

SnowEx	Field Campaign Location	Temporal Coverage	Data Lookup Table
S17	Grand Mesa & Senator Beck Basin, Colorado	February 6-25, 2017	SnowEx / Partnered
S20	Grand Mesa, Colorado	January 27-February 12, 2020	SnowEx / Partnered
	Western U.S (13 sites)	October 24-May 20, 2020*	SnowEx / Partnered
S21	Western U.S (7 sites)	November 16-May 27, 2021	SnowEx / Partnered
S23	Tundra & Boreal Forest Alaska	March 7-17, 2022	SnowEx / Partnered
	Tundra & Boreal Forest Alaska	October 22-27, 2022	
	Tundra & Boreal Forest Alaska	March 7-16, 2023	
	Boreal Forest Alaska	April 5-May 6, 2023	
	Tundra & Boreal Forest Alaska	October 17-28, 2023	

*The majority of sites in 2020 have a temporal coverage of January-March due to the Covid-19 pandemic.

S17 – Grand Mesa & Senator Beck Basin, Colorado

SnowEx17 P-3 Airborne Video, Version 1 (SNEX17_P3V)	NASA GSFC
SnowEx17 SnowSAR Raw FMCW Waveforms, Version 1 (SNEX17_SnowSAR_Raw)	ESA
SnowEx17 Boise State University Raw Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX17_TLS_PC_BSU_Raw)	Boise State University
SnowEx17 Time-Lapse Imagery, Version 1 (SNEX17_TLI)	Oregon State University
SnowEx Meteorological Station Measurements from Grand Mesa, CO Raw, Version 1 (SNEX_Met_Raw)	George Mason University
SnowEx17 GLISTIN-A and UAVSAR Interferometric Synthetic Aperture Radar, Version 1 (SNEX17_InSAR)	NASA JPL
SnowEx17 Cloud Absorption Radiometer BRDF, Version 1 (SNEX17_CAR)	NASA GSFC
SnowEx17 KT-15 Infrared Brightness Temperature, Version 1 (SNEX17_KT15_TB)	U. of Washington
SnowEx17 SnowSAR Multi-look Synthetic Aperture Radar Backscatter Amplitude Images, Version 1 (SNEX17_SnowSAR)	ESA

SnowEx17 UM Quantum Well Infrared Photodetector (QWIP) Surface Temperature, Version 1 (SNEX17_QWIP_ST)	NASA GSFC
SnowEx17 Boise State University Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX17_TLS_PC_BSU)	Boise State University
SnowEx17 Community Snow Depth Probe Measurements, Version 1 (SNEX17_SD)	NASA GSFC
SnowEx17 Community Snow Pit Measurements, Version 1 (SNEX17_SnowPits)	USFS
SnowEx17 CRREL Differential GNSS Survey, Version 1 (SNEX17_DGNSS1)	CRREL
SnowEx17 CRREL Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX17_TLS_PC_CRREL)	CRREL
SnowEx17 Ground-Based UWScat Ku- and X-Band Frequency Modulated Continuous Wave Radar, Version 1 (SNEX17_UWScat)	U. of Waterloo
SnowEx17 Laser Snow Microstructure Specific Surface Area Data, Version 1 (SNEX17_SSA)	Northumbria University
SnowEx17 Senator Beck SnowMicroPen (SMP) Raw Penetration Force Profiles, Version 1 (SNEX17_SMP2)	Boise State University
SnowEx17 SnowMicroPen (SMP) Raw Penetration Force Profiles, Version 1 (SNEX17_SMP)	Environment and Climate Change Canada
SnowEx Meteorological Station Measurements from Grand Mesa, CO, Version 1 (SNEX_Met)	George Mason University
SnowEx17 Time Series Sonic Snow Depth Measurement Array, Version 1 (SNEX17_SSD)	U. of Colorado Boulder

S17 – Grand Mesa & Senator Beck Basin, Colorado - Partnered

SnowEx17 Ground Penetrating Radar Raw, Version 1 (SNEX17_GPR_Raw)	U. of Colorado Boulder
SnowEx17 Ground Penetrating Radar, Version 2 (SNEX17_GPR)	U. of Colorado Boulder
SnowEx Colorado 3M Snow Depth Time Series and DEMs from High-Resolution Satellite Image Pairs, Version 1 (SNEX_HRSI_SD_DEM_CO)	U. of Washington
SnowEx17 Radiometrics Surface-Based Radiometer Brightness Temperatures, Version 1 (SNEX17_SBR)	Université du Québec à Trois-Rivières
SnowEx17 Ground-Based Broadband Frequency Modulated Continuous Wave Radar, Version 1	Boise State University
SnowEx17 Wideband Instrument for Snow Measurements (WISM) Radiometer Passive Measurements	NASA GSFC

