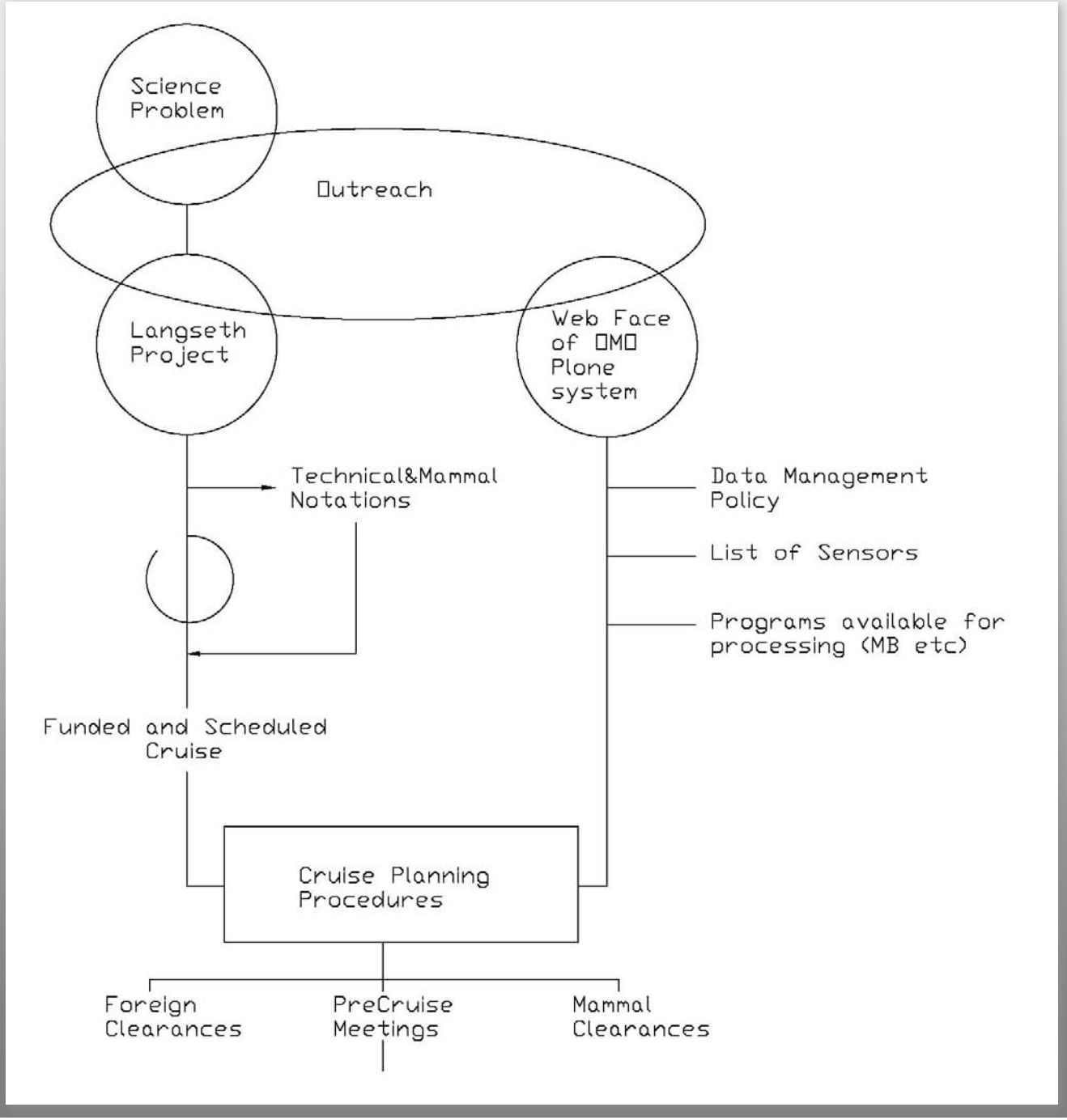
