

R/V Marcus Langseth



R/V Marcus Langseth

Project Start

R/V Marcus G. Langseth

Delivery & Lay Period 2004/2005



*The Langseth Sailed from Stavanger, Norway
Arriving in Rhode Island September 17, 2004
The Langseth will be classed by the American Bureau of
Shipping, US Coast Guard inspected; certificated to carry
a total of 55 with up to 35 scientists and technicians*



R/V Marcus Langseth

- USCG
- ABS
- Multibeam Acceptance
- DP Acceptance
- NSF Ship Inspection (Now)
- Transfer of Ownership to NSF (Soon)
- Shakedown and Calibration (Nov 16 – into Jan 08)
- Operations (Early 08)

R/V Marcus Langseth

USCG COI

ABS Class

	United States of America Department of Homeland Security United States Coast Guard		Certification Date: 15 Oct 2007 Expiration Date: 30 Nov 2011 IMO Number: 9010137																										
	Certificate of Inspection																												
	Ex Name: WESTERN LEGEND																												
Vessel Name MARCUS G. LANGSETH	Official Number 9010137	Call Sign WDC6698	Service Research Vessel																										
Hailing Port New York NY	Hull Material Steel	Horsepower 7200	Propulsion Diesel Reduction																										
Place Built VANYLVIN, ULSTEINVIC NORWAY	Delivery Date 01Nov1991	Date Keel Laid 01Nov1990	Gross Tons R- 1-3834	Net Tons R- 1-1150																									
Owner THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK 412 LOW LIBRARY 535 WEST 116TH STREET NEW YORK, NY 10027 UNITED STATES		Operator TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NY C/O LAMONT DOHERTY EARTH OBSERVATORY 61 RT 9 W PALISADES, NY 10964																											
This vessel must be manned with the following licensed and unlicensed personnel. Included in which there must be 4 certified lifeboatmen, 0 certified tankermen, 0 HSC type rating, and 4 GMDSS Operators.																													
<table border="0"><tr><td>1 Master</td><td>0 Master & 1st Class Pilot</td><td>0 Radio Officer(s)</td><td>1 Chief Engineer</td><td>0 QMED/Rating</td></tr><tr><td>1 Chief Mate</td><td>0 Mate & 1st Class Pilot</td><td>4 Able Seamen/ROANW</td><td>1 1st Asst. Engr/2nd Engr.</td><td>3 Oilers</td></tr><tr><td>0 2nd Mate/OICNW</td><td>0 Lic. Mate/OICNW</td><td>2 Ordinary Seamen</td><td>1 2nd Asst. Engr/3rd Engr.</td><td></td></tr><tr><td>2 3rd Mate/OICNW</td><td>0 1st Class Pilot</td><td>0 Deckhands</td><td>1 3rd Asst. Engr.</td><td></td></tr><tr><td></td><td></td><td></td><td>0 Lic. Engr.</td><td></td></tr></table>					1 Master	0 Master & 1st Class Pilot	0 Radio Officer(s)	1 Chief Engineer	0 QMED/Rating	1 Chief Mate	0 Mate & 1st Class Pilot	4 Able Seamen/ROANW	1 1st Asst. Engr/2nd Engr.	3 Oilers	0 2nd Mate/OICNW	0 Lic. Mate/OICNW	2 Ordinary Seamen	1 2nd Asst. Engr/3rd Engr.		2 3rd Mate/OICNW	0 1st Class Pilot	0 Deckhands	1 3rd Asst. Engr.					0 Lic. Engr.	
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			0 Lic. Engr.																										
In addition, this vessel may carry 0 passengers, 0 other persons in crew, 0 persons in addition to crew, and 38 SCIENTIFIC PERSONNEL. Total persons allowed: 55																													
Route Permitted and Conditions of Operation:																													
---Oceans---																													
This vessel is equipped with GMDSS. All officers of the navigational watch shall possess certificates issued to them from the Federal Communications Commission attesting to their qualification in the operation of GMDSS. If the at-sea maintenance method is chosen, at least one person must possess a certificate issued to them from the Federal Communications Commission attesting to their qualification to maintain the GMDSS.																													
SEE NEXT PAGE FOR ADDITIONAL CERTIFICATE INFORMATION																													
With this inspection for Certification having been completed at Galveston, UNITED STATES, the Officer in Charge, Marine Inspection, Marine Safety Unit Galveston certified the vessel, in all respects, is in conformity with the applicable vessel inspection laws and the rules and regulations prescribed thereunder.																													
Annual/Periodic/Quarterly Reinspections		This certificate issued by:																											
Date	Zone	A/P/Q	Signature																										
				W. J. Diehl																									
				WILLIAM J. DIEHL, CAPT, USCG																									
				Officer in Charge, Marine Inspection																									
				Marine Safety Unit Galveston																									
				Inspection Zone																									

ABS SafeNet

SURVEY STATUS REPORT (FOR OWNER)

MARCUS G. LANGSETH

REGISTERED OWNER : LAMONT DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIV

