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AICC Meeting/ Seattle, WA
Nov 13 and 14, 2014

Executive Summary-
The Arctic Icebreaker Coordinating Committee, (AICC) met at the U.S Coast Guard Base in Seattle, Washington on November 13 and 14, 2014. This meeting was well attended by the AICC committee, members of the Coast Guard, including crew of the Healy, federal agency representatives, the UNOLS office and the STARC team from Scripps and Oregon State University.

Minutes-
General Business & Reports
Lee Cooper/UMCES and Chair of the AICC opened the meeting with a welcome and introductions.
The minutes from the AICC meeting held in January 2014 in Arlington were approved.
Lee Cooper provided an overview of the meeting agenda with a list of issues to be discussed.

There were (3) *Healy* cruises in 2014, including the U.S. Coast Guard RDC technology development cruise. A debrief of the cruises was held that afternoon with Robert Pickart/WHOI on a WebEx call.

The reconfiguration of the *Healy's* main lab was discussed and the AICC presented some additional suggestions for improvements that could be made. There are some choke points in the man lab which hinder traffic flow. Some benches could be shorter and the AICC committee was provided a tour of the *Healy* to view this first hand.

Other issues-

On *Healy* 14-01 there were some issues around the timing of the cruise as the hunt for bowhead whales was taking place as well. Improvement in the communication between the science party and the Native communities would help to improve this. A member of the Alaska Eskimo Whaling Commission (AEWC) was invited again this year, but was unable to attend. NSF supports having someone the AEWC attend our meetings and we will revisit this issue and look for alternative travel support for a member of AEWC to attend the next meeting.

Renee Crain suggested that some of the misunderstandings may have been caused by figures in the science plan that were from other years and different expeditions. This caused some concern and confusion. PI's should be cautioned to only include figures for the specific cruises at hand.

There was some discussion on the various foreign vessels working in the Arctic. The Chinese vessel *Xuelong* has been working in the North American Arctic as well as the Republic of Korea's R/V *Araon*. In particular, the Korean work has involved US and other international scientists and there has been good cooperation between Korea and the Office of Naval Research (ONR).

UNOLS Report-

Jon Alberts provided a brief report on UNOLS activities. Some highlights of recent changes to the UNOLS fleet with the R/V *Knorr*, R/V *Melville* and the R/V *Point Sur* retirement and the two new Ocean Class ships coming online. A report on the new federal fleet web portal, the UNOLS schedule of activities and upcoming meetings was also shared.

Agency Reports-

NSF Report

Renee Crain/NSF Polar provided the report. NSF is supporting about 150 projects in the Arctic with a third in Greenland, a third in Alaska, and the remainder in other Arctic regions.

The Arctic Research Mapping Application is a useful tool that illustrates where the research is being conducted and an overview of the work. This can be viewed at: http://www.armap.org/

Renee reported there may be a few less projects in 2015 as the budget was cut by 4 million dollars, an approximately 10 % cut. They are reprioritizing now and will know more in a few weeks.

There will be one major cruise, (about 60 days) on the *Healy* in 2015 which will be in support of the GEOTRACES program.

The USCGC *Polar Star* will do the McMurdo "Deep Freeze" break in cruise in 2014/2015.

NSF Polar will support a cruise aboard the R/V *Sikuliaq* in 2015 for Jennifer MacKinnon/SIO and there are several requests for 2016 that are pending funding decisions.

The discussion between NSF and Sweden concerning the use of the *Oden* continues. The use of the *Oden* in the eastern Arctic is still being considered and a workshop in Sweden this winter is planned. NSF hasn't made a final decision on whether this will happen.

Renee explained that NSF is using foreign ships due to the fact that demand exceeds supply for projects in August and September when sea ice is at its minimum.

Renee Crain is now the US delegate to the Forum of Arctic Research Operators (FARO). This group seeks to coordinate efforts on internationally-based Arctic research initiatives. This is an area where expanded opportunities may become available for better international coordination. Information available at: http://faro-arctic.org/

NSF has instituted a policy for National Environmental Policy Act compliance. It is NSF's responsibility to assess what individual project impacts will be with reference to this legal requirement. There is a form that PI's need to submit, plus a section that the NSF contractor, CH2MHill completes. The NSF program manager is responsible for this, but NSF realizes that program managers don't have the capability to assess this and NSF has contracted this out.