S20 – Grand Mesa, Colorado

SnowEx20 Grand Mesa Airborne Snow Depth and SWE	ASO
SnowEx20 Airborne SWESARR Brightness Temperature, Version 1 (SNEX20_SWESARR_TB)	NASA GSFC
SnowEx20 Boise State University Raw Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX20_TLS_PC_BSU_RAW)	Boise State University
SnowEx20 Boise State University Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX20_TLS_PC_BSU)	Boise State University
SnowEx20 COSMOS Stationary Soil Moisture, Version 1 (SNEX20_CSSM)	ERDC GRL
SnowEx20 CRREL Terrestrial Laser Scanner (TLS) Point Cloud, Version 1 (SNEX20_TLS_PC_CRREL)	CRREL
SnowEx20 Grand Mesa Autumn 2019 Gravimetric Soil Moisture, Version 1 (SNEX20_A19_GSM)	NASA GSFC
SnowEx20 Grand Mesa Autumn 2019 Snow Depth, Version 1 (SNEX20_A19_SD)	NASA GSFC
SnowEx20 Grand Mesa Autumn 2019 Snow Pits, Version 1 (SNEX20_A19_SP)	NASA GSFC
SnowEx20 Grand Mesa Autumn 2019 Snow Water Equivalent, Version 1 (SNEX20_A19_SWE)	NASA GSFC
SnowEx20 Grand Mesa In Situ Dielectric Soil Moisture, Version 1 (SNEX20_DSM)	USDA-ARS
SnowEx20 Grand Mesa Intensive Observation Period Snow Pit Measurements, Version 1 (SNEX20_GM_SP)	NASA GSFC
SnowEx20 Grand Mesa IOP Computed Tomography Snow Microstructure, Version 1 (SNEX20_GM_CTSM)	CRREL
SnowEx20 Grand Mesa Snow Depth from Snow Pole Time-Lapse Imagery, Version 1 (SNEX20_SD_TLI)	U. of Washington
SnowEx20 Laser Snow Microstructure Specific Surface Area Data, Version 1 (SNEX20_SSA)	Ohio State University
SnowEx20 SnowMicroPen (SMP) Raw Penetration Force Profiles, Version 1 (SNEX20_SMP)	Boise State University
SnowEx20 Time-Lapse Imagery, Version 1 (SNEX20_TLI)	U. of Washington
SnowEx20 Grand Mesa Reference GIS Data Sets, Version 1 (SNEX20_GIS_REF)	USDA Forest Service, Geospatial Management Office
SnowEx20 Community Snow Depth Probe Measurements, Version 1 (SNEX20_SD)	CRREL
SnowEx20 COSMOS Rover Soil Moisture, Version 1 (SNEX20_CRSM)	ERDC GRL
SnowEx20 Grand Mesa Airborne SWESARR Backscatter Intensity	NASA GSFC
SnowEx20 APL-UW CASIE Airborne RGB imagery	U. of Washington
SnowEx20 APL-UW CASIE Airborne TIR camera	U. of Washington

SnowEx20 APL-UW CASIE Airborne TIR mosaics	U. of Washington
SnowEx20 APL-UW CASIE Airborne TIR radiometer	U. of Washington
SnowEx20 Grand Mesa Field Spectrometer	
SnowEx20 Grand Mesa Snow Stakes, Storm Boards and LWC	USFS

