

# Marine Seismic Research Operations Committee Meeting

07 Jan 2021

1100-1500 Eastern / 0800-1200 Pacific

Alice Doyle	Anne Becel	Bridget Harrell-Donze	Bob Houtman
Candace Major	Daniel Lizarralde	David Goldberg	Deborah Smith
Dennis Hansell	Doug Russell	Helen Janiszewski	Holly Smith
J. Pablo Canales	James Allan	Jesus Gaytan	Jian Lin
Jim Gaherty	Jim Holik	Joann Stock	John Collins
John Orcutt	Kasey Aderhold	Lee Ellett	Lindsay Lowe Worthington
Nathan Bangs	Robert Steinhaus	Rose Dufour	Sean Gulick
Sean Higgins	Suzanne Carbotte		

Participants: 30

## Welcome / Call to Meeting:

**John Orcutt - MSROC Chair** - call the meeting to order, outline focus areas for the day, and provide an opportunity for introductions.

## Reports:

### Doug Russell - UNOLS

- Operate Virtually
  - Successful virtual RVTEC Meeting
- RVOC monthly instead of big meeting
  - Continuous flow of information
- COVID-140 cruises since shutdown in March
  - NSF paying for COVID related costs
  - Only one case on a ship
    - Post cruise test, small ship, short cruise, no one else tested positive – shows benefit of doing the protocols
  - Continue with very strict protocols because they are working
    - 14 days isolation
    - Multiple PCR tests
  - Adaptation for shorter cruises
  - Close discussion with GW medical. Keep the protocol.
  - Don't know when we ease off

- Crewmembers in second wave of vaccines, as they are essential workers – science party and students are not. Don't know when they will be vaccinated.
- Reduced schedules a bit, because of burden to continue with the protocols
- NSF is doing miracles to make this happen.
- Cyber infrastructure / cyber security – going to elevate to a subcommittee

#### **MSROC – John Orcutt**

- OBSIC ops committee meeting – Jim Gaherty will update us

### **Updates:**

#### **NSF – Candace Major**

- COVID – comes at a cost. There is an impact to the programs. The costs will at least be born in part by NSF. Projects that are currently funded keep going. Everyone is doing the best they can. The end in not in sight yet.
- Everyone at NSF would like to see some resolution of the regional plan come out of this meeting. We need to get that moving. That will impact when people can submit proposals to use Langseth. Regional plan will guide these proposals.
- Budgets – Seem to be pretty flat for this year. We will likely have budget impacts due to COVID for a long time. Will affect the capability to support new science.

#### **NSF - Bob Houtman**

- Phase 2 restriction mode. No in person meetings, very little in person work. All panels are virtual. Only essential travel is authorized. Those restrictions are in place until the end of June. Unclear yet about vaccine availability.
- NSF feels we are being successful in completing our missions.
- Busy weeks upcoming as we have transition to new administration. A number of legislations have been signed that are ocean related.
  - NOMAC – National ocean mapping
  - NOP – National ocean partnership reauthorization
  - UN Decade of Ocean Science
- FY 21 omnibus appropriation bill – small increase from FY 2020 appropriation. NSF has to develop a current plan. The director takes the money and develops a budget for each of the directorates and each of the divisions.  
Ocean Science Division. Office of budget for approval and then congress for approval. So, it will be quite some time before we know how much money we will have. The good news is that we have an appropriation, and we are not in a CR.
- Looking forward to exciting UNOLS year.

**NSF - Rose Dufour** – Doug can you share what we are thinking in terms of vaccinations.

**Doug Russell** – Discussing with Jon Gutoff about whether or not we can require vaccinations for crew and science parties. Jon believes we can because it affects sea worthiness of ships. Necessary to keep ships safe.

Lots of University HR depts will argue that. We are hoping it will get us back to sea sooner. Don't be surprised by that when it comes down the road.

### **R/V Marcus Langseth – Sean Higgins**

Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>

- Thanks to Rose, Doug and Alice for all they have done to keep us operating.
- Meetings with other MarSups have been very helpful.
- OSU has been incredibly helpful.
- Crew and office staff.
- Completion of Vessel Transfer Documentation – NSF, USCG, ABS
- OMO Announcements and Plans
- 2020 Oceanographic Instrumentation Proposal
- DP System Upgrade with Kongsberg
- **Effer** Crane – OBS Deck - Replacement

### **OBSIC–John Collins**

Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>

- COVID Impact
- OBS lab has remained open, now close to 100% capacity
- TechPool Training program has been put on hold
- People are willing to go to sea.
  - Happy with the transparency with the ship ops.
  - WHOI has to approve Travel Review Board.
- OBSIC Operations Sub-Committee (OBSIC-OS)

### **Portable MCS – Lee Ellett**

- No projects in 2020, single planned project was deferred. Do not see a clear path to carry it out in 2021
- Submitting proposal for portable MCS compressors. Will continue to update on that as I am able.

