SEA ICE FOR WALRUS OUTLOOK

PARTNERS WORKSHOP REPORT
25–26 MARCH 2023
NOME, ALASKA

INTRODUCTION

The Sea Ice for Walrus Outlook (SIWO; https://www.arcus.org/siwo) is a resource for Alaska Native subsistence hunters, coastal communities, and others interested in sea ice and walruses. The SIWO provides weekly reports during the spring sea-ice season with information on weather and sea-ice conditions relevant to walruses in the northern Bering Sea and southern Chukchi Sea regions of Alaska. Partners of the Sea Ice for Walrus Outlook program met for a two-day workshop hosted by the Arctic Research Consortium of the US (ARCUS; https://www.arcus.org) and the Eskimo Walrus Commission (https://www.eskimowalruscommission.org), 25–26 March 2023 in Nome, Alaska to focus on relationship building, steering the future of the SIWO following an evaluation completed in early 2023, and capacity building for SIWO observers. The workshop was supported by the National Science Foundation's Arctic Sciences Section (Award #1928794).

Figure 1. *Sea Ice for Walrus Outlook meeting participants. Left to right: Vera Metcalf, Sarah Rosengard, Kitty Sopow, Curtis Nayokpuk, Amy Hendricks, Mary-Beth Schreck, Ryan Metzger, Jill Prewitt, Robert Tokeinna, Jr., Marcus Barr, Lisa Sheffield Guy, Clarence Irrigoo, Jr., Marty Eeleengayouq Ozenna, and Rick Thoman. Not pictured: Gay Sheffield.*

As the first in-person opportunity for SIWO partners and local observers to collectively meet and work toward building a stronger network, the goals of the meeting were to:

1. Create an opportunity for SIWO partners to meet and discuss the future of the program and give local observers from nearby communities a chance to meet one another and learn about new opportunities;

2. Co-develop ways to improve the program and prioritize recommendations from the SIWO evaluation; and

3. Discuss and identify teams to work on SIWO collaborations (presentations, papers, and other products).

The format was a two-day, round-table meeting focused on engaged conversations (as opposed to presentations) among fifteen participants (Fig. 1; participant list available in the online report appendix; https://www.arcus.org/siwo/2023-partner-workshop). This report captures the main discussion themes and meeting outcomes, organized by day, with additional appendix materials available online.

SIWO meeting participants discuss the future of the program at the first in-person partners meeting in Nome, Alaska.

DAY ONE

The meeting began with plenty of time for introductions and sharing about current conditions and observations. The group was fortunate that most people traveling arrived the day prior as blizzard conditions increased outside our meeting space at the University of Alaska Fairbanks (UAF) Northwest Campus.

Engaging Youth

A challenge identified by SIWO observers early in our discussion was difficulty reaching youth with Indigenous Knowledge and the loss of language and traditional hunting practices. Throughout the meeting, we considered this challenge as a group and how to better engage youth. A greater effort will be made to focus SIWO information on younger generations and to support education. The group identified ways to begin addressing this gap in knowledge:

- Put SIWO information on different platforms that younger people are more likely to use, such as a SIWO YouTube channel with short (~two-min.) videos about sea ice, weather, walrus, and other topics.
- Create timelapse videos from observer photos to show changes over the past 13 years. With internet access improving in the region, we now have opportunities to reach people with this type of content that was prohibited by bandwidth in the past.
- Broader outreach to Bering Strait communities, including a re-print of our SIWO village flyer and creation of new SIWO outreach materials (e.g., refrigerator magnets, bookmarks, stickers).

Photo by Clarence Irrigoo Jr. - Gambell, Alaska (2022)

One concern noted was having SIWO share additional information beyond sea ice, weather, and walruses. Asking communities to report to SIWO on various other natural resource observations needs to be considered carefully so as not to unnecessarily confuse or "re-route" existing and successful communication networks of federal, state, and co-management entities, and their regional public (e.g., Ice Seal Committee, Alaska Eskimo Whaling Commission, USFWS Migratory Bird Management). Understanding who these entities are can be a complex undertaking for those unfamiliar with marine resource management of western and northern Alaska. Gay Sheffield of UAF Alaska Sea Grant mapped out many of the existing authorized federal, state, and co-management entities with authority for research, management of marine wildlife resources, and service to the tribal and public constituents (see online appendix). How SIWO could impact or enhance these existing essential communications networks was discussed.

