Marine Seismic Research Oversight Committee Annual Meeting (MSROC)

Date: Sunday December 10, 2017
10:00 am to 5:00 pm

Location: Quarterdeck- Ballroom "C"
Hilton New Orleans Riverside,
2 Poydras St.
New Orleans, LA

Today's meeting will be a series of presentations and discussions that will hopefully lead to an improved understanding of what is the most useful role the MSROC can have within the marine seismic research community and what actions the committee should take to best fulfill that role.

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MSROC overview
Meeting goals

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NSF Seismic Capabilities Solicitation
NSF OBS Solicitation

10:45 – 11:00 AM: UNOLS Update (Jon Alberts)
UNOLS office recompetition
Global Class- FIC & Science Mission Requirements

11:00 – 11:30 AM: L-DEO Update and discussion (Sean Higgins)

11:30 – Noon: IODP and MSROC (Sean Gulick)

Noon – 1:00 PM: Lunch (not provided)

1:00 – 1:15 PM: OBSIC (Del Bohnenstiehl)
Update from OBS Symposium (held Sept 18-19, 2017- Portland, ME.)

1:15 – 1:30 PM: Alaska Amphibious Community Seismic Experiment - Marine Seismic Community Update (Emily Roland)

1:30 – 1:45 PM: New Zealand *Langseth* Programs (Nathan Bangs)

1:45 – 2:15 PM: Regional Framework and International tasks discussion (Pat Hart)
Letters of Interest for seismic programs using capabilities similar to the *Langseth*

2:15 – 2:45 PM: Growing experience with high-resolution 3D marine seismic in research and industry (Tip Meckel/Bureau of Economic Geology- Univ. of TX-Austin)

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4:00 – 5:00 PM: Revisit earlier topics / open discussion as needed (Pat Hart)

~5:00 PM: Adjourn meeting

MLSOC to MSROC Transition

- May 2015: NRC report *Sea Change: Decadal Survey of Ocean Sciences*
- August 2016: NSF Seismic Capabilities Dear Colleague Letter

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As part of OCE's reply in May, 2015, to the National Research Council's report "*Sea Change: Decadal Survey of Ocean Sciences, 2015-2025*", and via multiple outreach opportunities over the past year, NSF has made clear that the current business, financial, and resultant operational model for R/V *Langseth* is unsustainable. Contractual obligations and current research commitments are continuing to move forward using the vessel. Beyond early calendar year 2018, however, a different business, financial, and/or managerial model needs to be implemented or NSF/OCE is likely to divest from R/V *Langseth* and the vessel would no longer be available to researchers.

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As noted in OCE's reply to Sea Change, NSF is committed to supporting marine seismic research of high national interest. Accordingly, OCE will continue to accept proposals for experiments that require capabilities such as those currently provided by the R/V Langseth.

OCE is seeking written expressions of interest regarding new financial and/or managerial models that would provide the marine seismic capabilities to meet the expected needs of academic research scientists.

MLSOC to MSROC Transition

- December 2016 AGU; MLSOC disbands, MSROC Terms of Reference written

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MSROC SPECIFIC TASKS LISTED IN THE TERMS OF REFERENCE

(a) Implementation of the Regional Framework Plan

(b) Act to engage and coordinate international participation in the regional framework planning process and to identify international resources that might be available to U.S. researchers. Regularly review the technological information available for use of assets and identify needed updates.

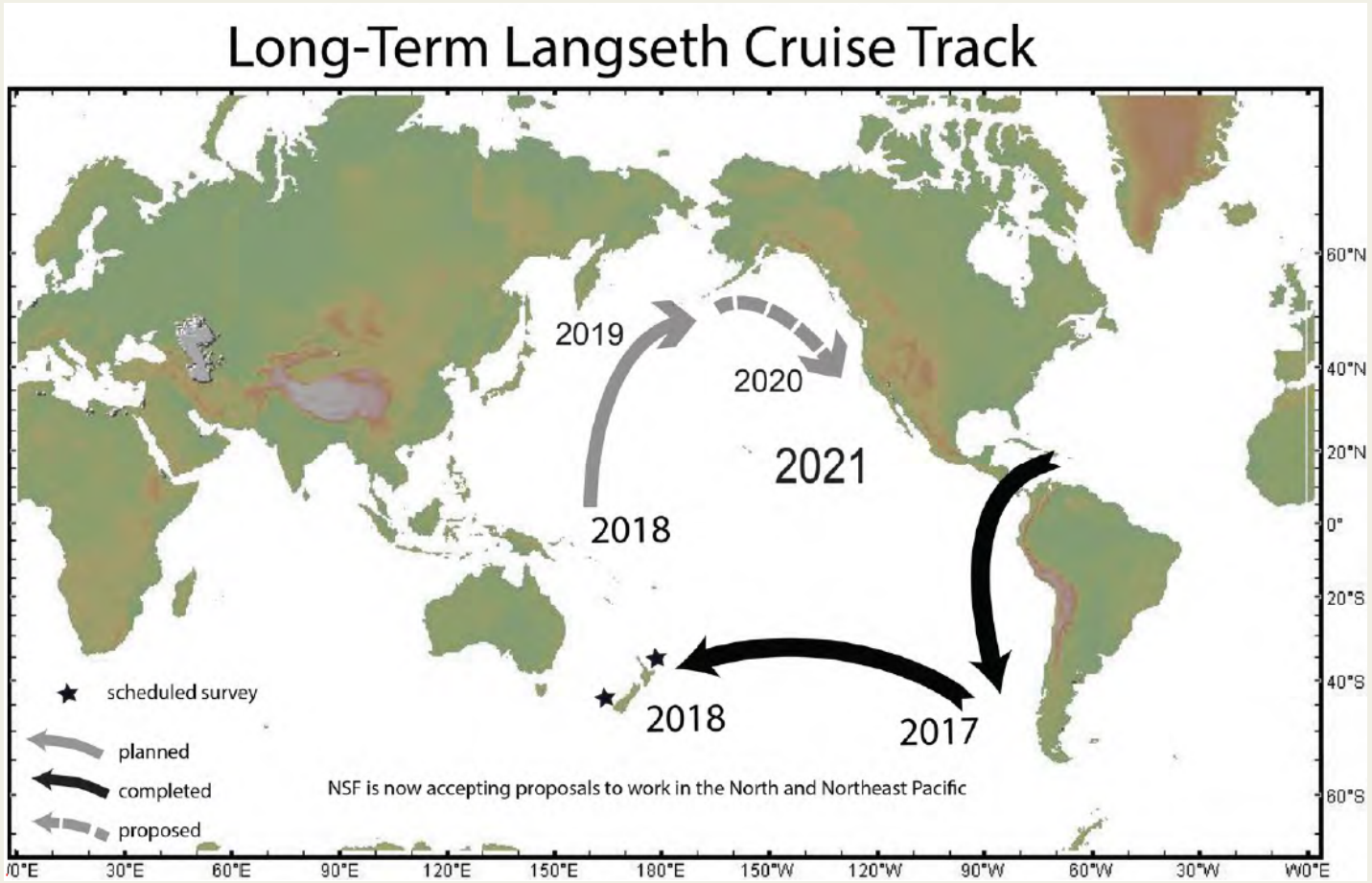
(c) Regularly review the technical capabilities of existing marine seismic assets to ensure they meet the needs of the scientific community, and advocate for upgrades when compelling needs for new capabilities are identified.