*Candace Major – Status of the **XXXX***

*Lee Ellett – Not installed SBP29 on the R/V Sally Ride. Charles Holland out of Portland State University. ONR funded. He is the initial user. SBP29 is the transmitter EM249 is the receiver. Raw data logger. After it is installed and used by Charles Holland it will be available to any user. Broader range than what most of the fleet has now. Sea Acceptance testing.*

*Candace Major – It would be great if this group could think of ways to advertise this opportunity to the community so people know it is available.*

*Sean Gulick – SegY recording format?*

*Lee Ellett – Yes, it will have the SegY recording format. And the Kongsberg engineer from Norway is planning on sailing on the sea trials. If COVID allows him to. In December we did a full analysis of the TS and the RX array and it is in good health.*

## **Projects – Completed, Scheduled & Funded:**

**Andreanof Experiment – Dan Lizarralde**

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

*Sean Higgins – I want to thank Dan and Donna for everything they did with their group. It is stressful for everyone.*

*Dan – We learned a lot and I just want to make sure people don't have to relearn what we learned.*

**QCF 2020-2021 – Lindsay Worthington**

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

- Queen Charlotte Fault Imaging
- 4 PIs, 4 international partners

**Cascadia Subduction – Suzanne Carbotte**

illuminating the Cascadia Plate Boundary Zone and Accretionary Wedge with a Regional-Scale Ultra-Long Offset Multi-Channel Seismic Study

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

**Cascadia Forearc – Pablo Canales**

Wedge from Multi-Scale Regional OBS and Focused Large-N Nodal Arrays

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

**Guererro Gap 2022 – Anne Becel**

Quantifying incoming plate hydration and role of fluids on megathrust properties in and around the Guerrero Gap, Offshore Mexico

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

**Puerto Rico Seismic 2022 – Jian Lin**

Seismic investigation of the Puerto Rico subduction zone: structure, seismic hazard, and hydration of slow-spreading lithosphere

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

*Sean Higgins – Interest on USGS to do some added on work to this cruise*

*Jian Lin – This is something we need to discuss with the PIs. We would need to add on a few days which would require additional resources, or we would have to cut our work short.*

*Pablo Canales – I think the plan is to request USGS funds to add on a few days.*

*Jian Lin – We need to discuss more. From the schedule point of view if we can get the resources to add days, would that be viable via the schedule?*

*Sean Higgins – Since the schedule isn't completed, I would say yes, it is viable. I know they are looking into USGS resources. We want to schedule some time with you all in the near future to discuss.*

*Jian Lin – Yes, we need to get together with you to discuss permitting as well.*

*Sean Higgins – When you look through the info, the demand is going to increase. When we get into the discussion with OBSIC it something that has to be taken into account.*

## **Break**

### **Workshop Update – Emily Roland & Kasey Aderhold**

Marine Seismology Symposium

- Going to purchase a commercial platform to host the symposium
- Agenda will be 6 main science session, each 2-4 hours long and held over two weeks
- If you have requests for additional events please let us know
- Registration will open soon

*Doug Russell – How can we help you pull this off?*

*Kasey Aderhold – RVTEC, learned a lot from that. We defi want a discussion forum. Content will be available for full year. I will let you know if we need any assistance.*

*Doug Russell – We are glad to help even with advertising.*

*John Collins – That might increase the size of the audience*

*Alice Doyle – What platform are you using?*

*Kasey Aderhold – probably Pathable but haven't 100% decided. Looks like a website and meeting run through zoom. I will be happy to send you more information*

*Sean Higgins – Kasey has born the lion share of the effort of this, so let's give her a shout out*

*Emily Roland – I would like to echo that.*

## **Issues / Discussion**

### **Regional Plan for R/V Langseth Operations 2022-2024**

## NSF Plans – Candace Major

- The ship has been operating in the Pacific for five and a half years. It has been quite a while since the ship has been in the Atlantic. There are only two or three years available before the ship retires. We had become aware of several interested parties in working in the Atlantic.
- There has been some talk of Langseth to align with the IODP cruises. Interest in having those in the Atlantic.
- We have been hoping we would get more feedback from the group on the draft regional plan. Difficult year. But with 18-month guidelines to request a global ship the time to get the regional plan is now. Now is 18 months from unfunded cruises to get to sea.
- We need from you:
  - Feedback on the draft.
  - The committee should take part in announcing the new plan.
  - Maybe two years is too long. Maybe the ship should move from the Atlantic. Maybe the ship should move in mid 2023.