Early Spring Sea-Ice Conditions

The spring sea-ice season started out similar to 2022— slow to form then growing and thickening. The NWS Alaska Sea Ice Program issues an outlook on the fourth Thursday of each month, forecasting big picture expectations for the coming three months and predicting breakup dates (https://tgftp.nws.noaa.gov/data/raw/fz/fzak30.pafc.ico.afc.txt). In Shishmaref, Curtis Nayokpuk shared that offshore winds were prevalent with ice blowing out and no real ridges to hold it in place. Hunting seasons for ugruk (bearded seal) and walrus have shifted. In Wales, Robert Tokeinna, Jr. shared that they didn't have shorefast ice until the second week of January and there was a repeating pattern where it froze, the wind came, ice went out, then back in. In Brevig Mission/Port Clarence area, Marcus Barr reported that the Bering Sea portion of the area froze in late January, with the harbor around Teller freezing first, followed by the bay in Brevig. In Gambell, Clarence Irrigoo, Jr. reported warm spring weather with rain and high wind in January and February. Shore ice was coming in and out from the beach and he expected an early spring. People were already getting walrus. For Diomede, Marty Ozenna shared that they hadn't had the normal young ice. Rather, their ice was coming off Wales and Shishmaref. They still had open water to the north and behind the island to the south. He anticipated an early break-up this year. The lack of solid ice to support an ice runway is a big hardship for Diomede, forcing the community to rely on helicopter and boat transportation of supplies.

Sea-Ice Technology

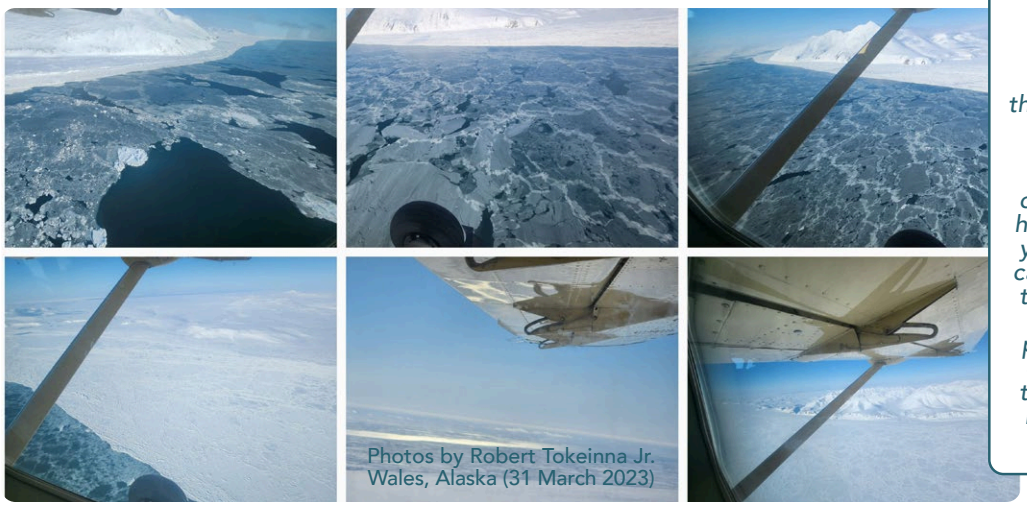
Related to SIWO sea-ice information, the group discussed that a useful activity of the SIWO team would be to clarify different NWS and local terms for sea ice. Mapping NWS definitions against local terms for sea ice would be helpful. NWS can use local terminology in their forecasts. Current sea-ice terminology and guidelines used for SIWO by NWS are provided in the online report appendix. The SIKU app (Fig. 2 and at https://siku.org/) uses ice terms in different dialects and can add Bering Strait regional terms, should observers wish to have them included in the app.