(d) Promote the engagement and training of the next generation of marine seismic researchers.

(e) Provide outreach tools and a feedback mechanism to the community, including a forum for input on emerging directions in marine seismic studies

MSROC Timeline

- March 2017: MSROC membership selected
- May 2017: NSF Seismic Capabilities Solicitation
- July 2017: Seattle MSROC meeting



The regional planning map was updated at the July 2017 MSROC meeting. The committee concluded that further updates would have to wait until a new seismic capabilities operational model is selected by NSF and a new round of "Letters of Interest" is received and evaluated.

MSROC Timeline

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- July 2017: Seattle MSROC meeting
- August 2017: Seismic Capabilities proposal(s) received by NSF
- September 2017: MSROC statement regarding seismic capabilities proposals

The NSF Division of Ocean Sciences (OCE) has advised the MSROC that they have received at least one proposal in response to their Marine Seismic Capabilities Solicitation. Although no details on the proposal(s) can be released until the review process is completed, OCE emphasizes that the marine research community will continue to have access to seismic data acquisition capabilities comparable to those provided by the *R/V Langseth*. NSF encourages the submission of new marine seismic research proposals for North and Northeast Pacific for 2019 and 2020. As stated in the August 2016 OCE Dear Colleague Letter, "*NSF is committed to supporting marine seismic research of high national interest. Accordingly, OCE will continue to accept proposals for experiments that require capabilities such as those currently provided by the R/V Langseth.*"

The MSROC strongly supports OCE's commitment to maintaining access to these marine seismic data acquisition capabilities. It is important to note that the upcoming changes to the current *R/V Langseth* operational model will not impact OCE support of high-resolution seismic acquisition experiments conducted using vessels other than the *Langseth.* Members of the marine research community with concerns or comments regarding the future of marine seismic capabilities should email MSROC at **msroc@unols.org**.

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- August 2017: Seismic Capabilities proposal(s) received by NSF
- September 2017: MSROC statement regarding seismic capabilities proposals
- November 2017: Letters of Interest for “Langseth capabilities” requested
- December 2017 AGU; MSROC public meeting
- 2018 Seismic Capabilities and OBSIC awards
- 2018 Revisit Regional framework plan

Example of positive impact from MLSOC:

- MLSOC distributed a Marine Seismic Questionnaire in summer 2016 and received 263 responses.

- Among the many results, the need for at-sea marine seismic experience for early career scientists was identified.

- This finding helped motivate the very successful September 2017 UNOLS Marine Seismic Training Cruise . (Anne Trehu will have a presentation on this cruise later in this meeting)

- Cruise participants, with Valerie Sahakian as primary contact, have submitted a Letter of Interest to MSROC and will be submitting a formal proposal to NSF for a Cascadia seismic research cruise following up on results obtained during the training cruise

Investigating Constraints on Influences to Shallow-Rupture Along the Southern Cascadia Margin

Proponents:
Valerie Sahakian, Jessie Saunders, Emily Schottenfels, Srisharan Shreedharan, Anne Trehu

Description:
The 2017 UNOLS Early Career Scientist Marine Seismic Training Cruise was a fruitful expedition, with preliminary results leading to the formation of several focus groups amongst participants for future research directions. The group represented here is interested in the shallow structure and composition near the deformation front, on the central Oregon margin.

1) Primary contact for the project:
Valerie Sahakian (vjs@uoregon.edu), Jessie Saunders (jksaunders@ucsd.edu), Emily Schottenfels (erschott@bu.edu), Srisharan Shreedharan (srisharan@psu.edu), Anne Trehu (trehu@coas.oregonstate.edu)

2) Geographic location of survey:
Cascadia margin, offshore south-central Oregon

3) General Scientific objectives:
Improving knowledge of the likelihood of shallow-rupture in the Cascadia margin is of great importance to mitigating risk in the Pacific Northwest region. In the Southern-Central Oregon region, the UNOLS seismic training cruise yielded 2 lines crossing the Cascadia subduction zone deformation front and 1 trench-parallel line, in a previously un-surveyed location (Figure 1). These data show N-S variations in the depth of the shallow (<2.5km) plate interface structure, deformational dichotomy in the accretionary wedge, thickness of sediment, and reflection character of the downgoing sediment package. Deciphering the tectonic history that has led to the morphology and structure of this segment of the margin is an important step towards understanding the tsunamigenic potential in Cascadia. Some outstanding objectives include a detailed map of sediment thickness, knowledge of the lithologic properties of the incoming sediment, and improved

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2017 MSROC Letters of Interest Request

1) Primary contact for the project

2) Geographic location of survey

3) General scientific objectives

4) Are there alternate geographic locations that could possibly meet your scientific objectives?

5) Type of survey (e.g. 3D seismic reflection, long-offset 2D seismic reflection, OBS refraction ….)

6) Estimated number of days on site for the survey

7) Whether PI/team is solely US, collaborative US & international, or solely non-US (all of these are welcome, we expect input from each of these types of group, and there is no preference)

8) Proposal status (discussion stage, draft proposal written, proposal submitted, proposal recommended for funding, etc.)