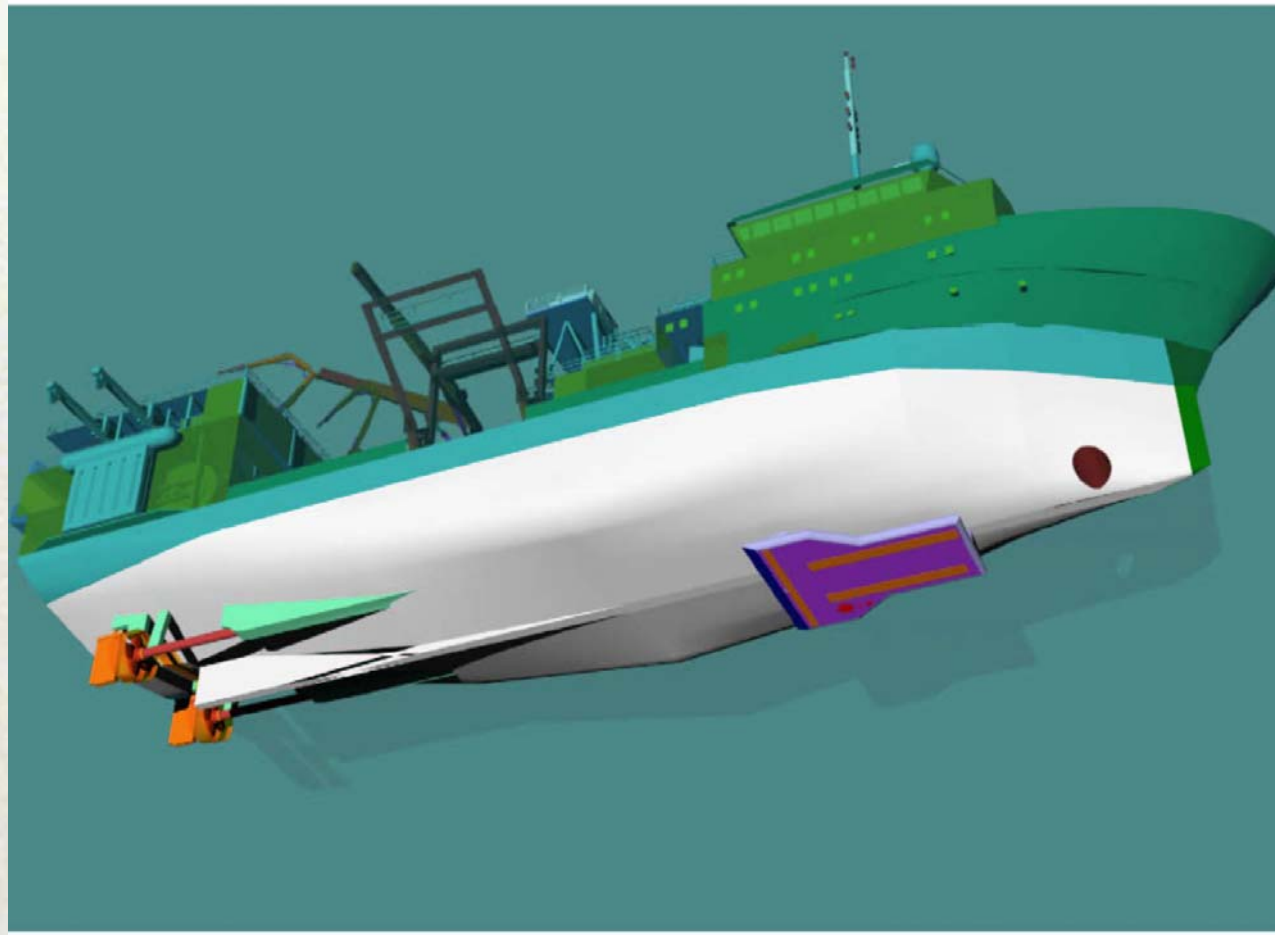


Class Number : 91154141
IMO Number : 9010137
Print Date : Thu Oct 25 09:21:16 CDT 2007

THIS REPORT HAS BEEN PRODUCED FROM ABS SAFENET AND IS SUBJECT TO ERRORS AND OMISSIONS THAT MAY OCCUR OR BE DETECTED BY THE ABS SAFENET APPLICATION. ABS ASSUMES NO RESPONSIBILITY FOR ERRORS OR ACTIONS TAKEN BASED ON THE INFORMATION HEREIN. ABS' ENTIRE RESPONSIBILITY AND LIABILITY IS GOVERNED BY THE LICENSE AGREEMENT FOR ABS SAFENET.

