Community-based sea-ice observations in Alaska: From the ice into the computer and back

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Since fall of 2006, we have worked with Iñupiaq and Yupik sea-ice experts to gather community-based ice observations as part of the emerging Arctic Observing Network. Key advisors and contributors include Winton Weyapuk, Jr. (Wales, AK), Joe Leavitt (Barrow, AK), Leonard and Paul Apangalook (Gambell, AK) and a number of others from different coastal villages in Alaska. Guidance by Igor Krupnik with the Smithsonian Institution and support by the Exchange for Local Observations and Knowledge of the Arctic (ELOKA) project have been instrumental to our efforts as well. We are exploring different approaches to building a cooperative sea-ice observing network that improves understanding of ice use by coastal communities while providing them with better ice information (Druckenmiller et al., 2009; Eicken, 2010). Hence, format and breadth of observations have been mostly defined by the observers themselves and the broader community of hunters they confer with. Daily logs of ice conditions are kept by the observers and passed on to our team at the University of Alaska Fairbanks (UAF) for data entry and archival. During the first phase of our project, we defined different (and evolving) categories of ice and environmental information related, e.g., to the seasonal cycle of sea ice, hazardous ice events, ice use by animals and people. These observations have been gathered in a commercial database (Microsoft Outlook), along with additional insights obtained from phone conversations and community visits by UAF team members and contributions by experts from other villages. Such observations are complemented by data from our geophysical sea-ice observatory and field trips (seaice.alaska.edu/gi/observatories), with the aim (where possible) to complement local and indigenous knowledge. Information flows back into the communities through personal communication, our website, cooperative efforts involving native organizations and agencies, such as the Sea Ice for Walrus Outlook (www.arcus.org/search/siwo), and community presentations and school visits. Graduate student Matthew Druckenmiller worked with the Barrow Whaling Captains Association to generate a seasonal ice trails map used widely in the community and disseminated as hardcopy and online. We are now entering the next phase of data archival and dissemination in collaboration with the ELOKA project to develop a more sophisticated database that can serve both as an evolving and adaptive archive and a tool for communities to safe-keep and make available community-based ice observations. We welcome feedback on this draft product so as to make it potentially useful to other researchers and communities as well.

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