NSF is actively considering how to increase access to the Arctic over the next twenty years. There was a workshop and a report produced on how to propose to other programs, such as use of the *Oden*. Larry Mayer/UNH was a participant. Flexible use of the assets would be an improvement. The Arctic Observing Network is seen as a mechanism for coordination among researchers.

NSF held a workshop at NSF on February 4-5 2014, focusing on risk management called the Arctic Risk Management Workshop (http://rslriskworkshop.com/)

The workshop was well attended with a diverse mix of experience present. Some results of the workshop include:

- Increase in mentoring opportunities for new researchers. NSF wants to encourage new scientists to work in the Arctic.

- Increase communication with individual university risk management office at your university.
- Encourage posting of anonymous reports on lessons learned, near=misses or accidents that will help improve safety awareness and manage risk.

In the area of medical reviews, NSF Arctic is now using the Antarctic Physical Qualification (PQ) contractor to review medical records. There are changes coming to the policy on who needs to be physically qualified, (PQ'd), which will depend on the length of deployment and remote nature of the project. The US Coast Guard process for PQ is not changing as far as NSF Is concerned. This remains a largely self-reporting process that is more decentralized than that used in Antarctica.

Renee reminded us that the principal investigators and science teams are ultimately responsible for their own personal safety, with NSF assuming no responsibility for decisions made by grantees during research projects.

United States Coast Guard Report

Doug Wyatt/USCG provided the Coast Guard report. In 2015 the C-130 bi-monthly flights will continue from March through December supporting science of opportunity. The Arctic Shield program will continue with education, outreach, and health services, (medical, dental, veterinarian services) and safety training programs for the local Arctic communities.

The Coast Guard Research and Development group will continue to assess unmanned aerial systems and vehicles (UAS, UAV) for oil response technological advances.

In regards to foreign vessels working in the Arctic within US waters, the Coast Guard has not been informed of any plans for 2015 as of now. It was noted that foreign clearance requests are often submitted close to the time that the research is undertaken.

For the *Healy* schedules in 2015 the following programs are on the schedule:

From May 18-22, 2015 the Acert/NAVAIR inspection for flight readiness will be conducted.

The CG R& D equipment testing cruise will be July 6-30, 2015, followed by NSF's GEOTRACES cruise from August 7 to October 8, 2015. A dry-docking is planned from December 9, 2015 to April 2016.

Polar Star is scheduled for Deep Freeze in 2015 from November 30, 2015 to April 2, 2016.

Polar Sea is still moored at the Seattle CG Base, pending final disposition. Reactivation is a possibility and is under discussion as it is still considered a national asset. The White House Office of Science and Technology Policy (OSTP) have contracted with a group to look at all the studies that have been done and the Coast Guard is waiting for a final recommendation. Congressional groups are continually visiting the *Polar Sea.*

The Coast Guard is still working on a replacement icebreaker. The mission needs statement was signed by the Department of Homeland Security in June 2013 and an operational requirements document is currently be prepared.

The flight operations procedures for UAV and UAS from CG cutters continue to be developed. An unmanned aerial vehicle meeting was recently held and the R & D development center is doing another cruise this year using a PUMA (umanned aerial system). Regulations for flight operations are being worked out.

The TALON grid is usable now, but until the results of a recent dynamic interface test is released that increases the pitch and roll parameters we're limited to current max sea states for flight ops.

National Ice Center-

Tom Holden of the National Ice Center (NIC) provided an update on recent activity. The NIC is a tri-agency with members from Navy, NOAA, and the USCG. Tom gave an overview of NIC and reminded us that if any PI's are getting US funding, on any ship, NIC can supply ice images. Requests for ice images should be made as far in advance as possible. There are still budget uncertainties, but AICC should still ask for an ice analyst if one is needed for research cruises.

Bureau of Ocean Energy Management

Heather Crowley/BOEM reported on activities within the Anchorage office. She covered a list of ongoing studies that involve Arctic field work of which some are near shore. Concerning any requests for *Healy* or *Sikuliaq*, not many of these BOEM programs will need a ship. The MARES program (a new program in the Beaufort Sea) may need ship time for June /July 2016 and a request for *Healy* may be forthcoming.

The BOEM Budget funds approximately ~ 60 million in projects (annually?).