R/V Marcus Langseth

EM120 1° x 1° Multibeam Acceptance



EM120 1° x 1°

Transducer Array

48 Modules

each with 18 Elements

Receive Array

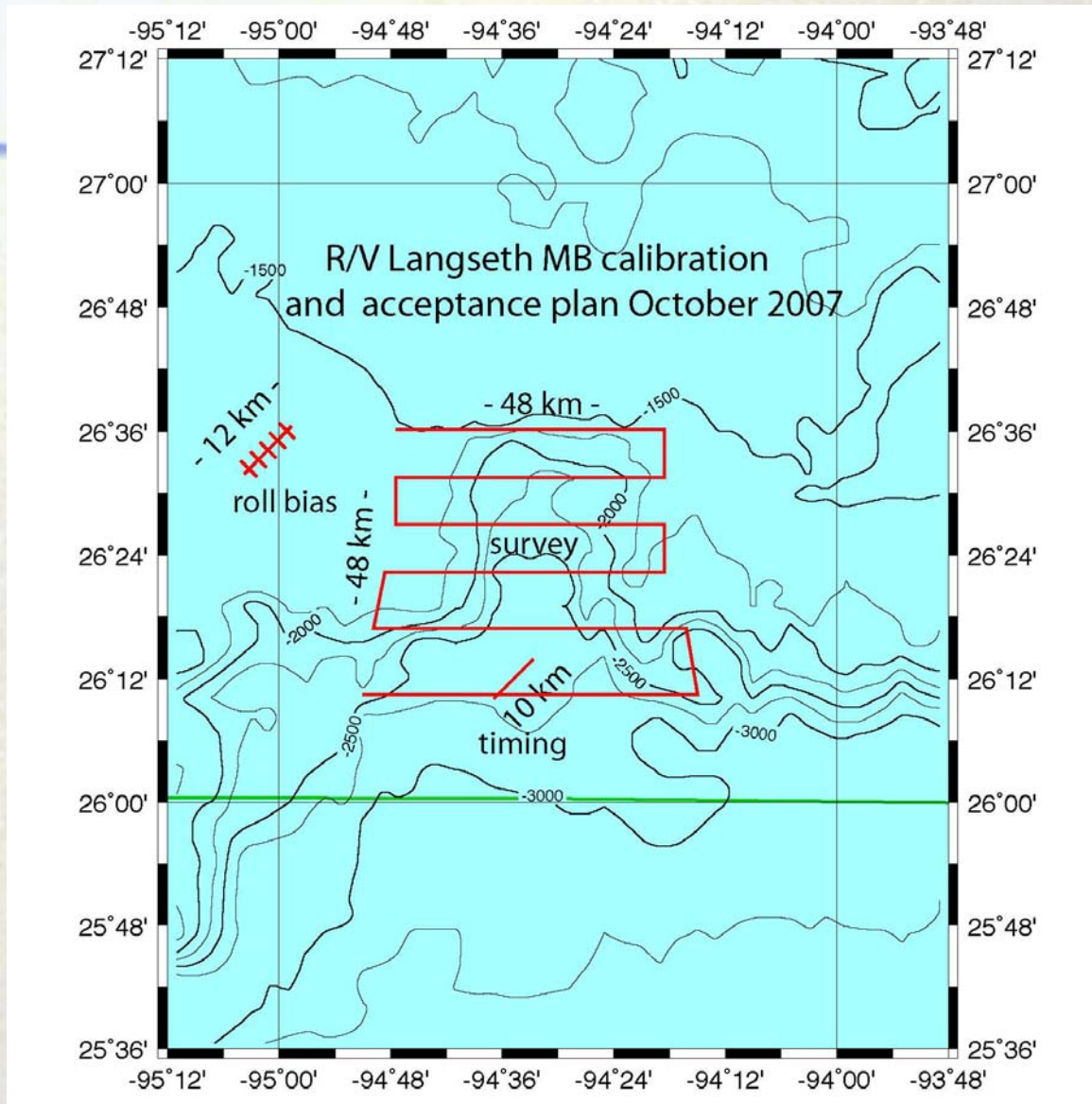
16 Modules