S20 – Grand Mesa, Colorado - Partnered

SnowEx20 Grand Mesa IOP BSU 1 GHz Multi-polarization GPR CMP Snow Water Equivalent, Version 1 (SNEX20_BSU_CMP_SWE)	Boise State University
SnowEx20 Grand Mesa IOP BSU 1 GHz Multi-polarization GPR Raw, Version 1 (SNEX20_BSU_GPR_Raw)	Boise State University
SnowEx20 Grand Mesa IOP BSU 1 GHz Multi-polarization GPR, Version 1 (SNEX20_BSU_GPR)	Boise State University
SnowEx20 Grand Mesa IOP BSU Multi-polarization 1 GHz GPR CMP Raw, Version 1 (SNEX20_BSU_CMP_Raw)	Boise State University
SnowEx20 Grand Mesa IOP BSU Multi-polarization 1 GHz GPR CMP Travel-Times, Version 1 (SNEX20_BSU_CMP_TT)	Boise State University
SnowEx20 Grand Mesa IOP CSU 1GHz GPR Raw, Version 1 (SNEX20_GM_CSU_GPR_RAW)	Colorado State University
SnowEx20 Grand Mesa IOP CSU 1GHz GPR, Version 1 (SNEX20_GM_CSU_GPR)	Colorado State University
SnowEx20 Grand Mesa IOP UNM 800 and 1600 MHz MALA GPR, Version 1 (SNEX20_UNM_GPR)	U. of New Mexico
SnowEx20 Raw Near Surface Snow Temperature Profile Time Series, Version 1 (SNEX20_VPTS_Raw)	U. of Washington
SnowEx20 Grand Mesa Airborne FMCW Radar	U. of Alabama
SnowEx20 Grand Mesa FMCW radar	Boise State University
SnowEx20 Grand Mesa SWE from Gamma Radiation	NOAA NOHRSC
SnowEx20 Ground-based Passive Microwave Radiometer	Ohio State University
SnowEx20 Grand Mesa Pluvio Volumetric Precipitation Gage	U. of Illinois Urbana-Champaign
SnowEx20 Grand Mesa IOP Integrated LiDAR and GPR Snow Density and SWE (all three in one)	CRREL
SnowEx20 Grand Mesa IOP Lidar and GPR-Derived Snow Water Equivalent and Snow Density, Version 1	CRREL

S20 – Western U.S Time Series

SnowEx20 Time Series L-Band Interferometry UAVSAR	Boise State University
SnowEx20 Time Series L-Band UAVSAR PolSAR	Boise State University
SnowEx20 Time Series Snow Depth, SWE, and Snow-off Rasters	ASO
SnowEx20 Time Series Snow Pit Measurements, Version 1 (SNEX20_TS_SP)	NASA GSFC
SnowEx20-21 QSI Lidar DEM 0.5m UTM Grid, Version 1 (SNEX20_QSI_DEM)	Quantum Spatial
SnowEx20-21 QSI Lidar DEM 3m UTM Grid, Version 1 (SNEX20_QSI_DEM_3m)	Quantum Spatial
SnowEx20-21 QSI Lidar Snow Depth 0.5m UTM Grid, Version 1 (SNEX20_QSI_SD)	Quantum Spatial
SnowEx20-21 QSI Lidar Snow Depth 3m UTM Grid, Version 1 (SNEX20_QSI_SD_3m)	Quantum Spatial
SnowEx20-21 QSI Lidar Vegetation Height 0.5m UTM Grid, Version 1 (SNEX20_QSI_VH)	Quantum Spatial
SnowEx20-21 QSI Lidar Vegetation Height 3m UTM Grid, Version 1 (SNEX20_QSI_VH_3m)	Quantum Spatial
SnowEx20 Reynold's Creek Federal Sampler SWE	USDA-ARS
SnowEx20 Reynold's Creek Snow Depth Measurements	USDA-ARS
SnowEx20 Reynold's Creek Terrestrial Laser Scanner (TLS)	USDA-ARS
SnowEx20 Time Series Reference GIS Data Sets	Boise State University
SnowEx20 Time Series Snow Change Measurements (interval boards)	NASA GSFC
SnowEx20 Time Series Snow Depth Measurements	Boise State University

S20 – Western U.S Time Series – Partnered

SnowEx20 Boise River Basin SnowMicroPen (SMP) Raw Penetration Force Profiles, Version 1 (SNEX20_BR_BSU_SMP)	Boise State University
SnowEx20 Senator Beck Basin Transect Ground Surface Temperature, Version 1 (SNEX20_SB_GST)	Center for Snow and Avalanche Studies
SnowEx20 Cameron Pass UNAVCO Terrestrial Lidar Scans, Version 1 (SNEX20_TLS_UNAVCO)	Colorado State University
SnowEx20 Cameron Pass Ground Penetrating Radar Raw, Version 1 (SNEX20_COCP_GPR_Raw)	Colorado State University