FAA Weather Stations

A concern for many Bering Strait communities is a lack of operational Federal Aviation Administration (FAA) weather stations. Operational FAA weather stations provide important environmental information (i.e., wind direction/speed, visibility, precipitation), which is used by NWS, communities, and others. These weather stations and webcams provide necessary information for aircraft traveling to and from villages. There is no FAA station in Diomede and the Wales weather station has been out of service for an extended time. This limits the ability of flights to reach communities and makes flying more dangerous for passengers and crew. Many people and organizations have requested the FAA maintain their equipment, but there has been no action. These weather stations are also critical for search and rescue, medivac travel, and law enforcement; and the lack of operational stations is negatively impacting well-being of residents in these communities. Seeking action through the Alaska congressional delegation may be the best option.

SIWO History

With SIWO beginning in 2010, not all present were familiar with the program's origins and history. Vera Metcalf shared how the program began and some examples of how SIWO information has benefitted communities. For example, in 2013 and 2015, the Eskimo Walrus Commission used SIWO information to support harvest disaster declarations when ice conditions prevented access to walrus.



Photos by Robert Tokeinna Jr.
Wales, Alaska (31 March 2023)

SIWO Observation Report – Friday, 31 March 2023 – Robert Tokeinna, Jr.

For Wales, it started out with ice fog in the morning and progressed into sunshine by mid-evening. Winds were from the south at 10 to 15 mph with it ending at 30 gust to 50 mph. Temperatures were cold to mild all while ending with snow. I have great shots of the shore fast ice and young flow ice in and around Wales. You can see the freeze thaw and movement in the sea flow ice. Cakes to round ice here and there with open leads all over the place. It appears to have opened up the coast as seen in a very broad picture of the north. A local resident spotted snow birds while on her trip in Shishmaref, so signs of spring are headed our way.

SIWO Evaluation

An unforeseen benefit of the SIWO in-person meeting being delayed due to the COVID-19 pandemic was that the timing of the meeting aligned perfectly with the results of a formal evaluation of the SIWO. The evaluation was led by partners at University of Alaska Fairbanks (N. Kettle, O. Lee), ARCUS (Sheffield Guy), Eskimo Walrus Commission (V. Metcalf), and Alaska Sea Grant (G. Sheffield), with funding from Alaska Sea Grant. Evaluation results were presented by Amy Hendricks, a PhD student supported by the grant through a Research Assistantship to conduct the SIWO evaluation (see online report appendix and 2023 SIWO Evaluation Report available at : *https://www.arcus.org/files/publication/34412/siwoevaluationreport.pdf*) Following the presentation, the group discussed the recommendations, and specifically, which should be prioritized and how best to implement (or not) each. The evaluation included a recommendation to expand SIWO to other communities—both within and outside of the Bering Strait. Concerns raised with expansion outside of the region included lack of program funding and relationships in other regions, including new partnerships and knowledge of communication channels; and consideration that the program is likely more effective with a regional focus. Solutions included partnering with existing, similar programs in other regions to more actively share information (i.e., Alaska Arctic Observatory and Knowledge Hub, LEO Network) and including links to similar programs in other regions on the SIWO webpage/social media. Adding additional communities within the Bering Strait, such as the suggested communities of Elim and Shaktoolik, seemed like a more natural expansion. There was a recommendation to expand the SIWO season from its current 12- to 13-week length to capture early season March hunting missed in recent years. Existing NWS sea-ice forecast products could be shared year-round, along with a single regional satellite image per week, but additional local observations will require more funding. It is especially important to report when sea ice forms and stays along community shorelines. Local information on sea-ice thickness is also very important for NWS. Providing a monthly overview or update (i.e., what does your ice look like, when did it form?) would be useful. The 2023 SIWO season missed the first several weeks of walrus hunting for St. Lawrence Island communities, with the first walrus harvested in early March, weeks before the typical SIWO season start.In years when hunting conditions are favorable earlier and/or later than the typical season length, SIWO would require an increased budget for SIWO administration and local observer stipends, as well as NWS budget for additional staff time.