each with 8

Transducer Staves

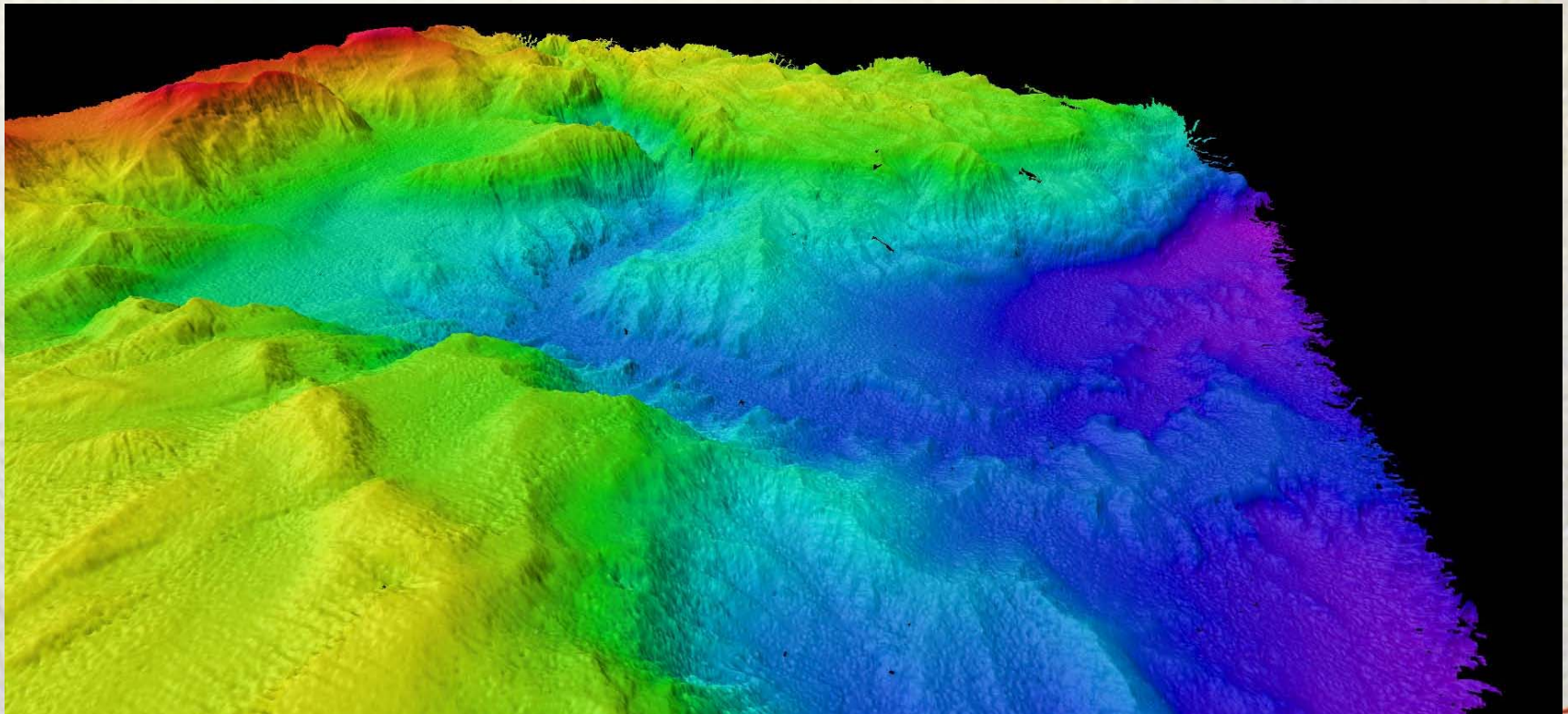


Calibration Acceptance Plan

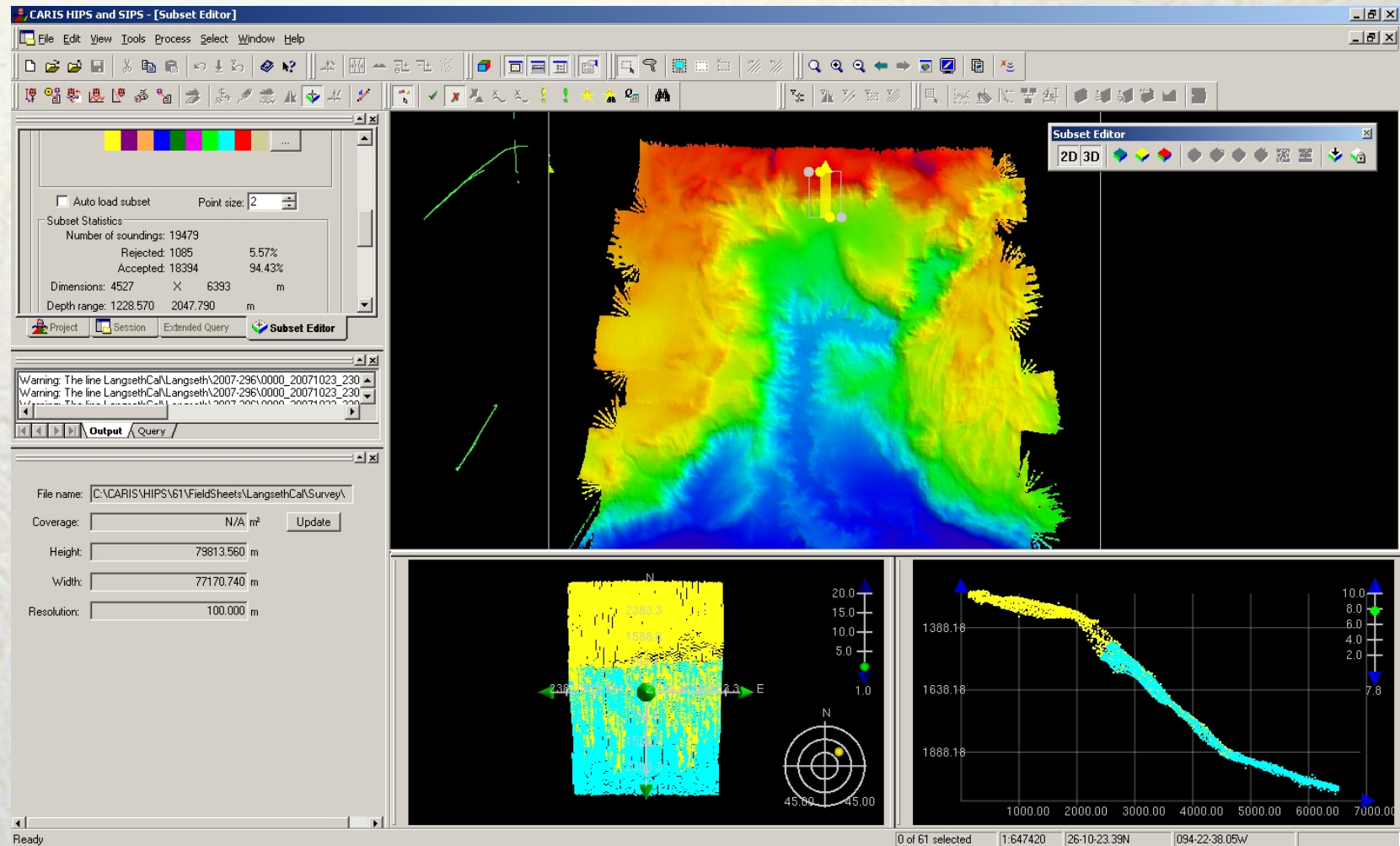


Langseth Multibeam Acceptance

Alaminos Canyon