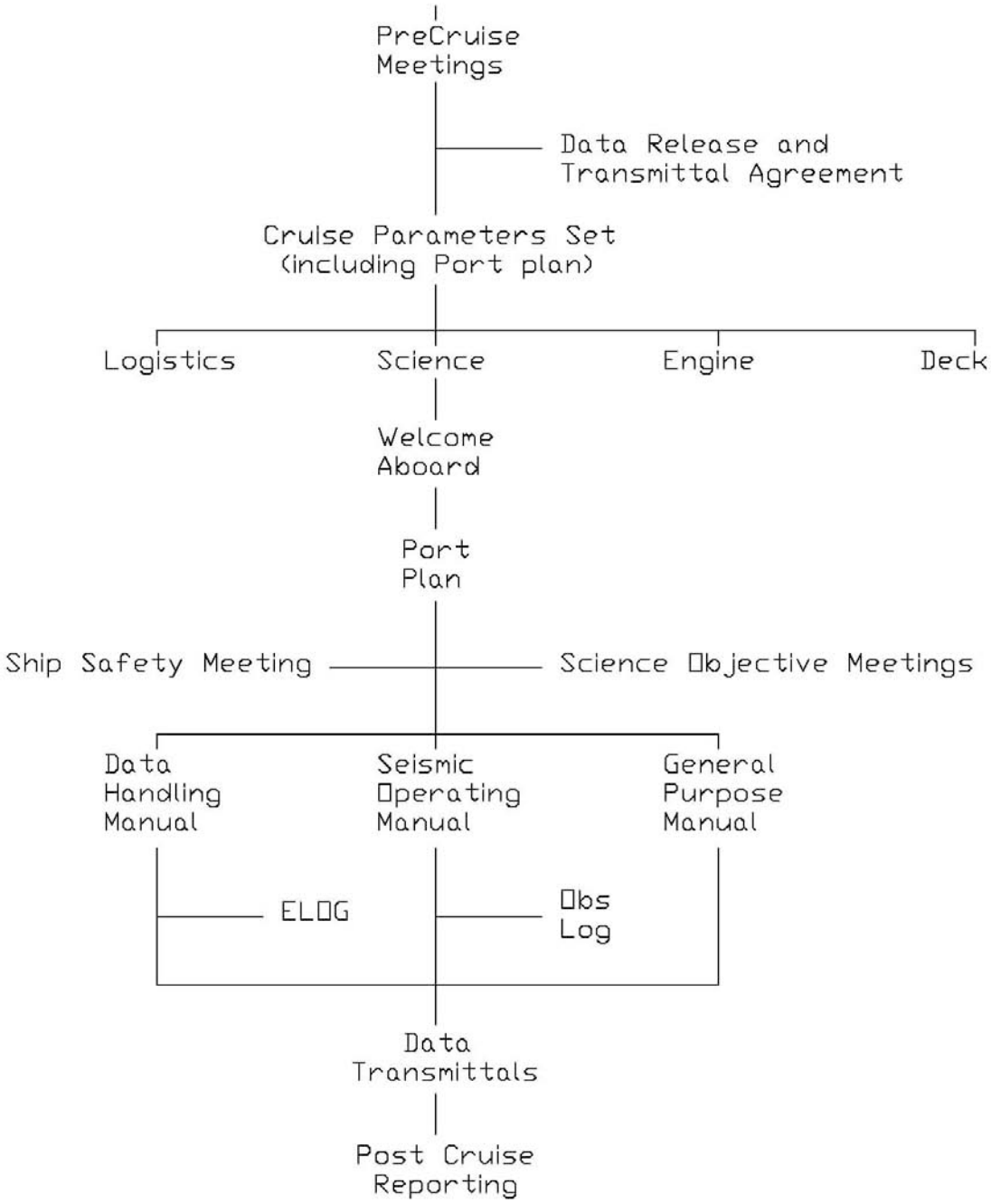
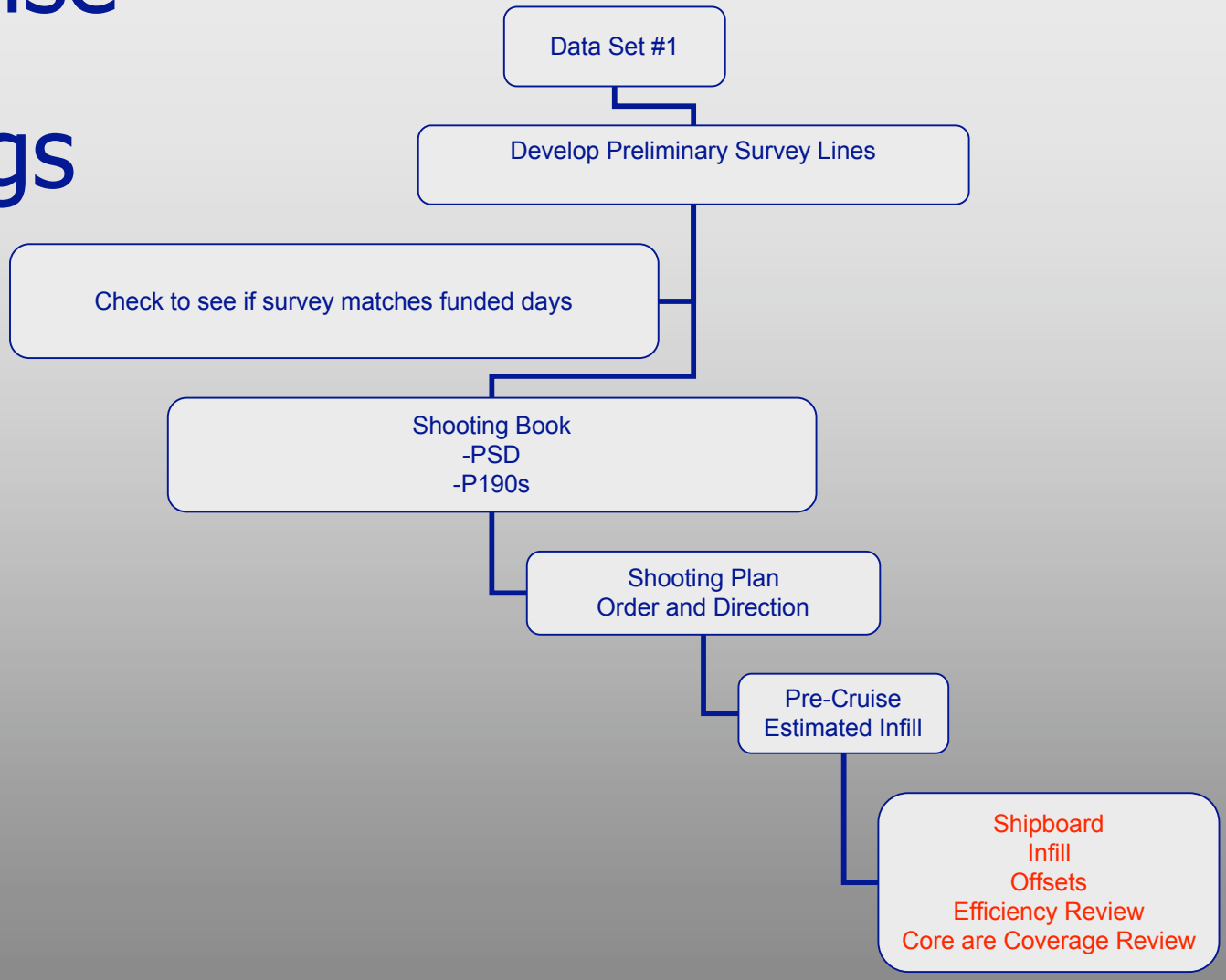