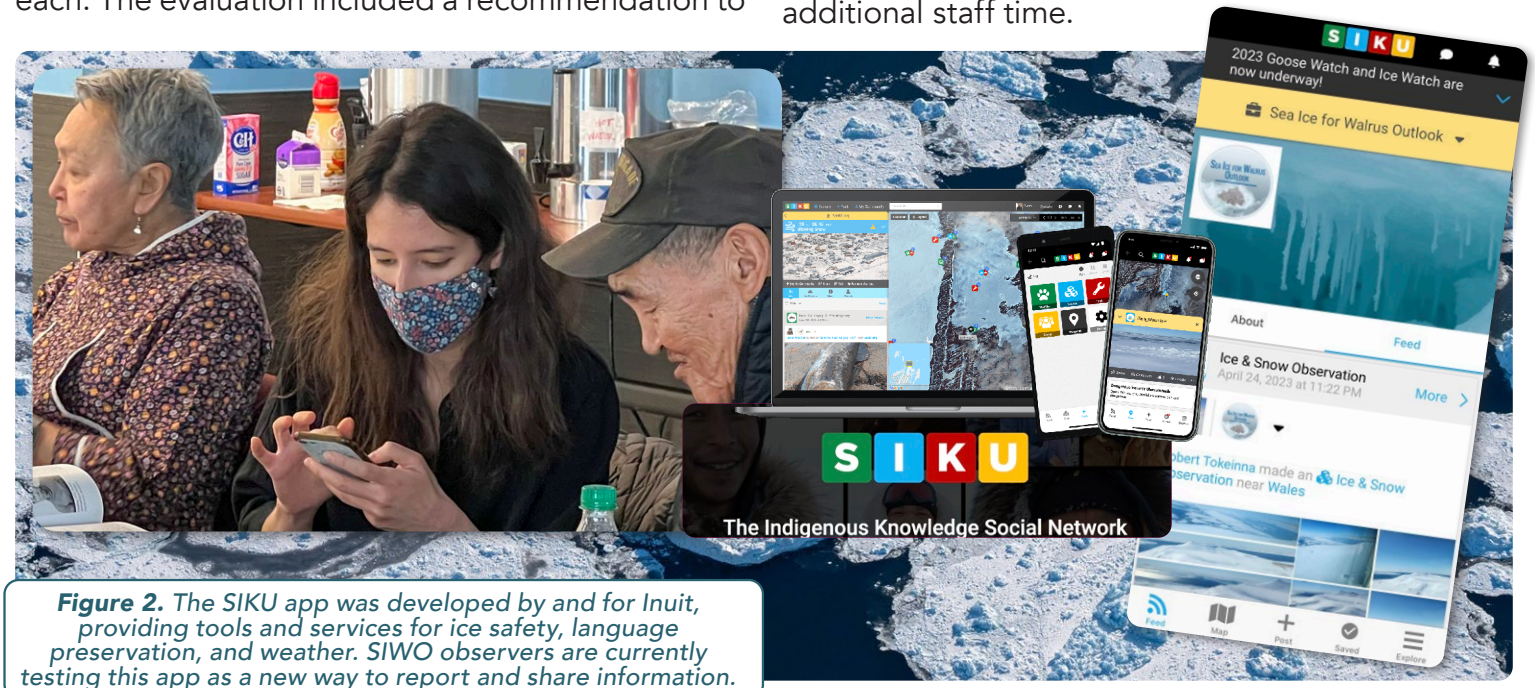
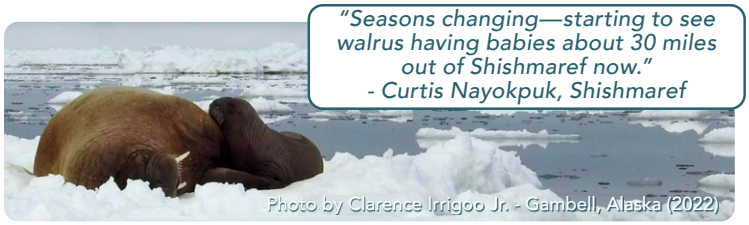


