Marcus Langseth Science Oversight Committee (MLSOC)
Sunday December 13, 2015

Summary-
The MLSOC held their winter meeting in San Francisco on Sunday December 13, 2015 prior to the start of AGU 2015. The meeting was well attended and we had a quorum of MLSOC members present. All slide presentations are posted on the UNOLS meeting web site.

Minutes-
Nathan Bangs/UTIG & MLSOC Chair opened the meeting at 1000 with welcome remarks and introductions. The first order of business was to welcome (2) new MLSOC members. Donna Blackman/SIO and Dan Lizarralde/WHOI joined the committee in September 2015.

Members whose terms will finish in February 2016 are Dave Scholl/UAF and Sandy Shor/UH. Both have served two (3) year terms from 2010 to 2016.

Nathan Bangs has served as interim Chair since February 2015 and announced to the committee that he would like to stay on as MLSOC Chair. All members of the committee strongly endorsed this and the UNOLS Council will be asked to approve.

Agency Reports

NSF-
Bob Houtman/NSF provided the report for NSF. Many of the issues that NSF have been working on with the MLSOC and the facility operator over the past year are on the agenda and will be discussed then. On the budget side, NSF is under another continuing resolution which will run until 12/16/2015. NSF does not know at present what the budget levels will be and there are different perspectives in the Senate and the House. One version being considered would place limits on NSF divisions. Another version would keep the budget allocation within the divisions of the NSF directorate. At this point, NSF is planning for a level budget.

The NSF's Ocean Observatory Initiative is moving to the operational phase after completing the construction phase. The OOI management will be re-competed in 2016 with the selection in place for April 2017.

Holly Smith/NSF presented an extensive overview of the R/V Marcus Langseth environmental compliance activities over the past year. She began with an overview of the process, regulations, timelines, and various agencies involved in the process. A review of 2015 was presented in her slides and the outlook for 2016 was shared. The MLSOC was encouraged to provide letters of support for the research as they have done in the past. The process still requires 9-12 months of lead time and public comment periods are placed within the timeline. A review of the laws and regulations was covered as well as the principal investigator's role. The authorizations are based on the specific plans that have been

reviewed during the process. The science plan must be adhered to, although if it becomes necessary to alter the plan, NSF must be consulted first and approvals from all stakeholders are required before proceeding. It is recommended that the initial plan be created with as much flexibility as possible. Sean Higgins/LDEO commented that the operator works with the PIs to identify areas of concern where greater flexibility may be required.
Holly closed by stating that environmental compliance is evolving due to procedural changes as well as new data that is coming out of the science literature.

UNOLS

Chris Measures/UH-UNOLS Chair and Jon Alberts/UNOLS reported on recent UNOLS activities. This included new ships coming into the UNOLS fleet in 2016, (*Armstrong & Sally Ride)* The update on the regional class research vessels (RCRV's) was given. Two UNOLS vessels were retired in 2015. (R/V Point Sur/MLML and the R/V New Horizon/SIO).

Some new publications from UNOLS in 2015 include the 10th edition of the Research Vessel Safety Standards, the Fleet Improvement Plan, and an EOS article written by Debbie Smith/WHOI was published. A brief explanation of the Council's subcommittee on privacy, and pregnancy policies aboard UNOLS ships was presented.

LDEO Operator's Report

Sean Higgins/LDEO gave the operators report and his slides are in the presentations. Topics included the following areas.

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

The Langseth spent a portion of 2015 in the New York area which allowed for access to the ship from both Columbia and LDEO.

Maintenance included overhauls on the Caterpillar engines, air compressors, Cummins diesel, work boat davit and other general repairs. A significant installation of the new Sercel Streamer took place from Sept 16 to Oct 19, 2015. This project went very well and LDEO deserves a lot of credit.

The NSF ship inspection of the Langseth took place from May 19-21, 2015.

Sean then reviewed the 2015 schedule and the current schedule for 2016. The highlights for cruises in 2015 include Debbie Hutchinson's USGS program for the US Extended Continental Shelf program, then Greg Mountain's NSF-funded New Jersey Margin cruise followed by a NOAA multibeam survey for the extended shelf project. The last complete cruise funded by NSF for 2015 was for Kerry Key/SIO for the Fresh Water Project.

For 2016 the ship will operate in the first half in the Atlantic and then transit through the Panama Canal for programs off Chile. The cruise roster at present is: Reece, Rychert, in the Atlantic, then Trehu off Chile and possibly a NOAA mooring recovery program. There has recently been new interest to work in the Sea Of Cortiz for as much as 2 months of work. If this took place it would delay the departure from the Atlantic into the Pacific.

There have been some new software procurements including SurvOpt Planning software. Improvements to the main lab were also completed in 2015.

For 2016 the list of proposed instrumentation/equipment upgrades include:

- Extended range POSNET Navigation system at ~ 24 k
- (2) Seal Streamer Communication Units ~ 56 K
- Gun Umbilical Winch Wireless Controls- (waiting on quote)

Science Presentations I

East Coast Extended Continental Shelf Cruise-
Debbie Hutchinson/USGS reviewed the United States Geological Survey cruises for the Extended Continental Shelf study which has involved the Langseth for (4) cruises over (3) different regions, Bering Sea, Gulf of Alaska and the Atlantic Ocean. Power point slides highlight this data from the Langseth MGL14-07 from the summer of 2014 and MGL 15-06 in the spring of 2015 including new features that were discovered. The towing configuration of the arrays was discussed as well as the legacy data and the improvements in modern data acquisition. They did have some streamer feathering issues. The next steps will be to continue with further processing of the data.