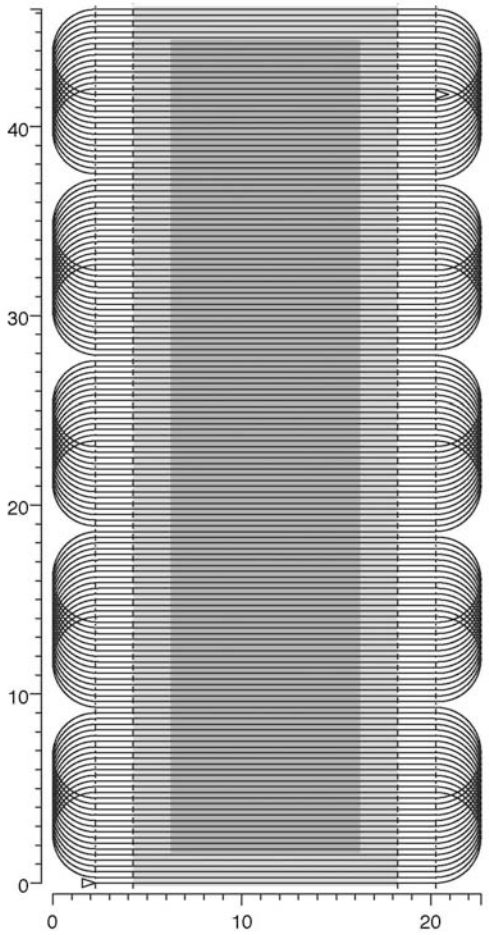