Figure 2. *The SIKU app was developed by and for Inuit, providing tools and services for ice safety, language preservation, and weather. SIWO observers are currently testing this app as a new way to report and share information.*

Ways to improve SIWO outreach and communication was a topic that generated some great ideas. Sharing outlooks via KNOM, which has been attempted in the past with limited success, could be a more viable option if we supplied the radio station with pre-recorded audio files. Additionally, these audio files could be added to photos and shared on social media to communicate in a different way. Sharing more information about SIWO at conferences and meetings was also suggested.



"Seasons changing—starting to see walrus having babies about 30 miles out of Shishmaref now."
- Curtis Nayokpuk, Shishmaref

Photo by Clarence Irrigoo Jr. - Gambell, Alaska (2022)

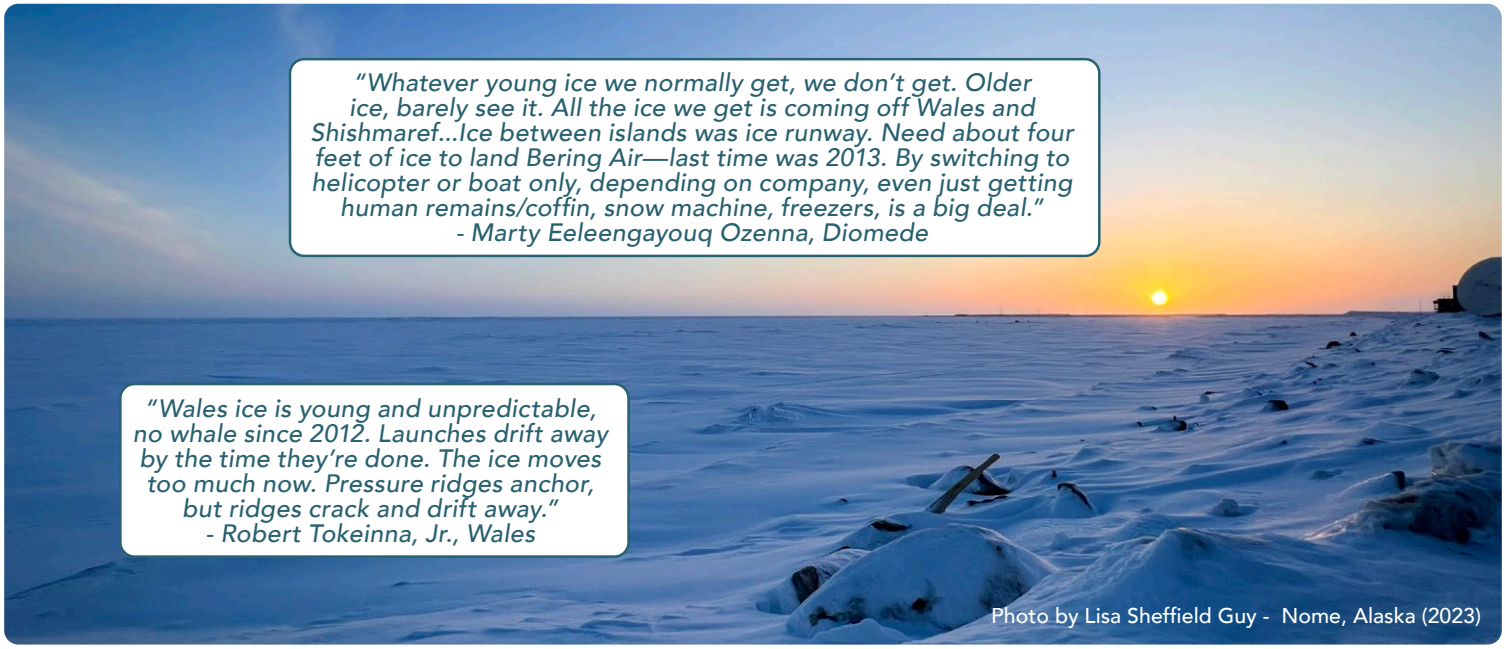


Photo by Lisa Sheffield Guy - Nome, Alaska (2023)