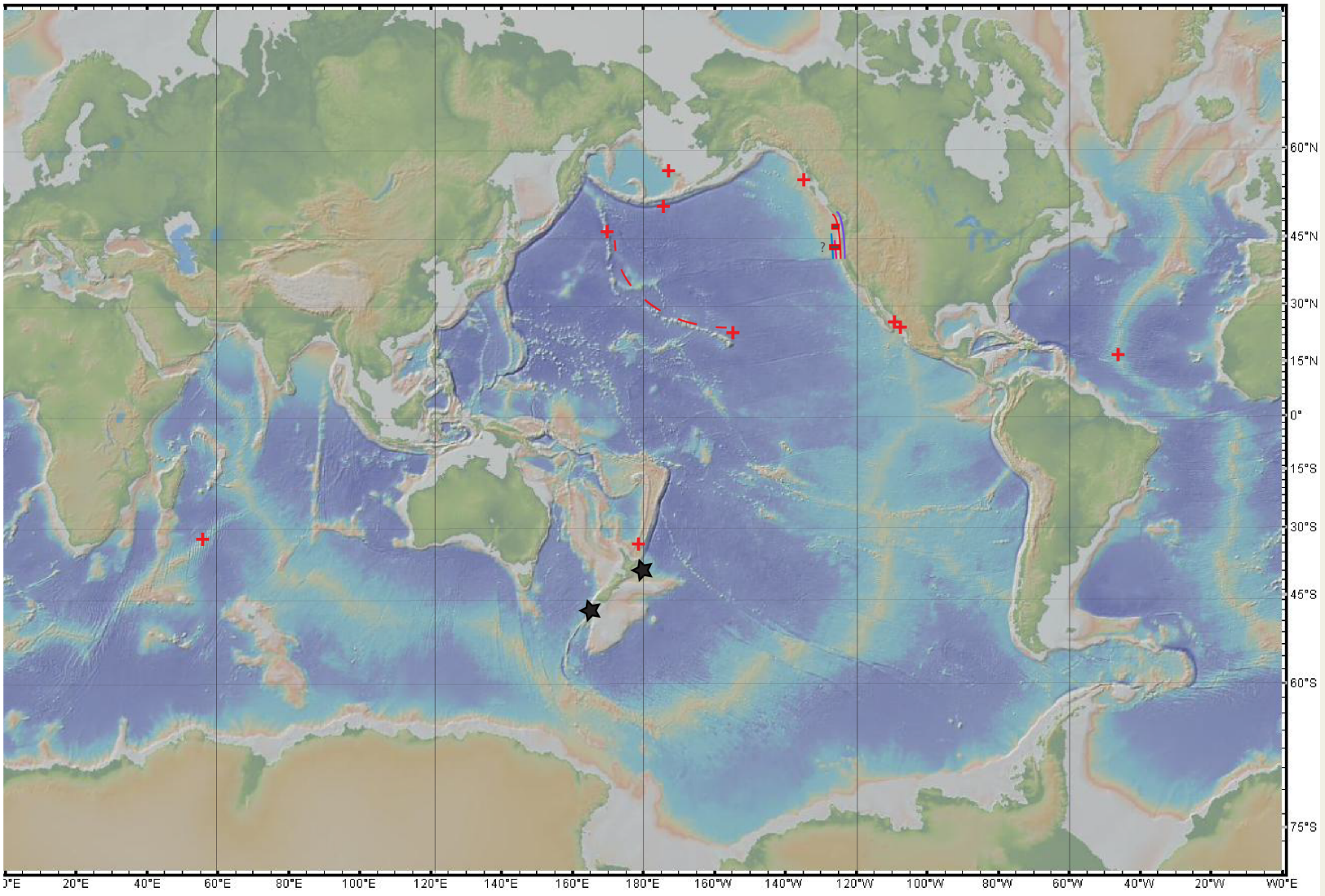
9) Timing considerations (coordinating with other programs, etc.)

10) Would you like to present a 3-minute summary of the project to MSROC at the pre-AGU meeting?

2017 Letters of Interest

Primary Contact	Location	Objective	Type	Team	Proposal Status	2016 LOI?
Blackman	Central Atlantic	Detachments & plate bounday evolution	Long-offset 2D w/ OBS	US	Discussion stage	No
Canales	Southern Cascadia	Incoming plate hydration near trench	Long-offset 2D w/ OBS	US/Canada	To NSF by end of 2017	Yes
Canales	SW Indian Ridge	Moho at slow spreading center	OBS/ 3D/ Long 0ffset 2D	US/Canada/UK/ South Africa	Previously submitted/ will revise and resubmit	Yes
Carbotte	Cascadia	Subduction zone rupture segmentation	Long-offset 2D	US/Canada	Submit proposal early 2018	Yes
Dunn	Havre Trough	Ultra-slow spreading & structure	OBS tomography	US/New Zealand	Previously submitted/ will revise and resubmit	Yes
Goldberg	Cascadia	CO2 Sequestration	3D	US/Canada/ Iceland	To DOE early 2018	No
Goldfinger	Cascadia	Subduction zone structure, processes	Long-offset 2D	US/Canada/ Germany	Draft proposal early 2018	No
Hill	Cascadia	Subduction zone structure, hazards	3D	US/Canada	Discussion stage	No
Lizarralde	Aleutians	Oceanic-arc crustal processes	Long-offset 2D w/ OBS	US	Submitted to GeoPRISMS 2017	Yes
Malkowski	Bering Sea	Deep-marine stratigraphy	2D w/ multibeam	US	Discussion stage	No
McClain	EPR two sites	Ridge processes, hydrothermal systems	2D w/OBS maybe 3D	US/Mexico/ Germany?	Discussion stage	Yes
Sahakian	Cascadia	Shallow rupture constraints	Long-offset 2D maybe 3D w/OBS	US	Discussion stage	No
Shillington	Hawaii	Intraplate magmatism, lithosphere properties	Long-offset 2D w/ OBS	US/UK	Submitted to NSF; pending	Yes
Shillington	Emporer Seamount	Intraplate magmatism, lithosphere properties	Long-offset 2D w/ OBS	US/UK	Submitted to NSF; pending	Yes
Trehu	Cascadia	Subducting plate fragmentation	Long-offset 2D w/ OBS	US currently	Discussion stage	No
Worthington	SE Alaska	Queen Charlotte fault structure	Long-offset 2D w/OBS + seismicity	US/Canada	Submit end 2017	No

Regional Framework Planning for Marine Seismics: LOI's (+) for Dec 2017



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Discussion questions for enabling broader use of high-resolution marine seismic assets:

- Would a comprehensive inventory of high-resolution seismic acquisition equipment (sources, receivers, recording systems, etc.) create easier access to these assets. Only NSF owned or USGS and University owned also?