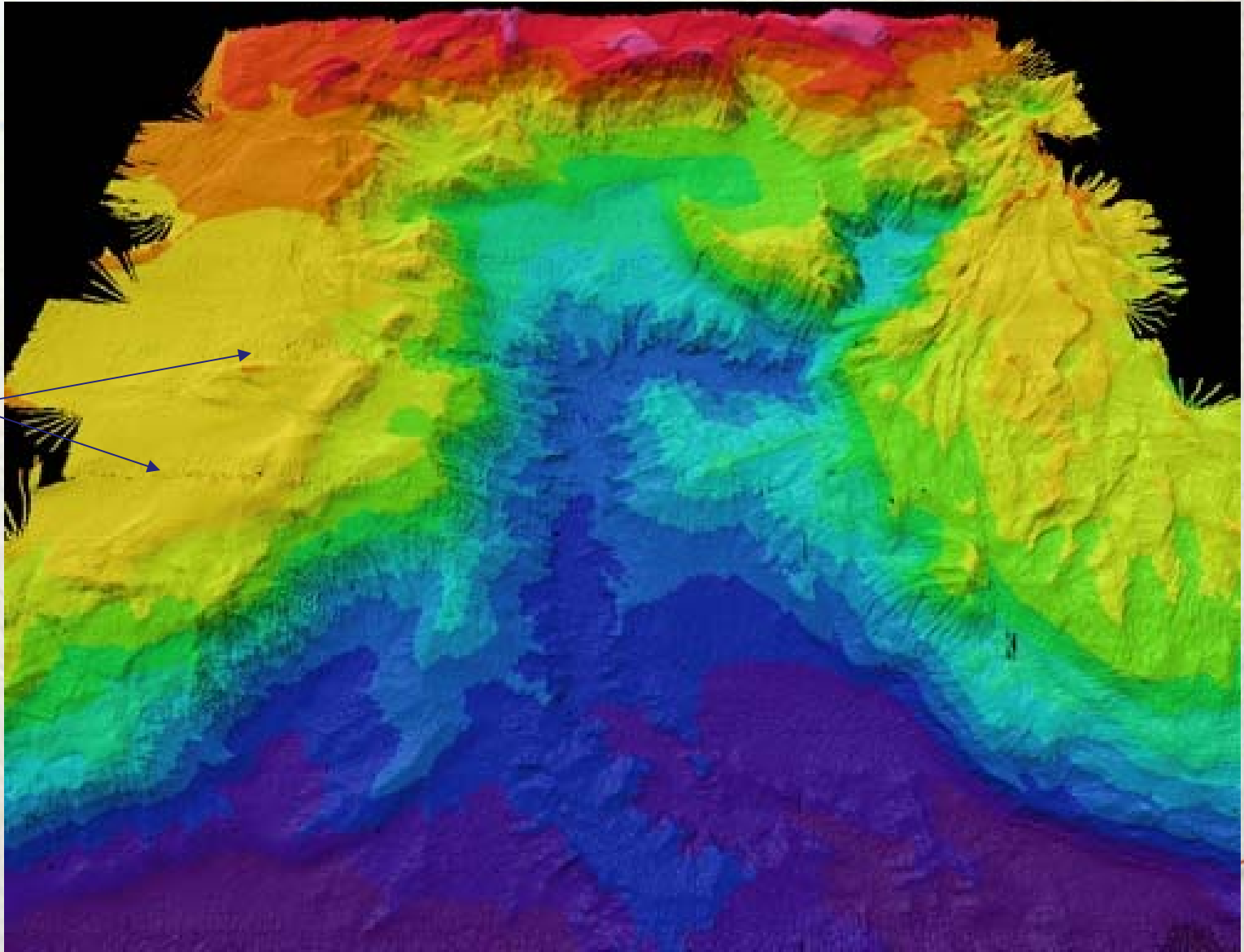


Langseth Multibeam Acceptance

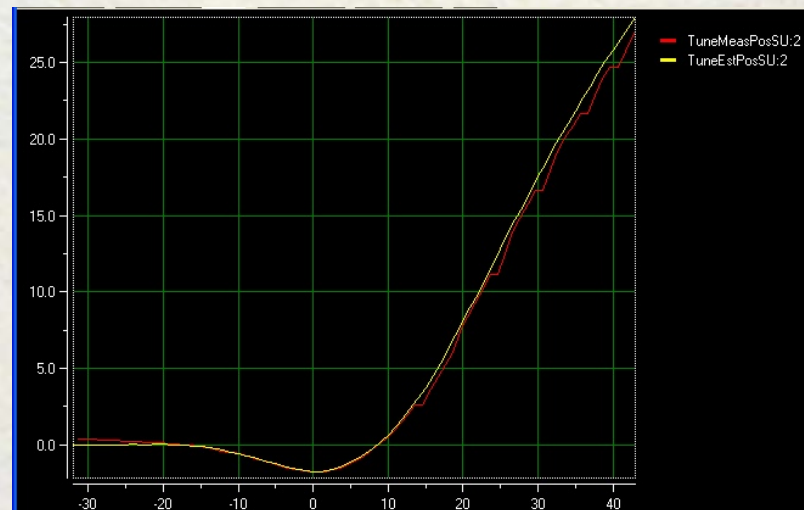
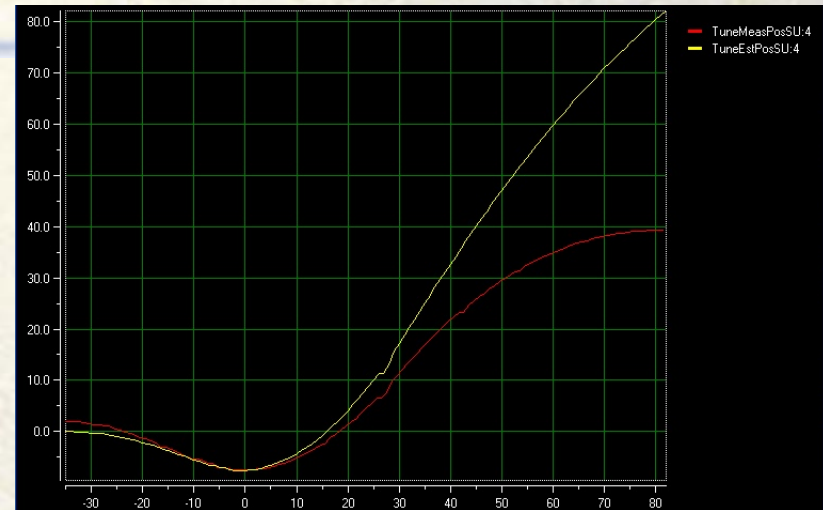
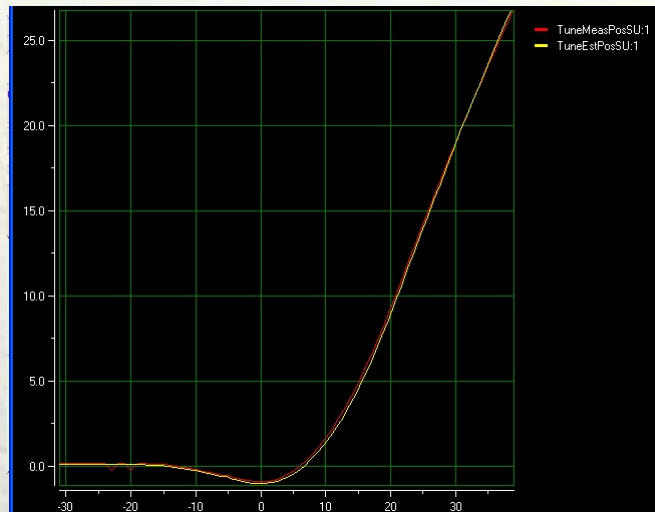


