

Table S1. Available snow-related data products for the ABR of North America that are relevant to wildlife studies, organized from fine to coarse spatial resolution.

No.	Dataset	Description	Metric	Extent	Resolution (spatial)	Resolution (temporal)	Time period	Source*
1.	SNOTEL	Automated snow monitoring sites; Snow Telemetry (SNOTEL) stations	Snow water equivalent, snow cover, climate data	61 SNOTEL sites in Alaska	In situ	Hourly, daily	Variable	Website
2.	UAF-WERC meteorological stations	Meteorological station network of University of Alaska Fairbanks (UAF) Water and Environmental Center (WERC)	Snow depth, snow temperature	31 stations across the north slope	In situ	Hourly, daily	Variable, approximately: 2006 – 2013	Website
3.	Snow Course / Aerial Marker	Surveyed snow depth translated into snow water equivalent	Snow water equivalent, snow depth	100+ sites in Alaska and Canada	In situ	Hourly, daily	Variable	Website
4.	Cooperator snow sensors	Natural Resource Conservation Service (NRCS) Cooperating stations from British Columbia	Snow water equivalent	British Columbia	In situ	Hourly, daily	Variable	Website
5.	SnowNET	Meteorological and snow observations collected using various newly-developed instruments	Snow water equivalent, snow depth, meteorological data	Sites at Barrow, Imnavait Creek, Fox, and Nome Creek, Alaska, and in Inuvik, Canada	In situ	Hourly, daily	Variable	Website Sturm 2012
6.	NWS meteorological stations	National Weather Service meteorological stations, a mix of manned and autonomous stations	Six major manned; 20 automated sites; 18 co-op sites	Northern & Central Alaska	In situ	Hourly, daily	Variable	Website
7.	RAWS	Remote Automatic Weather Stations	Snow depth (not all stations)	~190 sites in Alaska	In situ	Hourly, daily	Variable	Website
8.	YRC sites	Yukon Research Centre Snow sites	Snow water equivalent, snow depth	Several sites in Yukon, Canada	In situ	Hourly, daily	Variable	Website
10.	Yukon Snow Survey sites	Yukon Snow Survey sites of Environment Yukon	Snow water equivalent, snow depth	56 locations, in Yukon, Canada	In situ	Unknown	Variable	Website

11.	NWT Snow survey sites	Northwest Territories Snow survey monitoring sites	Snow water equivalent	~50 locations in Northwest Territories, Canada	In situ	End of season (April)	Variable	Website
12.	PBO Network	Plate Boundary Observatory (PBO) in situ snow cover observations from GPS base station L-band reflections	Snow depth, snow water equivalent	Several hundred sites processed for western USA and Alaska	In situ	Daily	Variable	Website
13.	Snow depth from Structure from Motion	DEM differencing, snow-on to snow-off	Snow depth	Three AK study areas: Fairbanks International Airport, Minto Flats, and Hulahula River watershed	6 – 20 cm	Three single acquisitions	2014	Nolan et al. 2015
14.	Lidar snow study	Use of lidar and ground observations to assess snow accumulation and ablation	Lidar returns and snow surveys	Quesnel and Vanderhoof Forest Districts; in interior of British Columbia, Canada	1 m	Single acquisition	February 2008	Varhola et al. 2010
15.	Snow persistence	Modeled snow depth from Landsat, preliminary models developed in tundra and trained from multi-year lidar	Snow depth	10s to 100s km ²	5 – 30 m	End of winter snow depth, potentially annual	2012 – present	Macander et al. 2016
16.	Landsat-based Snow Cover I	Landsat-based Snow Cover Product	Snow cover	Global, upon request	30 m	16-day (if no clouds)	1984 – 2015	Website USGS Selkowitz and Forster 2015
17.	Landsat-based Snow Cover II	Landsat-based snow persistence map	Snow free date	Alaska (formerly North-West Alaska)	30 m	Daily and Climatological normal	1985 – 2011	Website Macander et al. 2015
18.	SnowModel	Modeled snow pack metrics from snow evolution model derived from meteorological and remote sensing data	Snow depth, snow hardness, and other snow metrics	Lake Clark study area for Dall sheep project (Mahoney et al. 2018)	25 m	Daily	Variable	Liston and Elder 2006
19.	MOD10 / MYD10	MOD/MYD 10 snow cover products from MODIS Terra	Snow cover (% or binary) and albedo	Global	500 m, 0.05°	Daily, 8-day, monthly	2000 – present	Website

