over less than 10 days at GMD shipyard in Brooklyn
- Re-plumbing of network and deck cabling for new system
- Successful field test and tensioning of new streamers offshore NY harbor for initial system verification

Santorini and Crete Rapid Project

3D Tomography Project utilizing all available (~91) US short period OBS to look at volcanic plumbing system underlying Santorini – PI's Emilie Hooft, D. Toomey, Joanna Morgan, et al. Separate 2D MCS Rapid Project co-funded by NSF and CNRS (Becel and Laigle)

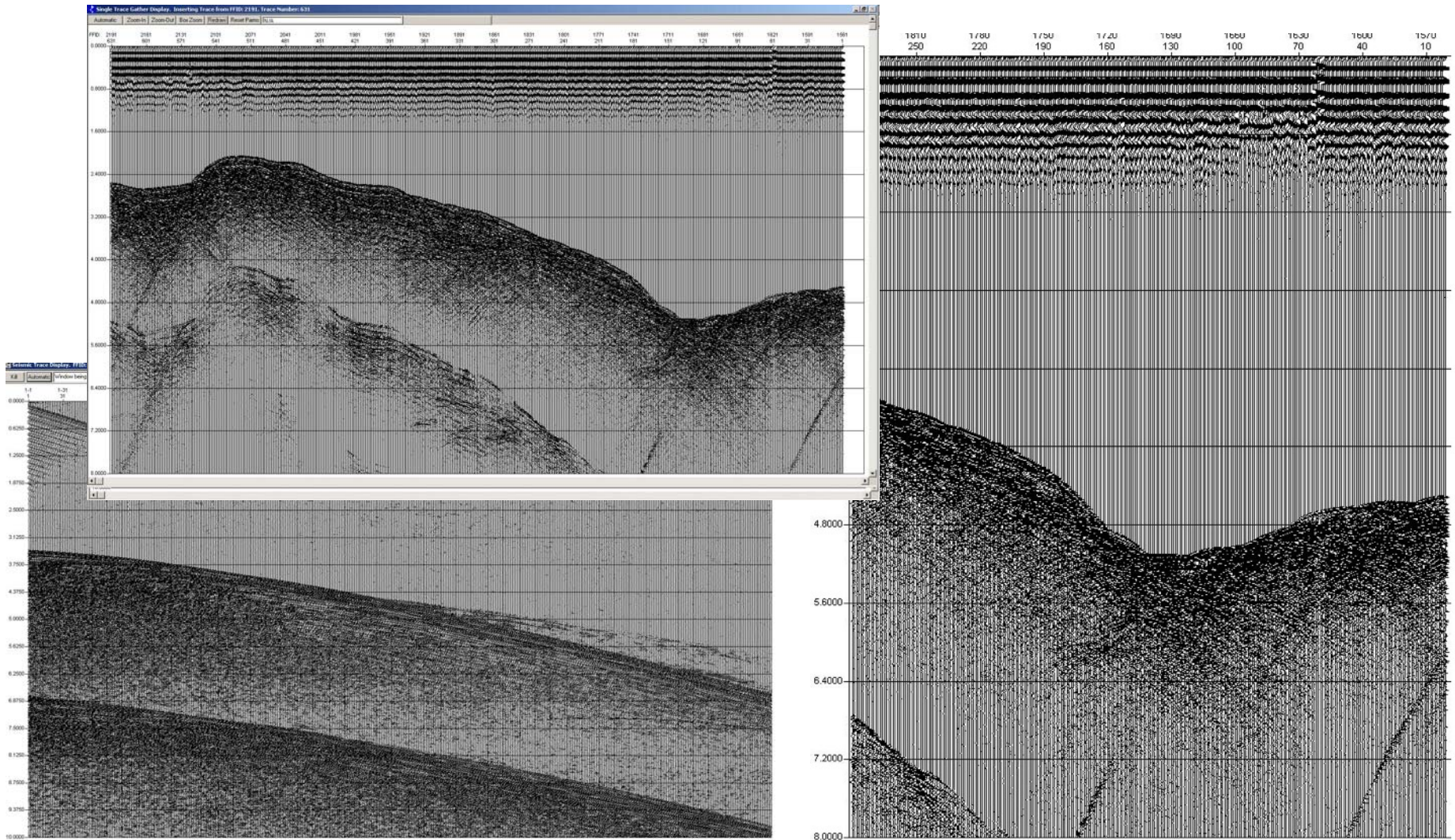


SANTORINI PICTURES



FROM TODAY from Crete Line Rapid Project :

Screen grab of a single trace (channel 5) gather from the SeisNET QC machine as the vessel crossed the trench and below is a single shot from around the same time. We are recording a full 18 Sec of data but only displaying 8 to 10 seconds on the QC machine which allows us to see the primary returns clearly before the Multiples arrive to better QC the quality of the data



2016 Ocean Instrumentation

Proposed Equipment:

(1) Extended range POSNET navigational pods and antenna for tail buoys. ~\$24K

At 8.5+km, the tail buoy could be masked by the horizon, all communications with the tail buoy GPS would be lost & positional solutions for the end of the streamer would end.

(2) 2 SEAL Streamer Communication Unit (SSCU) w/charger. ~56K

These units are used in-line within the streamer configuration to boost communications from the onboard streamer leveler control system to the levelers (birds) at the further ends of long offset (8.5km+) cables. As sections age, resistance in the communication lines increases - making control of the birds at the further ends of a longer cable

3) Gun Umbilical Winch Wireless Controls – (Waiting on quote)

Replacement of existing/ controls for Gun Umbilical Winches and connect into our new Rapp-Hydema wireless controls. This existing system came with vessel and is no longer supported for parts/repairs.

2015 Notable OMO Staff Changes

Steve Pica – Chief Engineer on Langseth retired after 34 years on Conrad, Ewing, and Langseth.

Carlos Gutierrez: Announced retirement after 44 continuous years in early 2016. Worked on all LDEO ships (Vema, Conrad, Ewing, and Langseth since 1973.