*John Orcutt – is it prohibitive to move back and forth between oceans through the canal?*

*Bob Houtman – I see no limitations there. The question is, where is the work? The purpose of the plan is to maximize science and limit transits.*

*John Orcutt – people need to start making proposals*

*Sean Higgins – I sent an email outlining the interest in operating in the Atlantic. We have been talking with industry. Some of this might have already happened if it weren't for COVID. We have been in active discussion for the last few years based on what we thought the regional plan would be. We have been developing opportunities based on the projected regional plan. Anything is open for discussion, but I want to bring back the proposals we have been discussing.*

*Doug Russell – I think the question is are we ok with the language that NSF proposed for the regional plan? Candace needs to broadcast this asap to start getting proposals. Doug puts up draft plan for group to read and discuss.*

*John Orcutt – It is a good broad statement; how do we go from this to what good proposals? Committee is aware. Doug why don't we talk some more after the meeting?*

*Daniel Lizarralde – I think the plan looks good. I think people will be able to submit proposals. When Sean is able to discuss more. If you announcement it people will come.*

*Candace Major – if the committee would like to discuss further that is fine. But I need a short deadline, so that this can be advertised. We need a final version by the end of next week. Does that sound reasonable?*

*John Orcutt – Yes, Doug and I will work on that. And any other people interested.*

*Candace Final draft for dissemination by end of next week.*

*Doug Russell – No problem.*

*Candace Major – if there are any substantial changes please let me know asap.*

*Sean Higgins – Can we hear from Jamie about IODP?*

*Jamie Allen – Because we lost quite a lot of time for ops, I think the ship will stay in the Atlantic. The ship might be going into the eastern pacific in 2024. We still don't have permission to drill in Brazil. Presidential decree that does not allow non-Brazilian science to drill in their waters. There was an exception made and so there was the thought that there wouldn't be a problem getting another exception, but there is a problem. The Brazilian Navy is blocking. And Brazil has not been a member of IODP for a year. We haven't had an official correspondence in about a year.*

*John Orcutt – Thanks for the input.*

*Sean Higgins – I echo Candace, we need to get this out there. Helps me focus my efforts as well.*

*Doug Russell – If anyone has any feedback get it to me or John Orcutt in the next couple of days.*

*Candace Major – Thanks we will be in touch.*

*Sean Higgins - Additional possible projects beyond those funded.*

## **OBSIC Investments & Modernization**

**Challenges with maintaining current inventory – John Collins**

**Slide Presentation available at <https://www.unols.org/event/meeting/msroc-annual-meeting>**

- OBS fleet needs to be recapitalized.
- We have learned a lot in the past 20 years. Better technology is now available.

*Candace Major - Short period instruments for rapid response. USGS has been interest in a collaboration.*

*John Collins – Prototype of a seismic node funded by USGS built by WHOI. Funded to build another five, but we aren't ready to proceed yet. Looking for rapid response, able to ship by airplane. USGS is pushing ahead with this.*

*Sean Higgins – How many are they looking to build for the pool?*

*John Collins – USGS has funded 5. I think USGS would like to have 20-30 of these, but this is just a prototype. For the OBSIC community I think we need 100 of these.*

*Pablo Canales - Depth rate?*

*John Collins – 6000 meters*

*Sean Higgins – What are you looking at budget wise to do this?*

*John Collins – 50K per OBS, topside support infrastructure. Data flow off of the instrument. Enhanced internet. Many thing to take into consideration. It is time to change how we do business.*

*Sean Higgins – I agree.*

*John Collins – We have to lower the cost of operating the whole fleet. That is going to take upfront money. If you buy something in titanium vs aluminum it is much more expensive upfront, but last much longer. It is worth the extra expense.*

*Sean Higgins – Candace, Bob is there mechanisms to recapitalize that we could take advantage of?*

*Jamie Allen – I read about a study done by Shell ten years ago, really impressed. They mass produced them. They had to make compromises, but they had a design that was easily deployable. I think there might be some insights gained from this. From mass producing this. From the decisions made. I was impressed by the importance of manufacturing the number of instruments.*