The Alaska 2015 Studies Plan- has just been released. Studies planned for 2015 and 2016 for mission relevant research. http://www.boem.gov/akstudies

UMIAQ/CPS/ CH2MHILL Report

Karl Newyear and Anna Schemper provided the report on Barrow activities and science support in 2014 and the outlook for 2015. Karl provided an organizational overview and explained how various entities work together. In 2014 there were no stops in Barrow by *Healy,* however they assisted the *Healy* by hiring a community observer for the Arrigo and the Pickart cruises on *Healy*. These community observers are local hires placed aboard to avoid any conflicts for local groups and ships working in the area. Bilingual skills are important as they provide an educational component from ship to shore and shore to ship. The observer on the Pickart cruise was outstanding and a testimony to how important this position is to the overall program.

Karl Newyear shared some news from the AEWC and BWCA with slides of the whaling season maps and where the concerned villages are located. UMIAQ also provided some R/V *ODEN* support with personnel exchanges and US Customs clearance in Barrow. UMIAQ also arranged for a landing craft, based out of Prudhoe. This vessel is 42 feet in length, can carry 20 passengers and has a day rate of $ 6200 per pay, plus fuel. There is also a new ship out of Anchorage, the *Unalaq*. This is a 150 ft. barge landing craft which may be available for science.

Anna Schemper shared details and plans for supporting the Kadko (GEOTRACES) cruise in 2015. See slides in the Appendices. She also presented a look back at 2014 logistics in Barrow. This included a chart of the pros and cons of doing personnel transfers from a helicopter versus a vessel. While small boats alongside the *Healy* or a fuel support are not an issue, they are difficult to schedule. Changing weather conditions bring different risks to both helicopters and small boat personnel transfers.

SWERUS- C3- legs 1 & 2.

Larry Mayer/UNH provided a brief recap of the Swerus cruise on board the R/V *Oden*. This was a two leg deployment originating out of Tromso, Norway. This was a multi-disciplinary cruise with lots of CTD's and mapping. They did have diplomatic clearance to work in Russian waters and Russia will have oversight of data releases. The *Oden* is a comfortable ship with some very nice features including a science work and gathering location on the bridge.

R/V Sikuliaq Update

Steve Hartz/UAK presented an update to the AICC on the progress of the R/V *Sikuliaq* which was delivered to the Univ. of Alaska in June of 2014. Steve shared video footage of the ship. This ship is classed as polar code 5, which is first year ice, up to 3 feet of ice. Steve gave a timeline of the delivery as well as the review on the specifications on the ship. See slides in the appendices for additional information.

Arctic GEOTRACES Program and Cruise

Dave Kadko/FIU presented via WebEx an overview and Power Point presentation on the GEOTRACES program and plans for 2015. This is a multinational program that has and will continue to produce an unprecedented dataset. Many people have worked on preparations and the Arctic management portion was funded in 2014. For the Arctic portion, the CLIVAR program is going to piggyback on this cruise which will add 5 days. Ship will be full with all science berths assigned. The cruise track has been set but they are working through some issues now on lab space allocation. They would like to mobilize in Seattle. The plan is to conduct both over-the-side operations concurrently with sea ice sampling. Outreach will be a large component of this cruise as well. Additional aspects of this program will include:

- RUSALCA cruise opportunity will facilitate participation of Chris Measures who will facilitate appropriate sampling across the Bering Strait.
- PI Meeting is planned for Jan 12-14, 2015 in Miami. The objectives are to discuss safety, ship and sea ice ops and to fine tune cruise track.
- Some systems, i.e. the GEOTRACES Clean Sampling system has not been on the *Healy* before.
- Modified McLane Pumps, Aerosol Samplers and rainfall samplers will be used. Four lab vans will be paced on the ship.
- There will be three icebreakers working on GEOTRACES objectives, including the *Polarstern*
- The STARC staffing schedule is not set yet.
- Van locations need to be decided. Need to put one up on the *Healy's* "front porch".

Office of Naval Research – Arctic Operations

Martin Jeffries/ONR and Arctic Science Advisor & Program Officer Arctic & Global Prediction Program Office of Naval Research provided his report via WebEx.

He covered the ONR Marginal Ice Zone Project which ran from March to October 2014 and was successful. The focus is to better understand the atmospheric-sea-ice-ocean margin. Many science objectives were carried out using robotic technology. There was also Korean collaboration which enabled the ONR funded researchers to have ship access. Wave Buoys were deployed by helicopter.

The Sea State and Boundary Layer Physics of the Emerging Arctic Ocean program is being planned for late Sept- Nov 2015 and will be using the R/V *Sikuliaq* to study waves and swell. This is of interest to the Navy from an operational perspective to better understand wave-ice physics.

