

Breakout Session #2 - Logistics Needs for Arctic Domains  
Monday p.m., 7 October 2013  
Marine Group

**1) What's needed in the long term:**

**Replacement Arctic dedicated science icebreaker.** Science Mission Requirements Report for a new POLAR research icebreaker, report supported by NSF, run by UNOLS, has been completed but it is going nowhere.

**Satellites.** Need long term vision to make sure we still have the satellites that we need.

**Aircraft.** More mobile assets to get out there more quickly. At different times of the year also. Need assets to recover mobile installations and to set up short-term ice camps. How do we make sure that the aircraft capabilities that we have now, and have had for years, are still there in 20 years? E.g., Twin Otters, DC-3s. Design perfected by long use. Concern to continue to have the things that we have now. Not only the aircraft but also operators and regulatory requirements.

**Leveraging industry and private individuals:** How can we take advantage of the wealthy individuals in the private sector? Private industry? Ask industry to do a % for science, instrument rigs or do some science from their ships. Some step between work on landfast ice and working with icebreakers.

**Military Support for Science:** Science support (funding for science) and operational support for science activities by military assets. Has decreased in recent years but perhaps is increasing again?

**More Smaller and Medium Sized Boats:** Process studies that are short time scale, small footprint need smaller vessels such as Ukpik and Annika Marie or mid-size vessels such as the Norsemen. Re-invent the Norwegian sealer boats?

**Deployment of UNOLS vessels to the Arctic:** Vessels do not necessarily require an ice capability to operate in pan Arctic regions in summer (open water) conditions

**Shore support for marine assets:** Fuel for boats/ships (small boats along the Alaskan coast, Sikuliaq further N than Nome), facilities to launch AUVs etc.

**Multiple capabilities to access Arctic:** Both autonomous assets and people in the field will continue to be important. Need to emphasize this in the report.

**Acoustic communications and navigation network:** Might include cabled observatories. The AUVs for example need to be able to navigate. What are the potential limitations to the use of acoustics because of the perceived potential

detection by marine mammals? Long term, an acoustic navigation network will change the application of AUVs to oceanography.

**Cabled Observatories:** Still a viable option. Barrow Cabled Observatory?

**Fiber Optic Cables:** Financial sector sponsored but looking for partners.

**Boots on the Ground:** We still have to have “boots on the ground” and to do that we still need the needs to get them out there.

Cannot get people out to places with some of these lighter autonomous vehicles, there still needs to be access for people.

**Access to the Field for People:** Need to get people out. There is a seasonality problem. Aircraft cannot operate year round due to summer changes in sea ice and winter lack of visibility (unless you have someone at the destination to provide lighting). Long range helicopters? Some of the useful airplane types are no longer being built. Or aircraft that are ski equipped, presently have to go to Canada to get ski equipped planes

**Facilitate Infrastructure through Partnerships with Other Countries:** For example, the Koreans are building a second icebreaker. Can we partner with them?

## **2) Logistics Limitations to Best Science:**

**Access to Russian Waters and Russian Airspace:** Andrey suggests that collaboration is the answer for this problem in the short term. Partnerships.

**Year Round Marine Access:** Ships and other assets that can operate in winter. Blimps. Submarines. Shore based assets that provide access by snow machine (for example). Helicopters (long-range). Ice stations.

**Heightened level of Risk Aversion is limiting opportunities:** For example, the requirements for the engines and pilots for planes and safety equipment are now more stringent.

## **3) How to Foster Interdisciplinary Science:**

**Interdisciplinary Work on Platforms:** Put interdisciplinary researchers on the same platform, end up interacting and working together

**Centralized information center** on assets being deployed to encourage collaborations and coordination between research programs to use shared platforms. This should be multi-agency. IARPC is working on this.

**Recommendation:** Better travel budgets for program officers at the NSF (and NOAA and NOAA scientists).