SnowEx20 Cameron Pass Ground Penetrating Radar, Version 1 (SNEX20_COCP_GPR)	Colorado State University
SnowEx20-21 Cameron Pass Derived Snowpack Relative Permittivities and Densities from Ground Penetrating Radar, Version 1 (SNEX20_COCP_SPD)	Colorado State University
SnowEx20 Jemez UNM 800 MHz MALA GPR, Version 1 (SNEX20_J_UNM_GPR)	U. of New Mexico
SnowEx20 Boise River SfM Imagery	Boise State University
SnowEx20 Little Cottonwood Canyon Avalanche Detection from Infrasound	Boise State University
SnowEx20 Cameron Pass Federal Sampler SWE	Colorado State University
SnowEx20 Boise River C-band Tower-based Radar	U. of KU Leuven
SnowEx20 Little Cottonwood Canyon UAV SfM	U. of Utah
SnowEx20 Reynold's Creek UAV SfM	USDA-ARS
SnowEx20 Fraser Experimental Forest Soil Moisture probes	USFS
SnowEx20 Fraser Experimental Forest P-band SoOp tower radar	USFS

S21 – Western U.S Time Series

SnowEx20-21 QSI Lidar DEM 0.5m UTM Grid, Version 1 (SNEX20_QSI_DEM)	Quantum Spatial
SnowEx20-21 QSI Lidar DEM 3m UTM Grid, Version 1 (SNEX20_QSI_DEM_3m)	Quantum Spatial
SnowEx20-21 QSI Lidar Snow Depth 0.5m UTM Grid, Version 1 (SNEX20_QSI_SD)	Quantum Spatial
SnowEx20-21 QSI Lidar Snow Depth 3m UTM Grid, Version 1 (SNEX20_QSI_SD_3m)	Quantum Spatial
SnowEx20-21 QSI Lidar Vegetation Height 0.5m UTM Grid, Version 1 (SNEX20_QSI_VH)	Quantum Spatial
SnowEx20-21 QSI Lidar Vegetation Height 3m UTM Grid, Version 1 (SNEX20_QSI_VH_3m)	Quantum Spatial
SnowEx21 Time Series UAVSAR L-band InSAR	Boise State University
SnowEx21 Senator Beck Basin and Grand Mesa, CO AVIRIS-NG Surface Spectral Reflectance, Version 1	U. of Utah
SnowEx21 Time Series Snow Pits, Version 1	NASA GSFC
SnowEx21 Grand Mesa and Senator Beck Field Spectrometer	U. of Utah

SnowEx21 Time Series Reference GIS Data Sets	Boise State University
SnowEx21 Time Series Snow Change Measurements (interval boards)	NASA GSFC
SnowEx21 Time Series Snow Depth Measurements	NASA GSFC

S21 – Western U.S Time Series – Partnered

SnowEx20-21 Cameron Pass Derived Snowpack Relative Permittivities and Densities from Ground Penetrating Radar, Version 1 (SNEX20_COCP_SPD)	Colorado State University
SnowEx21 Cameron Pass Aerial Imagery, Associated Orthoimages and Digital Elevation Models	Colorado State University
SnowEx21 Cameron Pass Ground Penetrating Radar Raw, Version 1	Colorado State University
SnowEx21 Cameron Pass Ground Penetrating Radar, Version 1	Colorado State University
SnowEx21 Prairie Station In Situ Dielectric Soil Moisture and Soil Temperature, Version 1	USDA-ARS
SnowEx21 Boise River SfM	Boise State University
SnowEx21 Boise River SnowHydro SWE (banner summit, Bull Trout)	Boise State University
SnowEx21 Boise River Radiation and Snow Depth Array at Bull Trout	Boise State University
SnowEx21 Cameron Pass SnowHydro SWE	Colorado State University
SnowEx21 Boise River Helipod lidar (DEM, snow depth, vegetation heights)	CRREL
SnowEx21 Boise River Snow Temperature Array (Banner, Bogus)	CRREL
SnowEx21 Boise River GPR travel times (Banner Summit, Bull Trout, LDP)	CRREL
SnowEx21 Prairie Meteorological Station Data (temp, RH, windspeed)	Montana State University
SnowEx21 Prairie UAV-based Lidar	Montana State University
SnowEx21 Prairie UAV-based Orthoimagery	Montana State University
SnowEx21 Fraser Experimental Forest P-band tower radar	NASA JPL

SnowEx21 Prairie Station Cosmic Ray Neutron Sensor SWE and Soil Moisture	Syracuse University
SnowEx21 Boise River Tower-based C-band radar	U. of KU Leuven
SnowEx21 Little Cottonwood Canyon UAV Hyperspectral	U. of Utah
SnowEx21 Little Cottonwood Canyon UAV SfM	U. of Utah

S23 – Tundra & Boreal Forest, Alaska

Measurement period is **March 2023** unless noted in the title.

