The Snow ALbedo eVOlution (SALVO) Campaign Metadata Document Date: March 21, 2023

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Overview

This file contains information about the locations of the SALVO datasets we collected near Utqiagvik, Alaska, during the spring melt season of 2019 and 2022. The sites called ARM and BEO were located on tundra, while the sites called ICE and CHK were located on sea ice. Visits to the sites were daily to every other day. These sites were used between April 1 and June 30, 2019, and again between April 1 and June 30, 2022. In 2019, the CHK site was not used. Access to all four sites was by snowmobile from the northwest. Snow depth as well as albedo measurements were made at each site along a 200-meter-long line on the north edge of each swath with measurements starting at the east end of the line (0 m) and finishing at the west end of the line (200 m). Snow depth measurements were taken every meter (201 measurements) at ~0.5 m south of the line that observers walked along. The snow depth instrument was on a metal rod that the observer extended to the measurement location. Albedo measurements were taken parallel to the snow depth line and at 5-m increments (41 measurements) at ~1.5 m south of the line. The albedo instruments were deployed on a metal arm so that the underlying snow was not disturbed.

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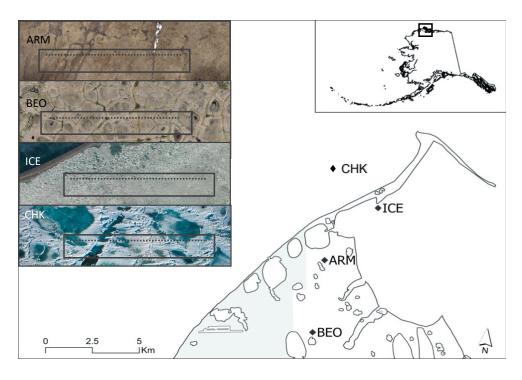
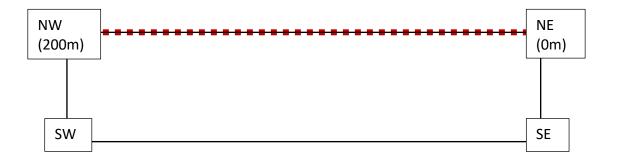


Figure 1: Map showing the location of the sampling sites ARM, BEO, ICE, and CHK. The solid black line indicates the extent of the swath, and the dotted black lines indicate the location of the snow measurement line.

SITE NAMES	LONG NAME
ARM	Department of Energy's Atmospheric Radiation Measurement (ARM) Observatory
BEO	Barrow Environmental Observatory
ICE	Elson Lagoon Sea Ice
СНК	Chukchi Sea Ice



The red dotted line indicates our 200-m measurement line along which we took snow depth and ASD measurements on an almost daily basis. The black rectangle indicates the extent of our measurement swaths, the basis for the snow depletion curves derived from aerial photographs.

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SITES	SWATH	CORNER	1.	OCATIONS

SWATH CORNE	SWATH CORNER LOCATIONS			
latitude	longitude			
71.32176318	-156.6115107			
71.32148303	-156.6170348			
71.32181723	-156.61108809			
71.32151655	-156.61732613			
71.32157283	-156.61097657			
71.32127263	-156.61720483			
71.28351635	-156.6321552			
71.28281325	-156.6372848			
71.28354550	-156.63219983			
71.28283453	-156.63736500			
71.28335095	-156.63191123			
71.28263441	-156.63712749			
71.34943476	-156.5241255			
71.34892785	-156.5295002			
71.34946608	-156.52377384			
71.34892684	-156.52982393			
71.34923914	-156.52357513			
71.34870104	-156.52963146			
71.35816018	-156.5963096			
71.35758434	-156.6016115			
	latitude         71.32176318         71.32148303         71.32181723         71.32151655         71.32157283         71.32127263         71.28351635         71.28281325         71.28354550         71.28283453         71.28263441         71.34943476         71.34946608         71.34946608         71.34923914         71.34870104         71.35816018			

The coordinates for the east and west end of the line were measured in the field by using a GNSS receiver (Reach RS2 by Emlid). The four corner points of the swath of the respective field sites were derived from the orthomosaic images in QGis.

We acknowledge that the SALVO measurement sites are located on the unceded lands of the Iñupiat and we appreciate that we were able to work there.