Science Problem
Outreach
Langseth Project
Web Face of OMO Plone system
Technical&Mammal Notations
Data Management Policy
List of Sensors
Programs available for processing (MB etc)
Funded and Scheduled Cruise
Cruise Planning Procedures
Foreign Clearances
PreCruise Meetings
Mammal Clearances


PreCruise
Meetings
Data Release and
Transmittal Agreement
Cruise Parameters Set
(including Port plan)
Logistics
Science
Engine
Deck
Welcome
Aboard
Port
Plan
Ship Safety Meeting
Science Objective Meetings
Data
Handling
Manual
Seismic
Operating
Manual
General
Purpose
Manual
ELOG
Obs
Log
Data
Transmittals
Post Cruise
Reporting

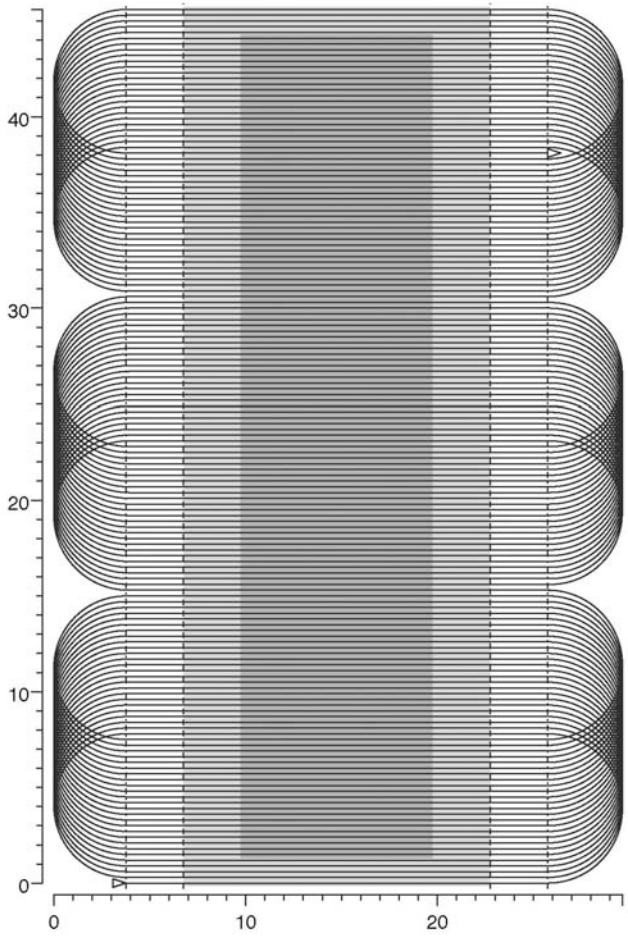
Pre-cruise Meetings



4 4000 m. streamers, 150 m separation 15 loops, 5 racetracks
157 lines. spaced 300m - shooting 244.2 hours, turning 125.1 hours, run-ins 34.9 hours
total time 18.3 days. fully migrated area 10.0x 43.0km
55.6% shooting vs turns & run-in. Average turn 49min, run-in 13 min.



4 6000 m. streamers, 150 m separation 25 loops, 3 racetracks
155 lines. spaced 300m - shooting 275.5 hours, turning 203.0 hours, run-ins 51.7 hours
total time 24.2 days. fully migrated area 10.0x 43.0km
47.4% shooting vs turns & run-in. Average turn 80min, run-in 20 min.