- What role should or could MSROC have in developing and maintaining a distributed seismic assets instrument pool?

- Is there a possible strategy for insuring any equipment loaned between institutions? Or are the current informal lending procedures sufficient?

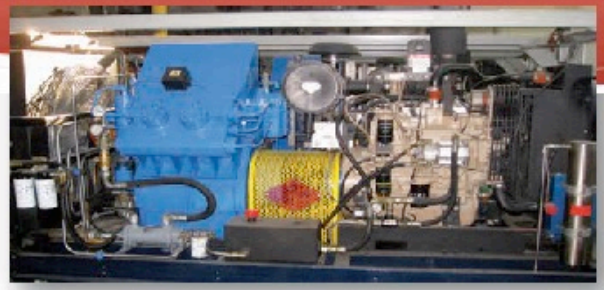
- What is the best procedure for technical support personnel from one institution to be included in projects run by another institution?

- High-pressure compressors, necessary for air gun operations, are a gap in U.S. government and academic seismic assets and need to be leased from industry. Should portable compressors be purchased and added to an equipment pool?

ASC 200D

High Pressure Compressor System

(Ask about our Installation, Operation and Maintenance Packages)



Applications

- ✔ Designed for offshore open deck, harsh environments
- ✔ Designed for harsh environments
- ✔ DNV 2.7-1 provisions for both crane and forklift handling
- ✔ Inner frame assembly shock mounted to outer cage assembly
- ✔ Reliable, up to date components
- ✔ Meets latest emissions standards
- ✔ DNV - 2.7-1

Features

- ✔ V-Design pressure lubricated 4 stage CompAir Compressor
- ✔ Closed loop water cooled
- ✔ Model #5437.1.HIL.IA high pressure air compressor
- ✔ Powered By John Deere 4.5L PowerTech® Tier 3; 140 HP diesel engine
- ✔ Centrifugal controlled clutch assembly with ramp control for load/ unload features
- ✔ 189 SCFM @ 2200 PSI
- ✔ Full automated control system with visual and audible alarm system
- ✔ Automatic condensate drain system
- ✔ Dimensions: 133"L x 58"W x 73H (exhaust pipe removed)
- ✔ 95 Gallon Fuel tank
- ✔ 6 GPH fuel consumption
- ✔ Weight: 8,480 lbs
- ✔ Built in Fail-Safe

Contact Us:
1-888-800-2232 - Toll free
fred@alphaseismiccompressors.com

ALPHA SEISMIC COMPRESSORS

Offshore Rentals | Air Source Solutions

Thoughts on a possible ultra-high res 3D training cruise in ~2019:

- This would be fundamentally different from the 2017 Revelle training cruise
- The goal would be to identify region and geologic problem where high-res 3D would be of value to another agency (perhaps DOE or BOEM) or currently funded project to share costs
- Limited slots would be available for trainees as high-res 3D operations require experienced operational crew. Therefor it may be best to have two or three nearshore legs to allow more participation.
- Ideally, trainees would have some marine seismic experience and this cruise would provide knowledge of the complexity of high-res 3D operations and the value of the data
- The Gulf of Mexico is a good regional option; available ships and compressors, good seismic imaging, extensive existing publically available seismic database and complex geologic targets of interest to DOE and BOEM

