

Barrow Atqasuk Science Advisors

Corrected Minutes

30 September 2016

teleconference

Participants (BASA members in *italics*)

Karl Newyear, UIC Science (meeting leader)

Kaare Erickson, UIC Science

Stephanie Gaff, UIC Science

Sean Gunnells, UIC Science

Nagruk Harcharek, UIC Science (ex-officio)

Mike Abels, University of Alaska Fairbanks IAB/Toolik Field Station

Faustine Bernadac, National Ecological Observatory Network (NEON)

Michael Brady, Rutgers University

Ryan Cody, University of Texas at El Paso

Stephen Escarzaga, University of Texas at El Paso

Robert Hollister, Grand Valley State University

Anna Liljedahl, University of Alaska Fairbanks

Laurel McFadden, Polar Field Services

Linda Nicholas-Figueroa, Ilisaġvik College

Vladimir Romanovsky, University of Alaska Fairbanks

Hal Salzman, Rutgers University

Todd Sformo, North Slope Borough Department of Wildlife Management

Bryan Thomas, NOAA ESRL

Donatella Zona, San Diego State University / University of Sheffield

Administration Items

- Welcome Hal Salzman, elected to BASA membership representing Social Sciences.
- BASA information has been posted to the Barrow Bulletin web page (www.barrowbulletin.com/basa) including the Terms of Reference, past meeting notes and presentations, and news items.
- UIC Science was featured in *Witness the Arctic* (<https://www.arcus.org/witness-the-arctic>, Spring 2016, Vol. 20, Issue 2)
- NSF will exercise their option on the Arctic Research Support and Logistics Services contract to CH2M Hill Polar Services (CPS), continuing current operations through 31 May 2020.

Recent Meetings

- International Conference on Permafrost (20-24 June; Potsdam, Germany)
BASA members Anna Liljedahl and Vladimir Romanovsky attended this conference along with 800-900 others. The US and China were well-represented, as were early-career scientists in general. Several projects from Barrow were presented. The new president, and first female president of the International Permafrost Association is Hanne Christiansen; Vladimir Romanovsky is a Vice President. The next big permafrost meeting will be the 2nd Asian Conference on Permafrost, 2-6 July 2017 in Sapporo, Japan. Other upcoming meetings will be in Chamonix, France and Lanzhou, China.
- Ecological Society of America (7-12 August; Ft. Lauderdale, FL)
No one from BASA attended this conference. It was noted that the dates typically conflict with the end of arctic field seasons. The next ESA conference will be held 6-11 August 2017 in Portland, OR.

Updates on Barrow and Atqasuk Operations

UIC Science presented several examples of operational updates in Barrow/Atqasuk including the following:

- UIC Science Staff
Kaare Erickson, **who was already working with UIC Science as a Senior Archeological Technician**, has **added the role of** North Slope Science Liaison. He is currently finishing up some previous commitments and is also working on an MS degree in **Cultural Anthropology with a focus on land use conflicts, particularly Inupiat traditional land use on federal conservation lands**. With UIC Science he will assist researchers with outreach efforts of all types.
- Barrow Environmental Observatory
The BEO has been renamed as the “Charles Etok Edwardsen Jr. Barrow Environmental Observatory”. A new logo has been designed and cloth patches are on order. August 2017 will mark the 25th anniversary of the BEO’s designation by the UIC Board of Directors (zoning by the borough as a Scientific Research District occurred in 2003). Suggestions to mark this milestone included: issuing a special patch, coffee mug, and/or hat pins; displaying framed historical documents associated with the BEO; creation of educational materials about Charles Edwardsen and the BEO; identification and recognition of long-tenured researchers.
- National Ecological Observatory Network
This spring NEON completed construction of their 10-meter tall tower, instrument hut, boardwalk/trail mat, and power system in the BEO. Installation of scientific

instrumentation is planned for fall 2016, after which the tower will become operational including bi-weekly instrument maintenance. Terrestrial operations such as soil sampling, fauna collections, etc. are expected to begin soon after snowmelt in June 2017. Additional boardwalk/trail mat will be installed near some frequently-visited field sites to protect the tundra. Approximately 6-10 NEON researchers and staff are expected to be on site throughout each summer. Lab space needs are still under discussion. There is no formal procedure established yet for other projects to leverage the NEON infrastructure such as placement of antennas or cameras on the tower. However, it's recognized that this is of value to the research community and is being addressed as is outreach to the public, schools, and other researchers. Physical access to the tower will be limited due to safety and liability concerns.