Sensor List

RV Langseth Sensor Logging
Anthony Johnson
02/21/07

Category	Model	Description	Output	Logging	Link	Delivery	Other inputs fro	Signal	Manf.	Mdl#	Part#	Sn.	Notes:
ADCP	Narrow Beam	150 kHz Hull Mounted Transducer	n/a	-					RDI				Now owned by:
		ADCP Head Unit	?	Internal		?			RDI				
		2.5 kHz - 7 kHz Sub-bottom											
Sonar	SBP-120	profiler	?						Kongsberg				
Sonar	FS-700	Fathometer	NMEA	LDS	NMEA	Cruise Tape			Furuno				
		Chirp Sub-bottom Profiler --											
Sonar	Bathy 2000	BATHY2000	SEGY	Fileshare	NFS	?			Odec				Now Syqwest
Sonar	EDO 12K	12 Khz Transducer	na	-									
		12 Khz Head Unit	EPC Plot			?			Edo western				
Sonar	TR-109	3.5 Khz Transducer	na	-					Edo western				
	Edo Western	3.5 Khz Head Unit	EPC Plot			?			Edo western				
		12 kHz 150 beams/1X1 degree											
Sonar	EM-120	multibeam echosounder	?			?			Kongsberg				
Sonar	EM-122	Multibeam Upgrade	?			?			Kongsberg				
Sonar	DS-50	Speedlog	NMEA	LDS	NMEA	Cruise Tape			Furuno				
Met	Sippican ISA	XBT controller and launcher	SVP	Fileshare	SMB				Sippican				
Met	SBE-38	Hull-mount temp sensor	ASCII	LDS	RS232	Cruise Tape			SEABird				Pod Mtg.
Met	SBE-48	Hull-mount temp sensor	ASCII	LDS	RS232	Cruise Tape			SEABird	SBE-48	4830515	4830515-0016	
Met	5103	Wind speed and direction	freq and volta	-		Cruise Tape			RM Young				
Met	61202	Barometric pressure sensor	analog to	translator	RS232	Cruise Tape			RM Young				
Met	41382VC	Rh and Temp probe	analog to	translator	RS232	Cruise Tape			RM Young				
Met	26700	26700 Translator	ASCII	LDS	RS232	Cruise Tape			RM Young				
Met	5103	Wind Speed and direction	na	-					RM Young				
Met	41382VC	Rh and Temp probe	analog to	translator					RM Young				
Met	52202	Rain Guage	switch closure	to translator					RM Young				
Met	PSP#1	Short wave radiation sensor	analog to amp			Cruise Tape		9uV/mV	Eppley labs	PSP		21260F3	
	PSP#2							9uV/mV	Eppley labs	PSP		23083F3	Spare to PSP#1
Met	PIR	Long wave radiation sensor	analog to amp					4uV/mV	Eppley labs	PIR		23618F3	
Met	26700	26700 Translator	ASCII	LDS	RS232	Cruise Tape			RM Young				
Met	Sea Bird Electronics	Thermosalinograph	ASCII	LDS	RS232	Cruise Tape			SEABird	MDL 21		21 30614-3232	
Met	SeaBird	O2 sensor	feeds	to TSG system					SEABird	MDL 23		230452	
mM	Sea Bird Electronics	Remote thermometer	analog to	TSG system					SEABird	MDL3-01/S		31677	
Met	Geometrics882	Cesium Magnetometer	ASCII	LDS	RS232	Cruise Tape			OYO				Geometrics
Met	10-AU-005-CE	Flourometer	ASCII	LDS	RS232	Cruise Tape			Turner Designs				
Met	Lamont Zazagooch	pCO2	ASCII	1/3.5 min.	15 fields		GPS	NMEA G	Lamont				
GPS	C-NAV	Globally corrected DGPS	NMEA	LDS	NMEA	Cruise Tape			C&C Tech.				
GPS	NT-300D	DGPS Costal radio	NMEA	LDS	NMEA	Cruise Tape			Trimble				
GPS	Tasmon	P-Code GPS	NMEA	LDS	NMEA	Cruise Tape			Trimble				
GPS	17HVS	WAAS	NMEA	LDS	NMEA	Cruise Tape			Garmin				
GPS		Tailbuouy GPS receivers	NMEA	?	NMEA	?			?				
GPS		Tailbuouy GPS receivers	NMEA	?	NMEA	?			?				
GPS		Tailbuouy GPS receivers	NMEA	?	NMEA	?			?				
GPS		Tailbuouy GPS receivers	NMEA	?	NMEA	?			?				
Grav	BGM-3	Marine Gravity Meter System	ASCII	LDS	RS232	Cruise Tape			Bell Aerospace				Now serviced by Lockhe
Gyro	MK-27	Gyrocompass	NMEA?	LDS	RS232?	Cruise Tape			Sperry				
Gyro	MK-27	Gyrocompass	NMEA?	LDS	RS232?	Cruise Tape			Sperry				
Gyro	GC-80	Gyrocompass	NMEA?	LDS	RS232?	Cruise Tape			Simrad				
IMUs	POS/MV	IMU	NMEA	LDS	RS232	Cruise Tape			TSS				Now Applanix
IMUs	SeaPath 200	IMU	NMEA	LDS	RS232	Cruise Tape			Simrad				
Clock		GPS Network Time Server	n/a	n/a	n/a	n/a			Chrometrics?				
Clock		GPS Network Time Server	n/a	n/a	n/a	n/a							

Sensor Logging

Data Policy

R/V Langseth Data Policy and Data Management

DRAFT 1 March 2007

Most data collected aboard R/V *MARCUS G. LANGSETH* will result from NSF-funded grants, and must therefore be handled according to the NSF Division of Ocean Sciences data and sample policy (OCE D&SP) which is available at:

`http://www.nsf.gov/pubs/2004/nsf04004/print_toc.htm`

It is expected that all principal investigators and chief scientists will have familiarized themselves with the rules and guidelines of this policy. The gist of the policy is that all data should be placed into publicly accessible national data bases, where these exist, or made accessible by the principal investigator [PI] within 2 years of acquisition. In addition, data inventories (metadata) shall be made available to the public within 60 days.

R/V *MARCUS G. LANGSETH* is operated by Lamont as a national facility on behalf of NSF, which owns the vessel. It is our mandate and desire to facilitate the data access and preservation requirements of the OCE D&SP for all data collected aboard *LANGSETH*.