Langseth Multibeam Acceptance

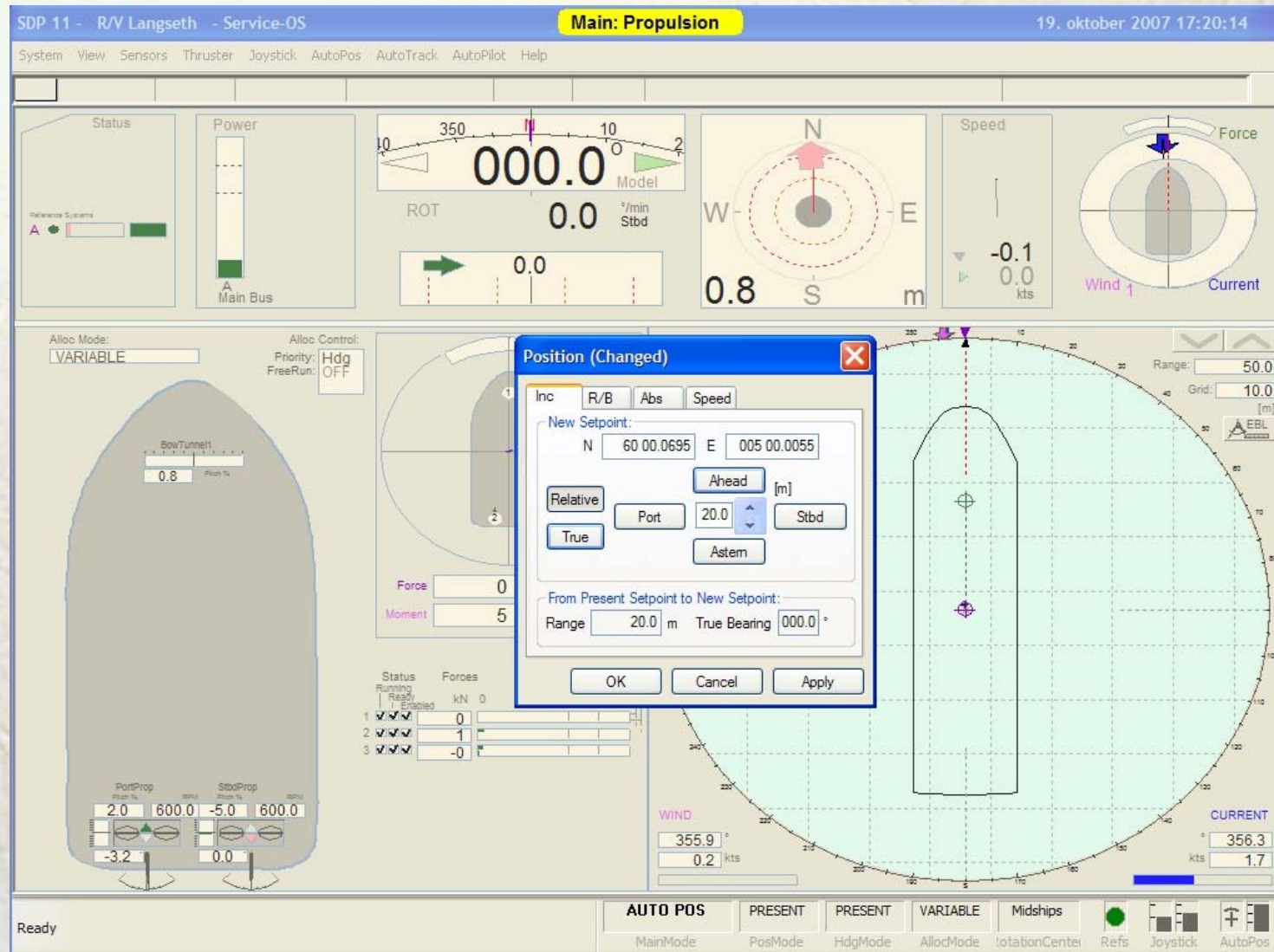
Surface
Sound
Speed
Velocity



Langseth DP Acceptance



Langseth DP Acceptance



R/V Marcus Langseth

NSF Ship Inspection

Transfer of Ownership



National Science Foundation Ship Inspection Program Guidelines

August 2003

DEPARTMENT OF
TRANSPORTATION
U.S. COAST GUARD
CG-1340 (REV. 9-92)