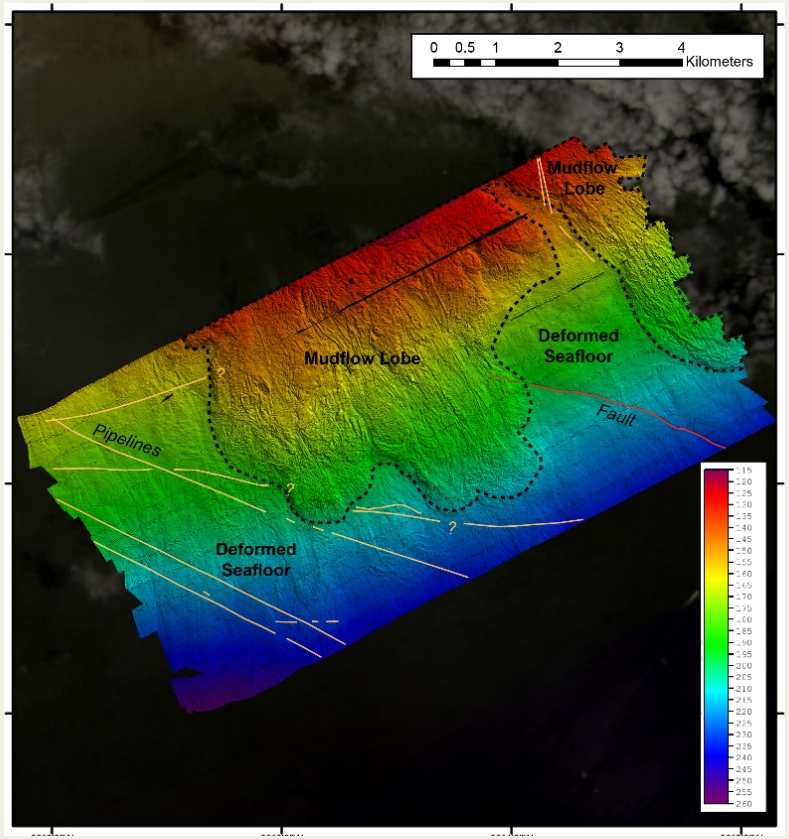
Jason Chaytor USGS Woods Hole

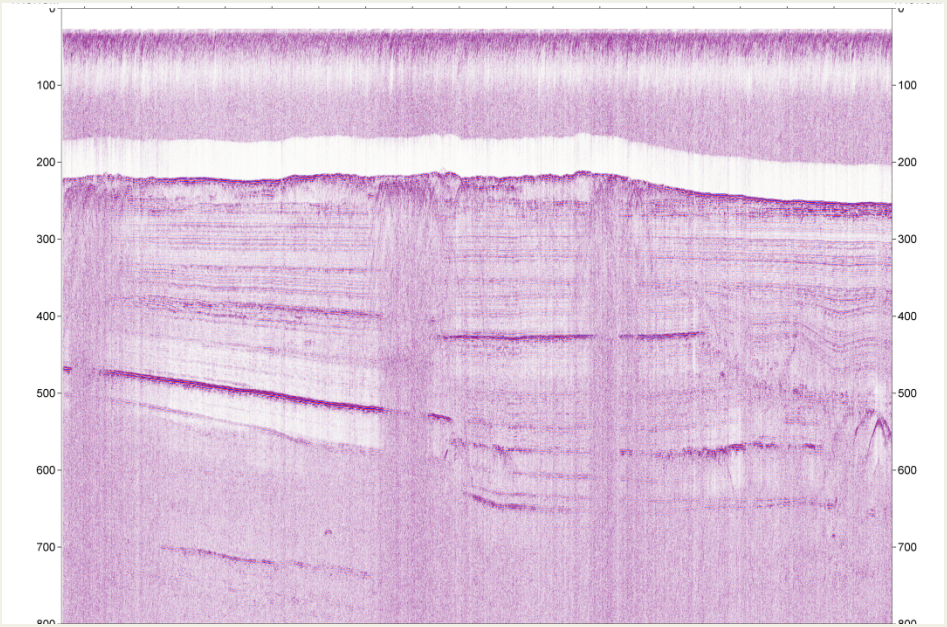
EP21B-1837: New High-Resolution Multibeam Mapping and Seismic Reflection Imaging of Mudflows on the Mississippi River Delta Front

Tuesday, 12 December 2017

08:00 - 12:20

New Orleans Ernest N. Morial Convention Center - Poster Hall D-F





Sparker MCS Line DW4

Seismic data processing software training:

- Would training be most effective using available freeware or with commercial interactive packages?
- Webinars, regular University courses, or individual “learn on your own” using publicly available MCS marine field data?
- “Free” academic licenses are not free. Yearly maintenance and support costs can be a few thousand dollars per year per license
- Large main-frame based industry options such as ProMax and Paradigm Echos require substantial IT support
- Shearwater Reveal (formerly Open CPS) and GLOBE Claritas from New Zealand are possibilities. Claritas has available training YouTube videos.
- RadExPro is an inexpensive but complete and very intuitive interactive windows- based package. Russian company with US represntiatives.

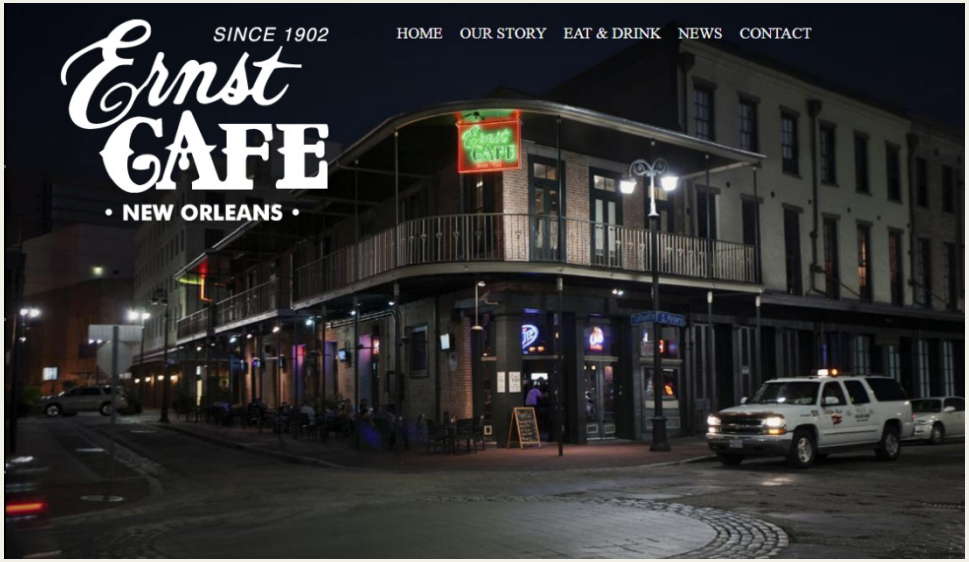
Marine High–Resolution Seismic Data Processing

RadExPro seismic software is fully capable for both single–channel and multi–channel HR/UHR marine seismic processing, either 2D or 3D. It is compatible with any type of marine sources: airgun, sparker, boomer, etc.

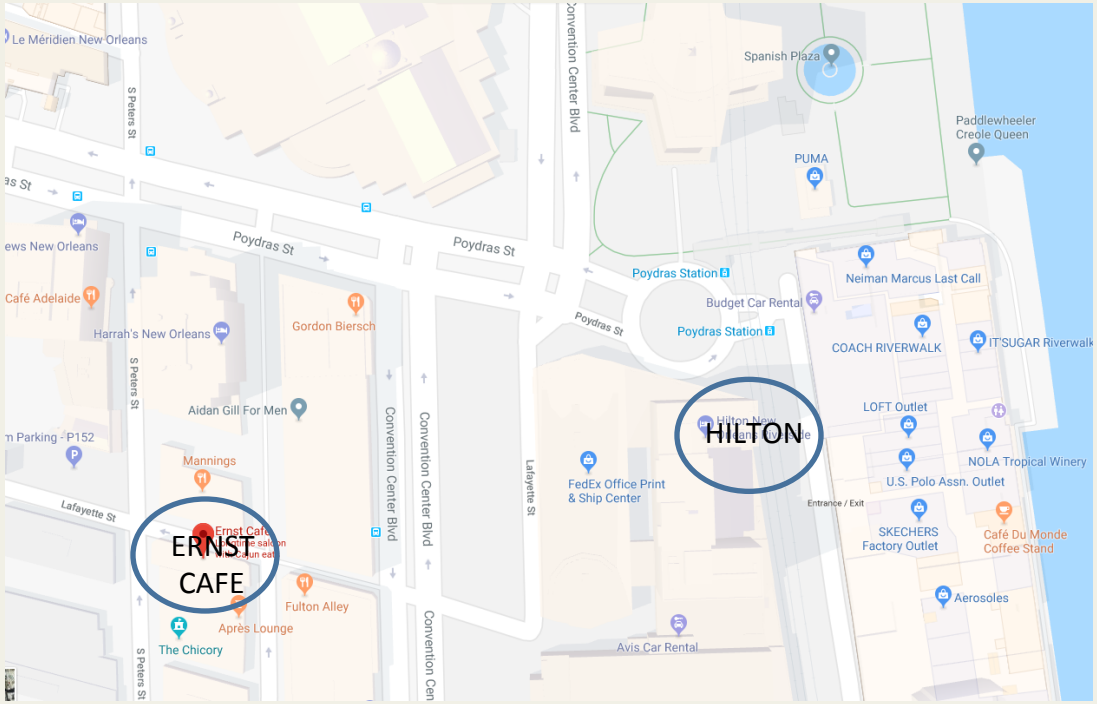
Advanced denoising, high–resolution offshore statics, designature (automatic wavelet estimation, deghosting, debubbling, deconvolutions), efficient demultiple algorythms for multi–channel (SRME) and even single–channel data (Zero–Offset Multiple Attenuation), 3D regularization, pre–stack and post–stack migrations—all these algorithms are available in RadExPro and are capable of improving the quality of the processing result significantly.