		and Aqua satellites						
20.	MDSMA (version 1)	MODIS-derived Snow Metrics Algorithm (Version 1) derived from MOD10 – (Version 5)	12 different metrics, including snow-on, snow-off and periods of discontinuity	Alaska + surrounding area	500 m	Yearly	2000 – 2017	Website Lindsay et al. 2015
21.	MODSCAG	MODIS Snow Covered-Area and Grain size retrieval algorithm	Fractional snow-covered area and snow grain size	Western US, Canada, Alaska, Nepal and other areas	500 m	Daily	2000 – present	Website Painter et al. 2009
22.	MODIS-derived snow timing	MODIS-based	Snow cover frequency, snow disappearance date, snow cover duration	Global	500 m	Daily	February 2000 – present	Website
23.	MODSCAG – LdoS	MODSCAG-derived last day of snow (LdoS) product	Last day of snow	Dall sheep mountain habitat areas across northwestern North America	500m	Yearly	2000 – present	Verbyla et al. 2017
24.	NOAA IMS Snow and Ice Analysis	NOAA interactive Multi-sensor Snow and Ice Mapping System (IMS)	Snow and ice cover maps	Northern Hemisphere	1 km, 4 km, 24 km	Daily, weekly	1997 – present	Website
25.	Polar WRF	Polar regional weather research forecast (WRF) model	Snow depth, snow water equivalent (all 55 WRF variables)	Various domains with varying spatial resolution	Variable: 1.7 – 45 km	Daily	Three-hourly, daily, monthly	Website
26.	SnowModel results Northern Alaska	Modeled snow pack metrics from snow evolution model derived from meteorological and remote sensing data	Snow depth, snow hardness, and other snow metrics	Northern Alaska	2 km	3-hourly	1979 – 2011	Website
27.	FT-ESDR	Landscape freeze/thaw (FT) Earth System Data Record (ESDR); thaw status and snow properties dataset	Freeze/Thaw status and snow icing events	Pan-arctic, Global	6 km and 25 km	Daily (AM, PM), weekly	1979 – 2016 (global); 2002 – 2016 (polar)	Website ; Kim et al. 2012; Kim et al. 2015
28.	ROS and MFF	Rain on snow (ROS) occurrence and melt-freeze frequency (MFF) derived from enhanced resolution passive microwave	Rain-on-snow occurrence, melt-freeze frequency	Global	6.5 km	Daily	1979 – present	
29.	SnowModel results Pan-	Modeled snow pack metrics from snow evolution model	Snow depth, snow hardness, and other	Pan-Arctic	10 km	3-hourly	1979 – 2009	Website , Liston et al.

	Arctic	derived from meteorological and remote sensing data	snow metrics					2016
30.	WRF Model	Weather Research Forecast Model	Snow depth, snow water equivalent (all 55 WRF variables)	Alaska	20 km	Hourly, Daily	Climate Normal plus 30 years forward (GCM)	Website
31.	CMC Snow Depth	Canadian Meteorological Centre (CMC) Daily Snow Depth Analysis Data, Version 1	Snow depth and snow water equivalent (SWE)	Northern hemisphere	24 km	Daily (snow depth), monthly (SWE)	1998 – 2017	Website
32.	ESA GlobSnow	European Space Agency (ESA) global snow monitoring for climate research (GlobSnow) - a multi-sensor product	Snow cover extent (SCE), snow water equivalent (SWE)	Global (SCE), Northern Hemisphere (SWE)	25 km	Daily, weekly, monthly	1979 – 2013 (SCE), 1979 – present (SWE)	Website
33.	AMSR-E/Aqua SWE	AMSR-E/Aqua Monthly L3 Global Snow Water Equivalent EASE-Grids	Snow water equivalent	Global	25 km	Daily, monthly	2002 – 2011	Website
34.	EASE-Grid SWE	Global Monthly EASE-Grid Snow Water Equivalent Climatology	Snow water equivalent	Global	25 km	Monthly	1978 – 2007	Website
35.	EASE-Grid Blended Snow Cover	Global EASE-Grid 8-day Blended SSM/I and MODIS Snow Cover	Snow cover	Global	25 km	8 daily	2000 – 2008	Website
36.	NARR NCEP	NCEP North American Regional Reanalysis (NARR)	Snow depth, snow water equivalent, snow melt, snow cover	Global	32 km	3 hourly	1979 – present	Website
37.	CRCM	Canadian Regional Climate Model	Snow water equivalent	Boreal areas	45 km	Monthly	Historical (1850 onward) and future (present to 2100)	Website
38.	MERRA (Version 1, 2)	Modern Era Retrospective-Analysis for Research and Applications (MERRA)	Snow depth and snow water equivalent	Global	0.5 degree	Daily, monthly	1979 – 2016	Website I Website II Rienecker et al. 2011,
39.	ERA-Interim	Atmospheric reanalysis product from the European Centre for Medium-Range Weather Forecasts (ECMWF).	Various snow related metrics, including snow density	Global	0.7 degree	3 hourly	1979 – present	Website Dee et al. 2011

40.	CanSIS SWE	CanSISE Observation-Based Ensemble of Northern Hemisphere Terrestrial Snow Water Equivalent	Snow water equivalent	Northern hemisphere	1 degree	Daily	1980 – 2010	Website
41.	NOHRSC	The National Operational Hydrologic Remote Sensing Center operational Airborne Gamma Radiation Snow Survey Program to make airborne Snow Water Equivalent (SWE) and soil moisture measurements.	Snow water equivalent	Alaska and Yukon transects		synoptic	2002-2018	https://www.noahrs.gov/snowsurvey/surveys.html

*All websites were accessed between July 2017 and January 2018.