- **BEO Control Shed Antenna Guide**

UIC Science began work during summer 2016 to identify and label antennas and other equipment at the BEO Control Shed and tower. Eventually obsolete/unused equipment will be removed. To help with further identification and verification it's recommended to circulate annotated photos of the tower and shed equipment. A trained tower climber is required to make further progress with physical maintenance, expected in summer 2017. A "Field Guide to the BEO Control Shed Instrumentation" similar to the document completed in 2015 for the BARC roof will be produced and made available on the Barrow Bulletin. This document will help establish protocols for future installations; signage at the base of the tower is also recommended.

- **Small boats**

Arctic Response Services, a UIC company, transferred two aluminum-hulled landing craft vessels to UIC Science after Shell Oil ceased operations in the Chukchi Sea. One is 26', the other is 32'; each has a small cabin, 500-lb capable davit, and rated for 6 passengers. UIC Science has 6-pack captains on staff and these vessels will be available to support science activities starting in 2017. UIC Science also added two 16' Rigid-Hull Inflatable Boats to the available inventory.

Science Equipment

- **WHOI LN2**

A lightly used liquid nitrogen maker is available from the Woods Hole Oceanographic Institution. This capability is not currently available in Barrow; Toolik Field Station can generate LN2. Although the equipment is being offered free of charge, procurement of required components that are not included, factory refurbishment, shipping, and other miscellaneous costs represent a significant investment. UIC Science has inquired about potential customers for LN2 other than NSF researchers including

NEON, NSB Wildlife (occasional need), ARM (50 liters 1-2 times per year), Iliisaġvik College, Samuel Simmonds Hospital, and the NSB Vet Clinic.

- **Prioritization: Millipore, RO, OASIS, LN2**

In addition to the LN2 Maker described above, there are several other items of scientific equipment currently needing repair/replacement or are available for procurement including:

- Millipore water purification system: pump is intermittently failing. Replacement parts will not be available after January 2018 though normal consumables will be. Our system is 11 years old and termination of manufacturer support indicates it is at the end of its expected life. Trade-in credit on a new system is available. What quantity, and what level of water purity is really required (versus nice-to-have) in Barrow?
- BARC Reverse Osmosis: As noted during the June 2016 BASA meeting, the BARC RO system suffered a freezing event this past winter which caused significant damage. It is recommended to purchase an entire replacement system and scavenge the existing system for spares. This system can generate high volumes of water with sufficient purity for many purposes. Since this system is integrated into the building plumbing it is expected that UIC Real Estate will pay for replacement.
- OASIS Module: two conex-sized, custom-built wooden structure on forkable steel bases. They're configured with electricity, lighting, and ventilation suitable for general laboratory use. These were placed in outside storage in Barrow after the completion of the Ocean-Atmosphere-Sea Ice-Snowpack (OASIS) project in 2009. NSF is in the process of releasing them via government surplus protocols.

- The consensus of meeting participants placed priority on replacing the BARC RO and trading in and possibly downgrading the Millipore. Moderate quantities of purified but not ultrapure water are needed for current and anticipated research. Obtaining an OASIS module also received support because of the low cost and because they're already in Barrow (no shipping). A specific use was not discussed. The LN2 Maker received the least support, possibly due to low anticipated usage and its relatively high total cost despite the existing equipment being offered free of charge.