SnowEx23 Airborne Lidar Scans Raw, Version 1	U. of Alaska Fairbanks
SnowEx23 Airborne Lidar-Derived 0.25M Snow Depth and Canopy Height, Version 1	U. of Alaska Fairbanks
SnowEx23 Bonanza Creek Experimental Forest Terrestrial Lidar Scans Raw, Version 1	CRREL
SnowEx23 Bonanza Creek Experimental Forest Terrestrial Lidar Scans, Version 1	CRREL
SnowEx23 Laser Snow Microstructure Specific Surface Area Snow-off Data, Version 1	U. of Alaska Fairbanks
SnowEx23 Snow Water Equivalent, Version 1	U. of Alaska Fairbanks
SnowEx23 Laser Snow Microstructure Specific Surface Area Data, Version 1	U. of Sherbrooke
SnowEx23 October 2023 SWESARR Backscatter Intensity	NASA GSFC
SnowEx23 October 2023 SWESARR Brightness Temperature	NASA GSFC
SnowEx23 SWESARR Backscatter Intensity	NASA GSFC
SnowEx23 SWESARR Brightness Temperature	NASA GSFC
SnowEx23 April 2023 AVIRIS-NG Surface Spectral Reflectance	Portland State University
SnowEx23 Airborne Ortho Imagery	U. of Alaska Fairbanks
SnowEx23 March 2022 Airborne Ortho Imagery	U. of Alaska Fairbanks
SnowEx23 October 2022 Ortho Imagery	U. of Alaska Fairbanks
SnowEx23 October 2023 Ortho Imagery	U. of Alaska Fairbanks
SnowEx23 SnowMicroPen (SMP) Penetration Force Profiles	Boise State University

SnowEx23 Computed Tomography Snow Microstructure	CRREL
SnowEx23 Time-Lapse Imagery	CRREL
SnowEx23 March 2022 Snow Pit Measurements	NASA GSFC
SnowEx23 October 2022 Gravimetric Soil Moisture	NASA GSFC
SnowEx23 October 2022 Snow Depth Profiles	NASA GSFC
SnowEx23 October 2022 Snow Pits and Ground Conditions at Freeze Up	NASA GSFC
SnowEx23 October 2023 Gravimetric and Volumetric Soil Moisture	NASA GSFC
SnowEx23 October 2023 Snow Depth Profiles	NASA GSFC
SnowEx23 October 2023 Snow Pits and Ground Conditions at Freeze up	NASA GSFC
SnowEx23 Snow Depth Profiles	NASA GSFC
SnowEx23 Snow Pit Measurements	NASA GSFC
SnowEx23 April 2023 Field Spectrometer	Portland State University
SnowEx23 April 2023 Snow Chemistry	Portland State University
SnowEx23 April 2023 Snow Pit Measurements	Portland State University
SnowEx23 April 2023 Snow Surface Imagery	Portland State University
SnowEx23 April 2023 Transect Samples	Portland State University
SnowEx23 Corner Reflectors	U. of Alaska Fairbanks
SnowEx23 March 2022 Snow Depth Measurements	U. of Alaska Fairbanks
SnowEx23 October 2022 Laser Snow Microstructure Specific Surface Area Low-snow	U. of Alaska Fairbanks
SnowEx23 Snow Depth Measurements	U. of Alaska Fairbanks
SnowEx23 SWE Interval Boards	USFS
SnowEx23 Snow Depth from Snow Pole Time-Lapse Imagery	
SnowEx23 Reference GIS Data Sets and Field Maps	U. of Alaska Fairbanks
SnowEx23 Tree-mounted Meteorological Sensor Measurements	U. of Alaska Fairbanks

S23 – Tundra & Boreal Forest, Alaska – Partnered

Measurement period is **March 2023** unless noted in the title.

SnowEx23 University of Wyoming Ground Penetrating Radar, Version 1	U. of Wyoming
SnowEx23 Lyte Probe	Adventure Data
SnowEx23 BSU FMCW dual-pol radar, 6-16 GHz	Boise State University
SnowEx23 October 2023 Ground Surface Reconstruction	Boise State University
SnowEx23 October 2023 Ground Surface Roughness Imagery	Boise State University
SnowEx23 CSU 1GHz GPR	Colorado State University
SnowEx23 CRREL 1GHz GPR	CRREL
SnowEx23 CRREL 800 MHz / 1.5 GHz GSSI GPR	CRREL
SnowEx23 Mobile Tower-based Dual-pol C-band	U. of KU Leuven
SnowEx23 April 2023 UAV-based Surface Spectral Reflectance	U. of New Hampshire
SnowEx23 SnowScope	USFS
SnowEx23 April 2023 HySypecs	USGS EOS