BILL OF SALE

THIS SECTION FOR COAST GUARD USE ONLY

1. VESSEL NAME
WESTERN LEGEND

2. OFFICIAL NUMBER
OR HULL ID NUMBER
Panama official number 20008-92-B
Ulstein Hull 226

3. NAME(S) AND ADDRESS(ES) OF SELLER(S):
WesternGeco Seismic Shipping LP
Maples and Calder
Ugland House
P.O. Box 309
George Town, Grand Cayman, Cayman Islands

3A. TOTAL INTEREST OWNED (IF LESS THAN 100%) _____ %

4. NAME(S) AND ADDRESS(ES) OF BUYER(S) AND INTEREST TRANSFERRED TO EACH:
The Trustees of Columbia University in the City of New York
412 Low Library
535 West 116th Street
New York, NY 10027, USA

4A. TOTAL INTEREST TRANSFERRED (100% UNLESS OTHERWISE SPECIFIED) _____ %

4B. MANNER OF OWNERSHIP. UNLESS OTHERWISE STATED HEREIN, THIS BILL OF SALE CREATES A TENANCY IN COMMON, WITH EACH TENANT OWNING AN EQUAL UNDIVIDED INTEREST. CHECK ONLY ONE OF THE FOLLOWING BLOCKS TO SHOW ANOTHER FORM OF OWNERSHIP.

☐ JOINT TENANCY WITH RIGHT OF SURVIVORSHIP ☐ TENANCY BY THE ENTIRETIES ☐ COMMUNITY PROPERTY

☐ OTHER (DESCRIBE) _____

5. CONSIDERATION RECEIVED:
(ONE DOLLAR AND OTHER VALUABLE CONSIDERATION UNLESS OTHERWISE STATED)

6. I (WE) DO HEREBY SELL TO THE BUYER(S) NAMED ABOVE, THE VESSEL, TITLE AND INTEREST IDENTIFIED IN BLOCK 4 OF THIS BILL OF SALE, IN THE PROPORTION SPECIFIED HEREIN.

VESSEL IS SOLD FREE AND CLEAR OF ALL LIENS, MORTGAGES, AND OTHER ENCUMBRANCES OF ANY KIND AND NATURE, EXCEPT AS STATED ON THE REVERSE HEREOF. VESSEL IS SOLD TOGETHER WITH AN EQUAL INTEREST IN THE MASTS, BOWSPRIT, SAILS, BOATS, ANCHORS, CABLES, TACKLE, EQUIPMENT AND ALL OTHER APPURTENANCES THEREOF AS STATED

State of New York }
County of New York, } ss. J
I, NORMAN GOODMAN, County Clerk and Clerk of the Supreme Court of the State of New York, in and for the County of New York, a Court of Record, having by law a seal, DO HEREBY CERTIFY pursuant to the Executive Law of the State of New York, that

Thyria Samelli
whose name is subscribed to the annexed affidavit, deposition, certificate of acknowledgment or proof, was at the time of taking the same, NOTARY PUBLIC in and for the State of New York duly commissioned, sworn and qualified to act as such; that pursuant to law, a commission or a certificate of his official character, with his autograph signature has been filed in my office at the time of taking such proof, acknowledgment or oath, he was duly authorized to take the same; that I am well acquainted with the handwriting of such NOTARY PUBLIC or have compared the signature on the annexed instrument with his autograph signature deposited in my office, and I believe that such signature is genuine.