Environmental Impact and Research Interference Avoidance

- Earlier this year several projects were conducting individually acceptable but incompatible activities in the BEO. Through much effort and communication all groups were eventually accommodated and accomplished their goals but not without some disruption to each. This highlights the importance of researchers clearly identifying their needs, constraints, and expectations well in advance, and of UIC Science to communicate and coordinate with projects in the field.

- UIC Science proposes a checklist for researchers to identify any components of their fieldwork which may be subject to interference from other groups, or potentially affect other groups' sites now or in the future.
- This checklist would provide initial recognition of potential issues as well as identify possible permitting requirements. UIC Science would then follow-up with the researchers for further details and discussion of remediation measures including possible modification of fieldwork dates or location. As the land owner and management authority, UIC Science would serve as mediator unless/until input from funding agencies is required.
- While some minor improvements to the proposed checklist were suggested, it is recommended to consider this a living document subject to changes and implement it as soon as possible. UIC Science aims to make this form available by 1 Jan 2017.
- Researchers stated that the two-page form is not onerous and does not duplicate information gathered via the standard CPS planning process (for NSF/PLR-funded projects) which is more focused on NEPA compliance and permitting.

Long-Term Facilities Plan

- An updated version of a Table of Contents and Timeline was presented and generally accepted as a starting point. UIC Science will lead the effort to describe the context and provide a Mission, Vision, Goals, and Guiding Principles statement (Chapter I). Chapters II – IV are substantially independent from one another and can be developed in parallel.
- There are existing summaries of NARL history as well as policy documents that were produced from workshops over the past ~20 years to draw upon and update. Some are specific to Barrow while others are more general in scope.
- Mike Abels noted that similar efforts to create the Toolik Field Station LTFP involved focused workshops at a cost of \$50k - \$100k each.
- NSF is supportive of the concept of such a planning document for Barrow. ARCUS, a neutral party, is able to provide assistance including administration of co-mingled funding from multiple sources, solicitation of input, and document production. Specific means and details of administrative and financial support need to be explored.
- In order to encourage volunteer contributors it is recommended to proactively identify and approach individuals with particular experience on specific topics in the proposed Table of Contents, and to establish expectations including time and effort commitments from contributors.

Upcoming Meetings of Interest

- Forum for Arctic Modeling and Observational Synthesis (FAMOS) Workshop; 1-4 November; Woods Hole, MA
- AGU Fall Meeting; 12-16 December; San Francisco
- Alaska Marine Science Symposium; 23-27 January; Anchorage, AK
- International Symposium on the Cryosphere in a Changing Climate; 12-17 February; Wellington, NZ

Next Meeting

- The next ~quarterly BASA meeting will be held in person during the AGU Fall Meeting (12-16 December, San Francisco) using the ARCUS community meeting room. Date and time are currently TBD. UIC Science will arrange for call-in capability for those who cannot attend in person.



Old Action Items

1. UIC Science will coordinate with Ilisaġvik College and Tuzzy Library to properly catalogue materials from the Bill Brower Library.
2. UIC Science to document science projects in the Barrow area on an annual basis.
3. UIC Science to investigate posting podcasts of researcher interviews on the Barrow Bulletin.
4. UIC Science to produce a "Field Guide to BEO Control Shed Antennas".

New Action Items

1. UIC Science to consider means of commemorating the BEO's 25th anniversary next year including documentation/educational materials as well as souvenirs.
2. UIC Science to circulate annotated photos of the BEO Control Shed antenna tower and associated cabling to help identify equipment prior to removal of apparently unused items.
3. UIC Science to implement "Environmental Impact and Avoidance of Research Interference" checklist by 1 January 2017.
4. UIC Science to draft a Mission, Vision, Goals, and Guiding Principles statement to provide context for the Barrow Long Term Science Facilities Plan.
5. UIC Science to proactively identify and approach individuals with particular experience on specific topics in the proposed LTFP Table of Contents, and to establish expectations including time and effort commitments from contributors.