*John Collins – If we could buy sea floor nodes from a commercial company that would be the way to go. Three problems:*

- *Depth – 3000 m*
- *We need an acoustic release*

*Jamie – That was not my point. There might be insights gained from people associated with the project.*

*John Collins - I totally agree. We are trying to work with commercial companies to tap into the expertise out there.*

*Sean Higgins – They aren't designing for what we need. Billions of dollars being used to build node technology. Industry has leverage.*

*Jamie Allan - I was involved with some of the funding in 2000 to build the OBS we have. If you can standardize the design, it will be cheaper.*

*Candace Major – I think the complexity here is we are dealing with a multi-dimensional problem. There is a lot of legacy instruments we are dealing with and there are different applications which require different types of instruments. We have been pushing standardization for many years now but there are different uses. One of the things I have been hoping to see from the OBSIC subcommittee is what are the priorities? Where do we start if we can't recapitalize the whole fleet?*

*Jim Gaherty – I thought to bring everyone up to speed. We had a virtual meeting this summer. We support in an operational role, but ops are limited by the current fleet. We are scientifically limited by the current fleet. We tried to prioritize things that allows the different resources to come in. The limitation of the in-house instrumentation is a problem. We decided to put a white paper forward to lay out the community support to improve upon the existing fleet. We split it into a broad band effort and a short-term effort. We put out something that John at WHOI could use to put forth proposals.*

*Bob Houtman – OCE does not have a line items to refresh technology. But the opportunities that have not been there before are the MSRI-1 and MSRI-2 proposals. Read them carefully and see if you can fit into those proposals.*

*John Collins – Our proposal went in this morning*

*John Orcutt – We will continue to work on this issue. It needs to be done relatively quickly.*

*Candace Major – The funding would likely lie with OCE. Scalable plans are really helpful to approach this in bite sized chunks.*

## **NSF Plans for Investment**

### **LDEO Current Plans – Sean Higgins**

#### **Beyond 2024 & Langseth’s Retirement**

The goal with the purchase of the Langseth is to increase usage and provide a bridge to a new global vessel. It is part of a much larger plan here at Lamont. We continue to execute the plan. There are multiple strategies of going forward. We will continue to stay engaged. The hard work is still to be done. The future is variable, but there is a strong interest in seeing this go forward. The things we are doing now have a life beyond the Langseth. There are high expectations with even what equipment we have now.

*Doug Russell – Is there any thoughts of operating beyond 2024?*

*Sean Higgins – I think there are some real limitations. Maybe a little bit beyond 2024 but not too far. It is going to be harder and harder to get parts. By 2025 you would be at the end of the life of the control systems. Some systems on the ship have compliance issues that we have been able to get around but going into the future you would have to upgrade more systems. I think you get to a point where the investment would be significant and I don’t know if it would make sense.*

*Candace Major – New investments that NSF is making in the ship, will all of those be portable?*

*Sean Higgins – Yes, all of those are portable to a new ship.*

*Doug Russell – We should have the update global SMR available soon.*

*Sean Higgins – We have been following that. We do want to engage with the community on the best path to move forward.*

*Candace Major – Is that the committee that Suzanne Carbotte was a part of? A subcommittee of the FIC? So the seismic community is a part of that committee?*

*Sean Higgins – There are a lot of interrelationships in all of these discussions.*

*Bob Houtman – From NSF perspective we are looking forward to hearing where Sean and Lamont will be going over the next year. We are really glad that Columbia was willing to purchase the vessel and take on the ownership and the operations. We are looking forward to continuing the dialogue and seeing what the options are in the future.*

*Sean Higgins – We are so happy to be rebuilding our team after winding down the past few years. I am excited to have the opportunity. It is an exciting opportunity looking to the future. There is really no point in doing it without a future beyond 2024.*

*Dan Lizarralde – I was on the 5<sup>th</sup> Langseth cruise. Team has gotten better and better. Last cruise was exceptional.*

*Sean Higgins – Really a great group and we were lucky to be able to replace some key players.*

*Jesus Gaytan – Have been really impressed and looking forward to meeting them all in person.*

*Sean Higgins – Hoping people take advantage of Jesus, if you have questions please ask him.*

*Jesus Gaytan – I am based in Houston right now, so if any of the OBSIC teams would like to reach out to the Houston based node teams I can facilitate that. I know all of the team players.*

### **Review Action Items / Wrap Up Meeting:**

Regional plan!!

Send presentations to me so we can post on website.

Committee review paper on OBSIC sub committee

OBSIC-OS membership