Logged digital data from *LANGSETH* sensors

Many *LANGSETH* systems produce digital data (see logged data checklist.) Transfer and archiving of the logged digital data and metadata will be carried out by *LANGSETH*'s technical staff and Lamont's database support personnel.

Since the last revision of the OCE D&SP, NSF has supported the development of an integrated database for MCS data. Copies of seismic field data, integrated navigation in UKOOA format, and other seismic acquisition metadata will be transferred from *LANGSETH* to this database transparently to the PI. From the time that the data enter the database until the PI or PIs have given consent, the data are held proprietary and unavailable to all others, consistent with the OCE D&SP. Digital data logged from other core *LANGSETH* sensors, including multibeam sonar, gravity magnetics and meteorological data will also be transmitted to the Lamont Database group. They in turn will ensure that these data are deposited in appropriate national archives for long-term preservation upon PI approval, following the NSF-approved proprietary holding period. As specified in the OCE D&SP, cruise metadata, includingdata inventories, station and sample locations, and cruise navigation will be made publicly available, as will any other logged data released by the shipboard PIs within 60 days of cruise completion.

Other science data: Samples

Samples represent singular, usually irreproducible prizes, which will in general be taken away and analyzed by one investigator or another. At the completion of every Langseth cruise, these will be inventoried along with adequate metadata (e.g. sample ID, time, location) and their destination and recipient recorded. This information will be provided

Data Policy

by the Chief Scientist to the *LANGSETH* technical staff for inclusion in the final cruise data report. It is thereafter the responsibility of the investigator to archive and make available these samples as described in the OCE D&SP.

Other science data: Digital data

The transfer and archiving of all digital data from non-*LANGSETH* sensors will be the responsibility of the PI and sensor-specific support personnel (e.g. OBSIP, ROV, LACDP, etc.) At the completion of every Langseth cruise, corresponding data inventories and metadata will be provided by the Chief Scientist for inclusion in the final cruise data report, as will data recipients and their contact information.

Data Release Agreement

Underway Data Inventory

Sonars		**Collected**	**Release**	**Initial**
ADCP	ADCP	yes	Immediate	
Sonar	Multibeam	yes	Immediate	
Sonar	Furuno bathymmetry	yes	Immediate	
Sonar	Bathy 2000	yes	Immediate	_____
Sonar	Bathy 2000 EPC Plots	yes	to UTIG	
Sonar	12 Khz EPC plots	no	n/a	
Sonar	3.5 Khz EPC plots	no	n/a	

Meteorological/Hydrological sensors		**Collected**	**Release**	
Met	SBE-38	yes	Immediate	
Met	SBE-48	yes	Immediate	
Met	RM-Young WX	yes	Immediate	_____
Met	Thermosalinograph	yes	Immediate	
Met	Flourometer	no	n/a	
Met	CO2	no	n/a	

Geophysical Sensors		**Collected**	**Release**	
Geo	Magnetometer	yes	Immediate	_____
Geo	BGM-3	yes	Immediate	

Navigation		**Collected**	**Release**	
GPS	C-NAV	yes	Immediate	
GPS	NT-300D	yes	Immediate	
GPS	Tasmon	yes	Immediate	
GPS	17HVS(WAAS)	yes	Immediate	_____
Gyro	MK-27 Gyro #1	yes	Immediate	
Gyro	MK-27 Gyro #2	yes	Immediate	
Gyro	GC-80 Gyro	yes	Immediate	
IMUs	POS/MV	yes	Immediate	
IMUs	SeaPath 200	yes	Immediate	

Seismic QC Plan

Lamont-Doherty Earth Observatory
Office of Marine Operations

R/V Marcus G. Langseth
Quality Control Plan

LAMONT-DOHERTY
EARTH OBSERVATORY
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

Survey:
LDEO Survey Number:
Principle Investigator:

TABLE OF CONTENTS

- RGPS on gun sub-arrays and active tail buoy
- Acoustic positioning
- Streamer compass
- Ancillary equipment

Seismic offset report

Operations

- Geometry tolerances
- Geometry checks and node locations
- Positioning accuracies
- Feathering angle
- Line numbering convention
- Reshoot & Overlap
- Run –in
- Steering instructions
- Navigation tape numbering
- Deliverables

DATA SHIPMENT INSTRUCTIONS

NAVIGATION ANNEXES

- Antenna Configuration
- Towing Offsets
- Acoustic Network
- Tailbuoy Configuration