DAY TWO

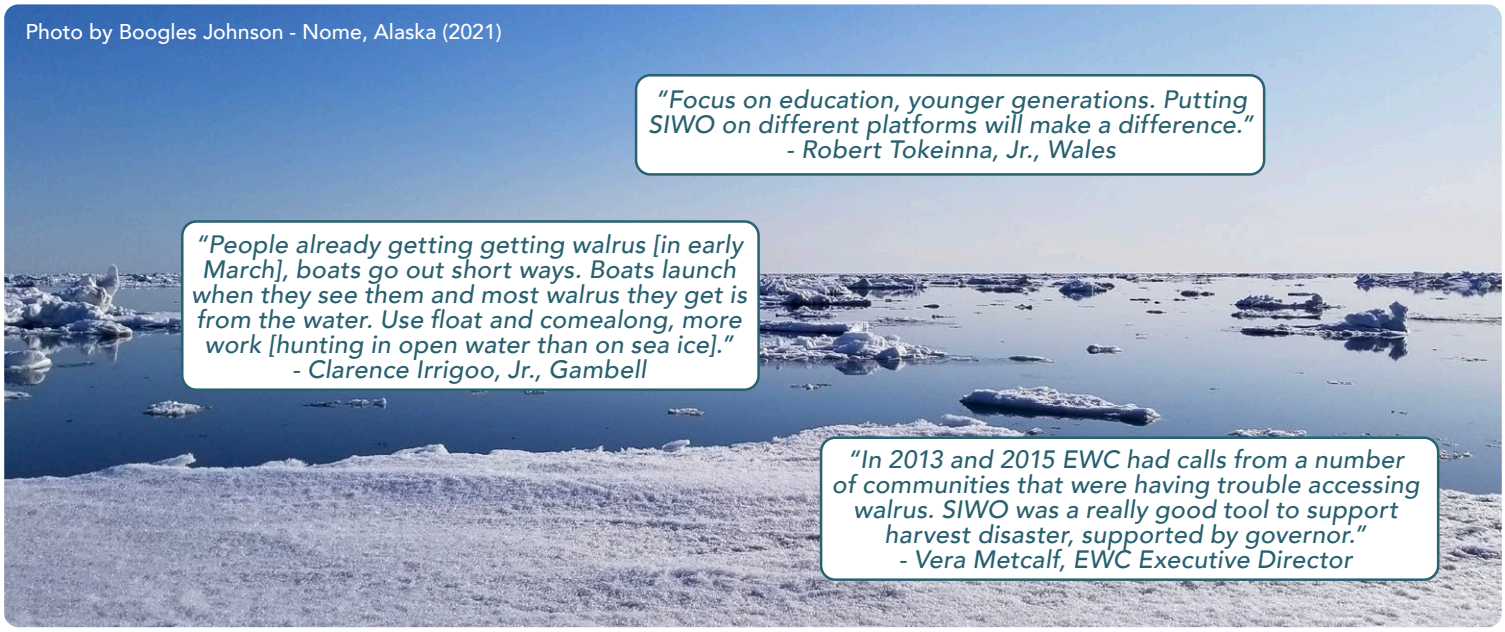
Snow accumulation from the previous day/evening prevented some local attendees from joining the second day of the meeting. We began with a summary of the previous day's conversations. Next, Sarah Rosengard from the Arctic Eider Society (https://arcticeider.com/) provided information about, and a training in, SIKU, the Indigenous Knowledge Social Network. SIKU is a mobile app developed by Inuit for Indigenous communities, providing tools and services for ice safety, language preservation, and weather. SIKU staff created a SIWO program dashboard to collate our program's observations. Attendees were able to download the app and post observations. We discussed how this app might fit in with SIWO as a means for observers to both share their weekly reports and also share information with each other that we aren't currently sharing on our public pages (e.g., photos of butchering). Some attendees offered suggestions for improving the app—like adding an option to make some parts of posts private while keeping other parts visible, or making walrus posts a default posting function in the app for SIWO users.