An experienced processor would particularly enjoy the outstanding flexibility of the software allowing even the most sophisticated processing scenarios to be easily implemented in the modern user–friendly interface—for only a fraction of the price of any big seismic processing system on the market.

> *Using batch mode, you can easily process dozens or even hundreds of lines with the same flow. You can be confident of delivering results in time and meeting tough deadlines.*



MSROC
Post-meeting get-together
Ernst Café
600 South Peters Street
South Peters and Lafayette
Two blocks from Hilton
No reservations but shouldn't be too crowded



Additional slides

Shearwater Reveal can be found on student workstations in Universities around the world. The innovative interface and usability of Reveal enables your students to maximise the processing potential of geophysical data for their studies.

Your students will see the effects of their parameter choices on data in real time, whether it be demultiple through SRME or seeing their stack update as they pick velocities.

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From NSF Seismic Capabilities Solicitation:

NSF/OCE anticipates that proposals are likely to fall into one or more of the three categories listed below, with each category subject to operating within the specified annual budgetary constraints and in the context of providing the required seismic capabilities necessary to meet the scientific needs described above.

1. A qualified institution, organization, or consortium provides access to alternative technologies to replace the existing approaches used by R/V *Marcus G. Langseth*. NSF encourages creative strategies for meeting NSF's seismic research needs. In this approach, NSF would follow established U.S. governmental procedures for divestment of R/V *Marcus G. Langseth*, as described in Section III.B. below, and the vessel would no longer be available to researchers.
2. A qualified institution, organization, or consortium assumes ownership of R/V *Marcus G. Langseth*, following the NSF procedures for divestment, described in Section III.B. below, and commits to supporting NSF-funded research at the usage levels described above. Such support of NSF-funded research need not involve R/V *Marcus G. Langseth* if, for example, such an organization or consortium has other assets that could also, or instead, be used. If NSF no longer owns the vessel, any remaining ship-time after annual NSF seismic needs are met would be available to support the business model of the new owner(s).
3. NSF retains ownership of the vessel and a new financial and operational structure is established for management of R/V *Marcus G. Langseth*. In this model, the institution, organization, or consortium would guarantee access to the vessel via UNOLS for 75-150 days, subject to annual budgetary constraints. Due to the overall age of the vessel and the potential for vessel replacement in the future, however, NSF will not commit to a service life extension via a mid-life refit for R/V *Marcus G. Langseth*.

Proposals based on any of the three identified categories, or on any other model, may take advantage of the fact that the provision of marine seismic capabilities may potentially be assisted by alternative scheduling plans, regardless of platform, in which large and complex marine seismic programs funded by NSF would be conducted only on a periodic basis, for example every 2-3 years, rather than annually. Such a schedule could align well with the community's parallel need for multi-year planning for complex research projects, and could also allow large uninterrupted blocks of time for non-NSF projects to be conducted by the provider.

If no acceptable proposals are received, NSF will divest from R/V *Marcus G. Langseth* and will work with academic, international, and/or commercial partners for ad hoc access to third-party seismic capabilities within budgetary and logistical constraints and responsive to science proposals.

From 2016 NSF Dear Colleague Letter: Provision of Marine Seismic Capabilities:

Examples of possible approaches could include, but are not limited to, the following, with each subject to operating within the annual spending caps of ~$8M for ship operations and ~$2M for technical support:

1. A financial and operational change in the management of R/V *Langseth*. NSF would conduct an open solicitation for operation and management of R/V *Langseth* that would provide at a minimum the current technological capabilities of the vessel, and would meet the research needs of the academic community.

2. A change in the ownership of R/V *Langseth*. NSF would conduct an open solicitation for ownership of R/V *Langseth* that would provide NSF with an average of a to-be-determined number of days at sea per year to serve the U.S. academic research community. If NSF, as a Federal agency, no longer owns the vessel, the remaining R/V *Langseth* time would be available to support the business model of the new owner.

3. Use of other vessels for marine seismic data acquisition. If divested from R/V *Langseth*, NSF/OCE would work with academic, international, and/or commercial partners for potential access to third party seismic capabilities, for a to-be-determined average number of days at sea per year, within budget constraints.

4. Use of alternative and/or developing technologies to supplement or supplant existing capabilities. NSF would be interested to learn of other creative approaches to meeting NSF's seismic research needs, such as enhanced large-scale deployments of Ocean Bottom Seismometers (OBSs), alternative sound sources, or other technologies that could either complement use of, or supplant the need for, R/V *Langseth*.

5. Development of alternative vessel scheduling plans including, for example, a multi-year scheduling plan in which large and complex marine seismic programs funded by NSF would be conducted only on a to-be-determined periodic basis. Such a schedule could align well with the community's parallel need for multiyear planning for complex research projects, and could also allow

From the NSF_2015_Seismic_Portable_Workshop_Report:

Recommendations (with input from the MLSOC)

1. Eliminate the “portable system” option. A portable/removable system hosted on the Revelle (the most suitable candidate) would be a significant step backward, to Ewing and pre-Ewing capability, and would be inadequate to meet current and future science needs.

2. Do not adopt an industry-only approach. Relying fully on industry contracting to conduct the current level of academic seismic research would cost more, especially if long transits were needed. Thus, less science could be accomplished for the same research dollars. While contracting industry could work for the occasional project, uncertainties of contracting schedules and market availability would not be a feasible alternative to support an ongoing academic program in marine seismics.

3. Retain the Langseth as the facility for academic marine seismics and geophysics and search for new external support. Under the new regional model for seismic operations, there is opportunity for potentially attracting paid foreign usage for research programs aboard the Langseth. With areas of operation decided a few years in advance, foreign scientists and their funding agencies would have the time needed to secure funding and meet their permitting requirements. This avenue could be pursued under existing NSF ownership of the Langseth.