SOURCE ANNEXES

- Far Field Model
- Source Layout
- Sub-array Layout

STREAMER ANNEXES

- Outer Cable Configuration
- Inner Cable Configuration
- Cable Sensor Offsets

STAND-ALONE DOCUMENTS

LDEO QHSE PLAN
LDEO DATA DELIVERY DOCUMENT
NSF APPROVED PROPOSAL
NAVIGATION MOBILISATION PLAN

APPENDICES

CONTACT LIST
LINE CO-ORDINATES, PREPLOT AND SAFE NAVIGATION AREA
ENERGY SOURCE LAYOUT AND DROP OUT SPECIFICATION

AutoLogger

- Syntrak
  - Shot Point #
  - File #
  - Tape #
  - Recording info (#channels, #streamers, etc.)
- DigiCourxe
  - Bird #
  - Depth
  - Fin Angle
  - Compass Bearing

- Sound Source System
  - Which gun fired (ie gun mask)
  - Volume
  - Pressure
  - Gun Depth
  - Timing
- Spectra
  - File #
  - Time
  - Lat/Lon
  - Speed
  - Direction
  - Line Name
  - Line Status

Data Handling Manual

R/V Langseth Data Operations Specification
Draft v 0.11
March 8, 2006
Anthony Johnson
ajohnson@ldeo.columbia.edu

Serially Logged Data

Instruments which output serial data (RS-232 text stream) are logged using a dedicated server running the Lamont Data System (LDS), via USB attached RS232 serial ports. The Systems Administrator will ensure that LDS is properly configured at the beginning of each cruise.

Table 1. Serially logged instruments

Type	Instrument	Format	Output Interval (s)	Real-time Display
Sonar	FS-700 Fathometer	NMEA*	1	none
Sonar	EM-120 (Centerbeam depth)	ASCII	1	time-series
Sonar	DS-50 Speedlog	NMEA	1	instantaneous
Met	SBE-38 Digital Thermometer	ASCII	1	instantaneous
Met	SBE-48 Hull-mount temp sensor	ASCII	1	none
Met	5103 Integrated Meteorological instrument	ASCII	1	instantaneous
Met	5103 Integrated Meteorological instrument	ASCII	1	instantaneous
Met	Thermosalinograph	ASCII	1	none
Met	10-AU-005-CE Flourometer	ASCII	1	none
Met	CO2	ASCII	1	none
GPS	C-NAV	NMEA	1	instantaneous
GPS	Trimble NT-300D	NMEA	1	instantaneous
GPS	Trimble Tasmon	NMEA	1	instantaneous
GPS	Garmin 17HVS WAAS	NMEA	1	instantaneous
Geo	882 Magnetometer	ASCII	1	time-series
Geo	BGM-3	ASCII	1	time-series
Gyro	MK-27	NMEA	1	none
Gyro	MK-27	NMEA	1	none
Gyro	GC-80	NMEA	1	none
IMUs	POS/MV	NMEA*	1	instantaneous
IMUs	SeaPath 200	NMEA*	1	instantaneous

Note: The NMEA 0183 (NMEA) specification, governed by the National Marine Electronics Association, defines a standard serial communication configuration and standard sentence formats for marine electronics. NMEA communication uses ASCII text.

Data Reduction

Serially logged data is "reduced" daily. Unless otherwise specified, reduction involves smoothing, using a boxcar filter, and interpolation to one-minute intervals.

Positioning Instruments

GPS, Gyro, and IMU systems generate NMEA data which is continuously logged throughout the cruise. They are continuously monitored by plotting them against each other on a display at the watchstanders' console.

Each day, navigation data is smoothed and interpolated to 1-minute intervals. Primary navigation plots showing primary navigation as latitude over time and longitude over time are produced and examined visually by shipboard staff for errors.

Gravity

Gravity is measured on board the Langseth using a Bell Aerospace BGM-3 gravimeter. The gravimeter generates raw counts as ASCII strings once per second, and is logged continuously throughout the cruise.

Real-time Gravity QC Display

Raw counts are smoothed using using a gaussian filter and converted to mGals by applying scale and bias values calculated by Bell Aerospace during calibration maintenance. Resulting gravity values are displayed in near-real time in a time series plot at the watchstanders' console.

Describe gravity reduction here.

Magnetics

The Geometrics magnetometer outputs magnetic data as ASCII strings once per second, and is logged continuously whenever the magnetometer is deployed. Magnetic values are displayed in real time in a time series plot at the watchstanders' console.

Daily magnetometer plots showing smoothed and interpolated magnetics over time are produced and examined visually by shipboard technical staff for errors.

Thermosalinograph

The SeaBird Electronics SBE-21 thermosalinograph (TSG) generates raw ASCII strings once per second, and is logged continuously when deployed.