Operations, Scheduling and Planning for 2014-2015 and beyond

Dave Forcucci/USCG reported that the *Healy* underwater noise profile study was completed in September 2014. Tim Gates/MANTECH performed the survey to quantify ship noise and how it affects sonar. A second test is evaluating hull noise into the environment. Slides shown are unclassified.

Technology Cruise- Dave Forcucci has some slides on this program and cruise. Contact Dave for these.

NOAA Marine Mammal Formal Consultation-The Navy is involved in a report that potentially involves needs for the Coast Guard to be more proactive in understanding the impacts in working in the Arctic. A study of the impacts on icebreaking, helicopter operations, and other activities are planned.

Friday- 14 November 2014

We reconvened at 0800 for day two of the AICC meeting.

STARC Report

Woody Sutherland/SIO provided a review of the support, science modifications, infrastructure and upgrades that the STARC team has accomplished since our last meeting.

Recently Scott Hiller retired from Scripps and has left the STARC group. Woody has taken over as lead for the STARC group. They finished the first (3) year grant in 2013 and were awarded a second (5) year grant which will cover the period of calendar years 2014 to 2018.

The annual maintenance and equipment update was reviewed with a list of gear that has been worked on and calibrated. This included the POS MV which was replaced with NSF funding, the Univ. of Hawaii mosaic software for multibeam was installed, and a Geo-Cam was installed in the aloft conning station.

The STARC team participated in the NSF Risk Management Workshop held in February of 2014, the Arctic Encounter Symposium, and the Healy workshop in February 2014 focusing on the midlife refit plans for the ship.

Ongoing and completed projects include renovations to the computer lab and the main lab, new wiring for SeaPath 330, installation of underwater sensors, a new LCi90, and new computers for the echo-sounder and mapserver.

The STARC tech complement for each cruise is discussed with Renee Crain/NSF and normally consists of (3) STARC techs, with two coming from Scripps and one from Oregon State University. Staffing plans for 2015 are being developed.

Future Projects and Planning for 2015-

Planning for the van relocation on the bow of the *Healy* continues. The Mapserver replacement effort also continues. As a reminder for the AICC members, the STARC tried Google Earth but this system did not perform well. They are now looking at a system called IFREMER Globe Program that was developed at the French oceanographic institution. They hope to get a server established on shore so that the AICC

members can work with it. They will keep Mapserver running in parallel and there are tools in both programs to be able to get access to old Mapserver data.

Lee Cooper asked if there was a timeline for this to which STARC replied that we have both running now and hopes to pick one by spring of 2015 and get it on for next season. AICC members expressed the importance of Mapserver or an equivalent to provide service to science on *Healy.*

The Icefloe web site is still being maintained by Scripps and any changes should be sent to the STARC group. The link is still: http://icefloe.net/

RUSALCA Update

Kevin Wood/NOAA provided the report and slides on the Russian-USA Long Term Census of the Arctic, (RUSALCA) program. New moorings were deployed in the western Bering Strait in July 2014. One mooring was deployed on the Russian side of strait. The mooring gear was transferred to Russia in ownership to avoid customs issues. Rebecca Woodgate/UW moorings are still on the US side. The data collected in Russian waters must first be cleared by the Russian Navy and then it is approved for release by NOAA. Future plans for RUSALCA include expansion northward with increased international collaboration.

Habitability on the *Healy*

William Woityra/USCG opened up a discussion on the berthing on board the *Healy*. The Coast Guard is looking at different options for those staterooms on second deck that have a 3rd berth which is in the middle of the room. One option is a curtain hanging for privacy and shade.

The CG is considering video monitors for each stateroom. Also looking at the file cabinets and perhaps removing them given the increasing electronic storage of records.

The AICC members provided some feedback to the Coast Guard that they want to avoid having (4) people in a stateroom. Having (3) to a stateroom is okay, but (4) is not workable. There was lots of discussion on bunk arrangements. Attention also needs to be paid to lighting and towel racks. It was suggested that we look at what we can do with what we have. If we were to increase the science capacity, such as going to (65) berths, this would bring its own set of issues and problems.

Tour of the *Healy*

The meeting participants then gathered on board the *Healy* for a tour of the labs, the berthing areas and the bridge. This gave us an opportunity to see first- hand the recent changes to the lab benches and some ideas being considered to improve the berthing arrangements. There are some “choke points” in the main lab which need to be corrected to allow free flow of the science party during science operations.

Wrap Up

The group then returned to the Rainier Room for a wrap up session. The AICC does need to stay on top of a few issues, including the GEOTRACES cruise planning for next year’s cruise.

The date and location for the next AICC is to be determined.