4. Pursue international facilities agreements, including MOUs, through NSF perhaps making use of the channels of communication already in place for IODP. MLSOC members are willing to reach out to international colleagues, but agency-level discussions will need to occur in tandem.

5. Immediately communicate the OCE plan for near-term marine seismics. There is currently high uncertainty about the future of Langseth, in both the US and foreign research communities, in light of the SeaChange Report and the NSF public response. Many infer that OCE will lay up Langseth soon and this impedes forefront scientific planning. OCE should determine and announce a near-term period for which Langseth will continue to serve the academic marine seismic community (something like 5 yrs), during which time international support and a potential consortia model(s) would be vigorously explored. Certainty of operations is essential for engaging foreign entities in paid usage discussions, reliability of access will be key for attracting/retaining prospective consortia members (regardless of whether/when an ownership transfer occurs), and a reduction in proposal pressure 'backlash', such as occurred in recent past times of high uncertainty for marine seismics, may be avoided.

- **The Need to Continue the Robust Relationship Between**
- **Seismic Imaging and Scientific Ocean Drilling**
- **James A. Austin, Jr., Chair, IODP Forum**
- **Nathan Bangs, Former Chair, *Marcus Langseth* Scientific Oversight Committee**

- **Executive Summary**
- The NAS "Sea Change" report to NSF/OCE has ushered in an ongoing balancing act between PI-driven science and critical supporting technical infrastructure, which includes the dedicated seismic platform *Marcus G. Langseth*, in the U.S. Similar stresses are affecting imaging capabilities in Germany, the UK, Japan and China. As a result, a healthy future for seismic imaging in the world's oceans is at risk; programs like IODP, the latest incarnation of the international collaboration in support of scientific ocean drilling, depend in part on such a global imaging capability. In response to warning coming from within IODP, international groups both inside and outside the drilling program have met to consider paths forward. More fiscal resources are not yet available, but the view of these groups is that more efficient scheduling and coordination of international imaging assets will optimize their functioning, and in the process support the continuation of IODP. A recent development in the U.S., execution of the Terms of Reference for a new international imaging oversight body, the Marine Seismic Research Oversight Committee (MSROC), suggest that such collaboration and coordination are possible, if an MOU mechanism among the known national purveyors of imaging can be developed.

- August 2016
- **Lessons from the Marine Seismic Questionnaire Assessed by the Marcus Langseth Science Oversight Committee:**

- **How a Marine Seismic Oversight Committee could help:**
- o Identify geographic regions where coordinated marine seismic (possibly other) asset use could enable integrated research or unique new, or next-level, insight into Earth or Ocean processes.
- o Recommend geographic regions for near-term (3-5 yr) NSF ship/equipment experiments and explain why this timing would be beneficial.
- o Provide advice on developing interests for future (5-8 yr) region focus.
- o Gather advice on technical needs for OBSIP, Langseth and high-resolution seismic assets and determine whether there is consensus on prioritization amongst currently desired improvements
- o Direct PIs with questions on marine seismic asset use to appropriate contact(s)
- o Develop mechanisms for improved marine seismic training
- o berth provision on research cruises
- o regular (series) webinars on various aspects of data access, processing, interpretation guidance
- o consider different models for access to processing capability (and advise NSF when possible)
- o 2-4 national processing centers with well-equipped facilities where researchers spend some weeks during their project, and where regular training sessions for new users and more advanced users are scheduled throughout the year.
- o Encourage all marine seismic proponents to participate in training activities, webinars, berth opportunities, as (a component of) their Broader Impacts for proposals
- o Identify topics where different subfields could benefit from cross training/info exchange & suggest mechanisms to achieve this, for example:
- o experiment design & planning
- o seismic data processing/analysis and integration of results that use complementary techniques
- o pre-experiment clearances: environmental, margin security, foreign waters, ITAR
- o integrated analysis & model testing using multiple types of constraint
- o interdiscplinary opportunities (e.g. seismics to understand oceanography)
- o Advocate for marine seismic research within the broader geoscience community; ennunciate and clarify how offshore seismology can achieve outcomes not possible with well-established, onshore seismic efforts; occasionally, provide an alternate perspective to well-established IRIS efforts.

- **3. MEMBERSHIP / ORGANIZATION**
- **The MSROC membership shall be composed of up to nine individuals who can represent the spectrum of marine seismic research and fulfill the committee tasks as outlined below. The MSROC Chair will also serve as an ex-officio of the UNOLS Council.**
- At least three members with expertise in long-offset 2-D and/or 3-D MCS studies, ideally one of these members will have significant marine seismic industry involvement.
- Two members with expertise in ocean bottom seismology (ideally, one each for active and passive source methods), one of whom can serve as a liaison to/from the OBSIP advisory committee
- A member who can serve as a liaison to the IODP community through current membership on one of that program's committees
- A representative with expertise in issues related to environmental permitting for marine seismics
- A member with expertise in high-resolution seismic imaging for shallow subsurface structure
- One or more members from the international geophysics community who can serve as a liaison to represent scientists/ agencies on issues pertaining to international projects in marine seismic research
- Ex-officio representatives of the UNOLS RVTEC and RVOC committees may serve on the Committee.
- The Langseth operating institution and the OBSIP management may designate non-voting ex-officio member(s).

- **3. MEMBERSHIP / ORGANIZATION**
- **The MSROC membership shall be composed of up to nine individuals who can represent the spectrum of marine seismic research and fulfill the committee tasks as outlined below. The MSROC Chair will also serve as an ex-officio of the UNOLS Council.**
- At least three members with expertise in long-offset 2-D and/or 3-D MCS studies, ideally one of these members will have significant marine seismic industry involvement. *(Recruit industry ex-officio?)*
- Two members with expertise in ocean bottom seismology (ideally, one each for active and passive source methods), one of whom can serve as a liaison to/from the OBSIP advisory committee
- *Del Bohnenstiehl (currently on the OBSIP oversight committee)*
- A member who can serve as a liaison to the IODP community through current membership on one of that program's committees. *(Sean Gulick)*
- A representative with expertise in issues related to environmental permitting for marine seismics
- A member with expertise in high-resolution seismic imaging for shallow subsurface structure
- One or more members from the international geophysics community who can serve as a liaison to represent scientists/ agencies on issues pertaining to international projects in marine seismic research
- Ex-officio representatives of the UNOLS RVTEC and RVOC committees may serve on the Committee. *(Lee Ellet will be added as ex-officio)*
- The Langseth operating institution and the OBSIP management may designate non-voting ex-officio member(s). *(Sean Higgins and Donna Shillington, maybe OBSIP ex-officio not needed)*