A training on how to find and interpret satellite imagery was provided by Mary-Beth Schreck (NWS Alaska Sea Ice Program). She shared the different types of satellite imagery (i.e., visible, infrared, active and passive microwave), pros and cons of each, and how users can find this information on their own.

SIWO began partnering with the Alaska Ocean Observing System (AOOS) in 2022 to share animations of surface currents. Jill Prewitt from AOOS shared more information about AOOS products and this partnership going forward. AOOS has provided funding to SIWO to support observer travel and participation in relevant conferences and workshops. Also, AOOS provided each observer with a Kestrel hand-held weather station to help observers measure wind, temperature, and other variables (Fig. 3).

We concluded the meeting on Sunday afternoon with time for all to share final thoughts and hopes for the future of SIWO. All agreed that meeting in-person is necessary for our program and would be best at intervals of one-to-two years to check back in with each other, talk about new collaborations, and advance our work together.

Figure 3. *Handheld Kestrel 5500 Weather Meters were provided to each SIWO observer by the Alaska Ocean Observing System.*



MEETING HIGHLIGHTS

- *The SIWO program should prioritize youth engagement in the future through new platforms and outreach.*
- *SIWO should continue to focus on sea ice, weather, and walrus hunting in the Bering Strait region and maintain good communication with local networks and other organizations in the region.*
- *Early spring sea-ice conditions were similar to 2022, following a relatively warm winter with some rain, and ice was slow to form for most areas, often going out after forming.*
- *A good future activity of SIWO partners would be mapping NWS sea-ice terminology against local terms for SIWO communities.*
- *The lack of operational FAA weather stations is a major concern and public safety issue for several Bering Strait communities that needs to be addressed as soon as possible.*
- *SIWO information has been valuable in supporting community harvest disaster claims.*
- *The SIWO should be expanded to include more Bering Strait region communities, but any work beyond the region would be better approached through partnership with similar programs.*
- *Expansion of the SIWO season length will require more funding, but some off-season information from NWS can be shared.*
- *Increased outreach about SIWO—via outreach materials, radio, and conferences—would benefit the program.*
- *SIWO observers now have the training and option to use the SIKU app to record observations and share info outside of SIWO with others.*
- *SIWO observers learned about the different types of satellite imagery—visible, infrared, active microwave (SAR), passive microwave—and where/how to access this information on their own.*
- *A new partnership with AOOS provides SIWO observers with hand-held weather stations and travel support to attend conferences/workshops.*
- *A SIWO partners meeting every 1–2 years would be best for the program.*

ALASKA OCEAN OBSERVING SYSTEM DATA PORTAL
https://portal.aoos.org/

UAF GINA SATELLITE IMAGERY (INFRARED)
http://feeder.gina.alaska.edu/?feeds=8

NASA WORLDVIEW (VISIBLE SATELLITE – TRUE OR FALSE COLOR)
https://worldview.earthdata.nasa.gov/

RADARSAT CONSTELLATION MISSION (SYNTHETIC APERATURE RADAR)
https://www.star.nesdis.noaa.gov/socd/mecb/sar/sarwinds_rcm_rs2.php

POLAR VIEW SATELLITE IMAGERY
https://www.polarview.aq/arctic

NOAA OBSERVER'S GUIDE TO SEA ICE
https://response.restoration.noaa.gov/sites/default/files/Sea_Ice_Guide.pdf

NATIONAL WEATHER SERVICE - SIWO INFO PAGE
https://www.weather.gov/afg/SIWO_overview

NATIONAL WEATHER SERVICE - ALASKA SEA ICE PROGRAM
https://www.weather.gov/afc/ice

SIKU APP
https://siku.org/

ONLINE REPORT APPENDIX & ADDITIONAL RESOURCES
https://www.arcus.org/siwo/2023-partner-workshop

Aerial Walrus Photo by USFWS/Brad Benter

Photo by Clarence Irrigoo Jr. - Gambell, Alaska (2023)

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