IN WITNESS WHEREOF, I have hereunto set my hand affixed my official seal this

SEP 21 2004

FEE PAID \$3.00

Norman Goodman
County Clerk and Clerk of the Supreme Court, New York County

NO 397394 Form 1

2004

THE UNITED

New York

County

SEP 21 2004

SEP 21 2004

F01-1020

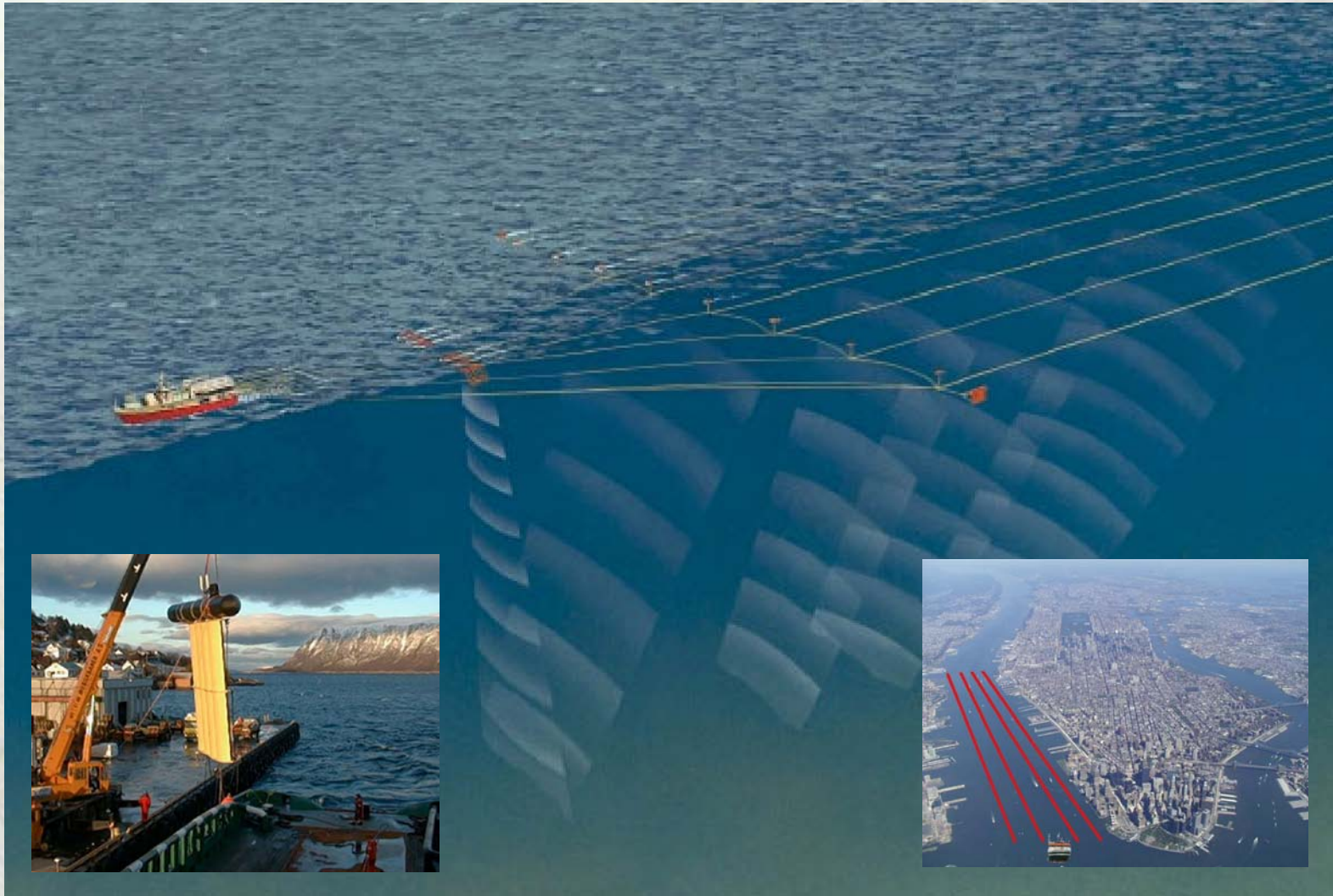
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Shakedown and Calibration

Langseth shakedown, 3D test & source calibration		draft 30 October 2007		
Calibration split, bookending 3D test				
task	at-sea Days	start date, time	end date, time	Maint. Days
transit from Galveston to shakedown box	0.5	11/16/11 0:00	11/16/11 12:00	
unspool & rewind Source umbilicals	0.5	11/16/11 12:00	11/17/11 0:00	
Unspool & rewind Streamers, remove bad sections, observe	2	11/17/11 0:00	11/19/11 0:00	
Rig on baro 16 paravanes	0.25	11/19/11 0:00	11/19/11 6:00	
Unspool vane cables with paravanes & rewind	0.5	11/19/11 6:00	11/19/11 18:00	
Deploy, ballast, recover first hydrophone cable	2	11/19/11 18:00	11/21/11 18:00	
redeploy paravanes	0.5	11/21/11 18:00	11/22/11 6:00	
deploy, ballast & adjust 4 hydrophone cables	4	11/22/11 6:00	11/26/11 6:00	
Recover hydrophone cables, paravanes	1.5	11/26/11 6:00	11/27/11 18:00	
Deploy single source string, test controller	0.5	11/27/11 18:00	11/28/11 6:00	
Deploy 3 additional source strings, 2D mode, test fire	1	11/28/11 6:00	11/29/11 6:00	
Recover source strings, redeploy paravanes	0.5	11/29/11 6:00	11/29/11 18:00	
deploy 4 source strings, adjust in 3D mode, test fire	1.25	11/29/11 18:00	12/1/11 0:00	
Recover gear, transit to port	1	12/1/11 0:00	12/2/11 0:00	
in-port		12/2/11 0:00	12/16/11 0:00	14
Transit to shallow site with OBS and Cal. Groups	0.5	12/16/11 0:00	12/16/11 12:00	
OBS deploy, Shallow calibration	2.25	12/16/11 12:00	12/18/11 18:00	
Transit to slope calibration site, redeploy instruments	1	12/18/11 18:00	12/19/11 18:00	
CTD, XBT, perform slope calibration	3	12/19/11 18:00	12/22/11 18:00	
recover instrumentation, transit to port	1	12/22/11 18:00	12/23/11 18:00	
in-port		12/23/11 18:00	12/27/11 18:00	4
depart port, transit to 3D test site	0.5	12/27/11 18:00	12/28/11 6:00	
Deploy for 3D test	3	12/28/11 6:00	12/31/11 6:00	
3D test	9	12/31/11 6:00	1/9/12 6:00	
recover gear & transit to port	1.5	1/9/12 6:00	1/10/12 18:00	
in-port		1/10/12 18:00	1/13/12 18:00	3
Depart Port, transit to deep calibration site	0.75	1/13/12 18:00	1/14/12 6:00	
Deploy Calibration instrumentation,CTD,XBT	1	1/14/12 6:00	1/16/12 12:00	
Perform deep calibration	2.75	1/16/12 12:00	1/17/12 12:00	
recover calibration instrumentation, CTD, XBT	1	1/17/12 12:00	1/20/12 12:00	
Transit to Galveston, drop off Cal. Group	0.75	1/20/12 12:00	1/21/12 12:00	
at sea days	44			

R/V Marcus Langseth

MCS Paravane Towing – Example of What Needs to Go Right



R/V Marcus Langseth

MCS Paravane Towing – Example of Why



R/V Marcus Langseth

Going Forward

Money & Technicians & Technicians & Technicians