Logged raw TSG output:

2005:203:23:59:51.5251 605082C90D576B0045

The raw TSG output is processed in real time, using calibration values provided by the manufacturer during regular calibration, to produce sound speed at the keel, internal temp, external temp, conductivity, and salinity.

Processed TSG output:

2005:203:23:59:51.5251 605082C90D576B0045 1460.31 12.92 4.60 3.35 28.03

Smoothed, interpolated TSG data is regularly plotted and visually inspected by shipboard technical staff.

Flourometer

insert flourometer description here.

Depthsounders

insert depthsounder description here.

Multibeam CBD

The EM120 outputs Central Beams Depth (CBD) as a NMEA DPT sentence once per second, and is logged continuously whenever the system is deployed. CBD values are displayed in real time in a time series plot at the watchstanders' console.

Weather Sensors

insert weather sensor description here.

Non-serial sensors

ADCP	ADCP Head Unit	?	Internal		?
Sonar	2.5 kHz - 7 kHz Sub-bottom profiler	?			
Sonar	Chirp Sub-bottom Profiler -- BATHY2000	SEGY	Fileshare	NFS	?
Sonar	12 Khz Transducer	na	-		
	12 Khz Head Unit	EPC Plot			?
Sonar	3.5 Khz Transducer	na	-		
	3.5 Khz Head Unit	EPC Plot			?
Sonar	12 kHz 150 beams/191 degree multibeam echosounder	?			?
Sonar	Multibeam Upgrade	?			?
Met	XBT controller and launcher	SVP	Fileshare	SMB	

Logged Data Checklist

Logged data science checklist
Draft of 21 Feb 2007

Yes	No	Category	Model	Description	Output	Delivery
x		Sonar	FS-700	Fathometer	NMEA	Cruise Tape
		Sonar		Chirp Sub-bottom Profiler -- BATHY2000	SEGY	?
		Sonar		12 Khz echo sounder	EPC Plot	Paper
		Sonar		3.5 Khz echo sounder	EPC Plot	Paper
x		Sonar	EM-120	12 kHz 150 beams/191 degree multibeam echosounder	disk	SDLT
x		MG&G	882	Magnetometer	ASCII	Cruise Tape
		MG&G	BGM-3	Marine Gravity Meter System	ASCII	Cruise Tape
x		Sonar	DS-50	Speedlog	NMEA	Cruise Tape
		Ocean		XBT	SVP	Cruise Tape
x		Ocean	SBE-38	Hull-mount temp sensor	ASCII	Cruise Tape
x		Ocean	SBE-48	Hull-mount temp sensor	ASCII	Cruise Tape
x		Met	young 5103	Integrated Meteorology	ASCII	Cruise Tape
		Ocean		Thermosalinograph	ASCII	Cruise Tape
		Ocean	10-AU-005-CE	Fluorometer	ASCII	Cruise Tape
x		nav	C-NAV	Globally corrected DGPS	NMEA	Cruise Tape
x		nav	NT-300D	DGPS	NMEA	Cruise Tape
x		nav	Tasmon	P-Code	NMEA	Cruise Tape
x		nav	17HVS	WAAS	NMEA	Cruise Tape
x		nav	MK-27	Gyrocompass	NMEA?	Cruise Tape
x		nav	MK-27	Gyrocompass	NMEA?	Cruise Tape
x		nav	GC-80	Gyrocompass	NMEA?	Cruise Tape
x		nav	SeaPath 200	IMU	NMEA	Cruise Tape
x		nav	POS/MV	IMU	NMEA	Cruise Tape

Data Reduction Summary

Langseth Data Reduction Summary Discussion Document
02/21/07

Ewing Data Reduction Summary

Title Page – Cruise name, dates & ports, reduction contact, cruise track
Summary – Background and Scientific Objectives
Cruise members and contacts
Cruise Notes – Instrument/sensor notes
Data Logging – Events and logging intervals/interruptions
Gravity Ties
File Formats – Description of log file formats
Scripts – Brief description of the scripts contained in the tape archive
Tape contents – File/directory listing

Proposed Langseth Reduction Summary

Title Page – Cruise name & dates, PI, reduction contact
TOC
Summary
Cruise Track
Cruise members and contacts
Cruise Notes
Data Logging – Events and logging intervals/interruptions
Gravity Ties
File Formats – Description of log file formats
Scripts – Brief description of the scripts contained in the tape archive
Tape contents
Errata

Notes
Should archive forms be included in the data reduction summary proper?
Should report be rewritten and reissued when changes are made, or simply amended?