US Law of the Sea Cruise- MGL 15-12
Brian Calder/UNH was the Chief Scientist on this cruise and this presentation was given by Nathan Bangs/UTIG as Brian was unable to attend. Nathan described cruise MGL15-12 and the operations on board the R/V Langseth during the ECS cruise in August of 2015. This is Leg 8 of a multi-year mapping mission to cover the entire US eastern seaboard from a depth of approximately 1000m to the abyssal depth, from the Canadian border to Florida.

Kerry Key- need these slides

Science Presentations II –

Mid Atlantic Ridge Integrated Experiment at Rainbow- Mariner
Pablo Canales/WHOI reported on data results from the MGL13-05 cruise which was in April-May 2013. The focus of this cruise was the relationship between magnetism, faulting, substrate lithology and hydrothermal activities at Rainbow.

COAST Cruise- Cascadia Open Access Seismic Transect
Harold Tobin/Univ. of Wisconsin-Madison presented on the COAST cruise data results from MGL12-12 which was on the Langseth in July 2012. This expedition collected 1100 km of multichannel streamer data, multibeam, gravity and magnetics data off the Washington coast.

New Jersey 3D-
Greg Mountain/Rutgers reported on this MGL15-10 cruise which ran in June to July 2015. This cruise aboard the R/V Marcus Langseth was to acquire a 600 sq. km 3D seismic volume encompassing the 3 IODP Expedition 313 drill sites on the inner-middle shelf of the New Jersey (NJ) continental margin. The Power point slides show preliminary data results.

Galicia 3-D Rifted Margin-
Dale Sawyer/Rice Univ. updated the committee on additional data from processing which has been completed from the Galicia cruise aboard the Langseth June 1-25 & July 15 to August 2, 2013. See slides.

Galicia 3-D Rifted Margin-
James Gibson/LDEO also showed processed data from the Galicia cruise. His slides are in the presentation material.

Improving Langseth/Marine Seismic Future Stability

The remainder of the meeting was dedicated to a discussion on the future direction of the MLSOC. Many aspects of the discussion are a result to the follow-on since the Sea Change Decadal Survey Report was published in early 2015. Discussions and developments in the past year have followed a list of topics.

- Possible Lay-up of the R/V Marcus G. Langseth
- Implementation of a Regional Planning model
- Plans for modifications of the Langseth to have more general purpose oceanographic sampling capabilities.
- NSF's response to Sea Change and the NSF commitment to a strong marine seismic capability.
- Acquisition of the new Sercel Streamer
- NSF Seismic Workshop held on September 30 & October 1, 2015 which looked at portable seismic systems and the potential use of commercial seismic vessels
- Emerging model to continue to operate the Langseth with an NSF commitment of 10 million per year for operating funds and a 2-3 million source of funding from non-NSF sources through potential university or industry partnerships.

Since the Seismic workshop held in September 2015, the concept of an international partnership has received renewed attention. The idea of a consortium is being discussed on many levels. The promotion of a regional operating plan will assist in this effort by letting

outside groups know which ocean basin the *Langseth* will be working and approximately when.

There is urgency to these efforts as at the start of fiscal year 2017 some key decisions must be made.

The terms of reference which govern the MLSOC were reviewed.
https://www.unols.org/what-unols/unols-charter#Annex%20IX

In light of our discussions on various operating models, the role of the MLSOC warrants a review. The current MLSOC terms of reference cover many of these same aspects which are under review and discussion. These include:

- Provide advice on scientific programs
- Forecast future operating locations
- Help with short term scheduling
- Address user concerns
- Review technical capabilities
- Monitor issues relating to permitting
- Encourage technology expansion and upgrades

Question was asked that if it requires 2-3 years to build an international program will this work within the NSF structure. The answer to this was that NSF has many programs which all must be balanced against each other.

Another question was asked if MLSOC can create an ad hoc committee which could act as a governing body to take on some of these challenges. The MLSOC is at liberty to create any ad hoc subcommittees needed to address any particular issue. Any change to the MLSOC terms of reference would require UNOLS Council approval and would then be incorporated into the next UNOLS Charter revision.

During the ongoing discussion it was suggested that perhaps it is time for a second Incline Village community workshop to develop foreign collaborations and regional planning.

Tom Janecek/NSF explained the IODP model. In this case there is a subset of scientists which make decisions on ship scheduling. In the case of the MLSOC, perhaps a group of Jim Holik, Rose Dufour, Candace Major, OBSIP and the ship operator and operators representatives could put a scheduling entity together.

A subcommittee of MLSOC, comprised of Suzanne Carbotte/LDEO, Greg Mountain/Rutgers, Sandy Shor/ U-Hawaii, and Debbie Hutchinson/USGS has been organized to research these issues.

Meeting adjourned-

The meeting adjourned at 5 pm PST.