MSROC Membership

- Nathan Bangs*, UT Austin
- Donna Blackman*, SIO (ex-officio)
- Del Bohnenstiehl, NCSU
- Sean Gulick* , UT Austin, IODP representative(ex-officio)
- Patrick Hart, USGS, CA (Chair)
- Sean Higgins, L-DEO, (ex-officio)
- John Hopper, Geological Survey of Denmark and Greenland
- Daniel Lizzaralde*, WHOI (ex-officio)
- Beatrice Magnani*, S. Methodist U., TX
- Emily Roland, UW
- Donna Shillington, L-DEO, (ex-officio)
- Joann Stock, CalTech
- Anne Tréhu, OSU
- Warren Wood*, NRL Stennis

Sep 14, 2017 **Posted In:** MSROC Updates

The NSF Division of Ocean Sciences (OCE) has advised the MSROC that they have received at least one proposal in response to their Marine Seismic Capabilities Solicitation. Although no details on the proposal(s) can be released until the review process is completed, OCE emphasizes that the marine research community will continue to have access to seismic data acquisition capabilities comparable to those provided by the *R/V Langseth*. NSF encourages the submission of new marine seismic research proposals for North and Northeast Pacific for 2019 and 2020. As stated in the August 2016 OCE Dear Colleague Letter, "*NSF is committed to supporting marine seismic research of high national interest. Accordingly, OCE will continue to accept proposals for experiments that require capabilities such as those currently provided by the R/V Langseth.*"

The MSROC strongly supports OCE's commitment to maintaining access to these marine seismic data acquisition capabilities. It is important to note that the upcoming changes to the current *R/V Langseth* operational model will not impact OCE support of high-resolution seismic acquisition experiments conducted using vessels other than the *Langseth.* Members of the marine research community with concerns or comments regarding the future of marine seismic capabilities should email MSROC at **msroc@unols.org**.

- Jason Chaytor et al USGS Woods Hole
- EP21B-1837: New High-Resolution Multibeam Mapping and Seismic Reflection Imaging of Mudflows on the Mississippi River Delta Front
- **Tuesday, 12 December 2017**
- **08:00 - 12:20**
- *New Orleans Ernest N. Morial Convention Center - Poster Hall D-F*

- Mudflows (channelized and unconfined debris flows) on the Mississippi River Delta Front (MRDF) are a recognized hazard to oil and gas infrastructure in the shallow Gulf of Mexico. Preconditioning of the seafloor for failure results from high sedimentation rates coupled with slope over-steepening, under-consolidation, and abundant biogenic gas production. Cyclical loading of the seafloor by waves from passing major storms appears to be a primary trigger, but the role of smaller (more frequent) storms and background oceanographic processes are largely unconstrained. A pilot high-resolution seafloor mapping and seismic imaging study was carried out across portions of the MRDF aboard the *R/V Point Sur* from May 19-26, 2017, as part of a multi-agency/university effort to characterize mudflow hazards in the area. The primary objective of the cruise was to assess the suitability of seafloor mapping and shallow sub-surface imaging tools in the challenging environmental conditions found across delta fronts (e.g., variably-distributed water column stratification and wide-spread biogenic gas in the shallow sub-surface). More than 600 km of multibeam bathymetry/backscatter/water column data, 425 km of towed chirp data, and > 500 km of multi-channel seismic data (boomer/mini-sparker sources, 32-channel streamer) were collected. Varied mudflow (gully, lobe), pro-delta morphologies, and structural features, some of which have been surveyed more than once, were imaged in selected survey areas from Pass a Loutre to Southwest Pass. The present location of the *SS Virginia,* which has been moving with one of the mudflow lobes since it was sunk in 1942*,* was determined and found to be ~ 60 m SW of its 2006 position, suggesting movement not linked to hurricane-induced wave triggering of mudflows. Preliminary versions these data were used to identify sediment sampling sites visited on a cruise in early June 2017 led by scientists from LSU and other university/agency partners.

Letters of Interest from 2016 MLSOC

1 Adrien Arnulf Juan de Fuca Ridge, 45°45'N, 130°W
2 Anne Bécel Wharton Basin
3 Tanya Blacic Bowers Ridge-Western Aleutians, 50.8°-55.2° N, 172.8°E-177.7°W
4 J. Pablo Canales Southwest Indian Ridge, 32°40'S, 57°15'E
5 J. Pablo Canales Offshore S. Oregon and N. California; 40°00'N--44°50'N and 125°15'W
6 Suzanne Carbotte Cascadia Subduction Zone
7 Gail Christeson Indian Ocean; btwn Austr. and Antarc. (42°S - 48° S, 120° W -130° W)
8 Robert A. Dunn Havre Backarc area, 33°50'S, 179°30'E
9 Shuoshuo Han Ryukyu Subduction Zone
10 Shuoshuo Han Cascadia Subduction Zone offshore south Oregon (43°N-44.5°N)
11 Shuoshuo Han Cascadia Subduction Zone near 44.5°N
12 Shuoshuo Han Sumatra Subduction Zone 0°-4°N
13 Nick Hayman Sao Paulo Plateau (27°S -28.5°S & 39°W-41°W)
14 Kirk McIntosh South China Sea 17.8 - 19.2N, 115.4 - 116.8 W
15 Dan Lizarralde Aleutian Arc; 48 - 54 N; 182 - 188 W
16 James S. McClain Gulf of California 22oN to 24oN, 107oW30' to 109oW30'.
17 Michael Steckler Indian Ocean off Bangl. and Myan.. 17°-21° N; 90.5°-94.5° E
18 Katsuyoshi Michibayashi Bonin Trench; 27.5N - 29N; 141 W - 145 W
19 Ingo Pecher Hikurangi Margin; 39 - 38.5 S; 178 - 178.75 W
20 Emily Roland Gulf of Alaska; 59 - 61 N, -146 to -152 W
21 Emily Roland Gofar Fault, Approximately 4.5° S 106° W on EPR
22 Donna Shillington Solomon Islands subduction zone
23 Donna Shillington Pacific ocean crustal structure and properties
24 Lindsay Worthington Central Alaska-Aleutian trench