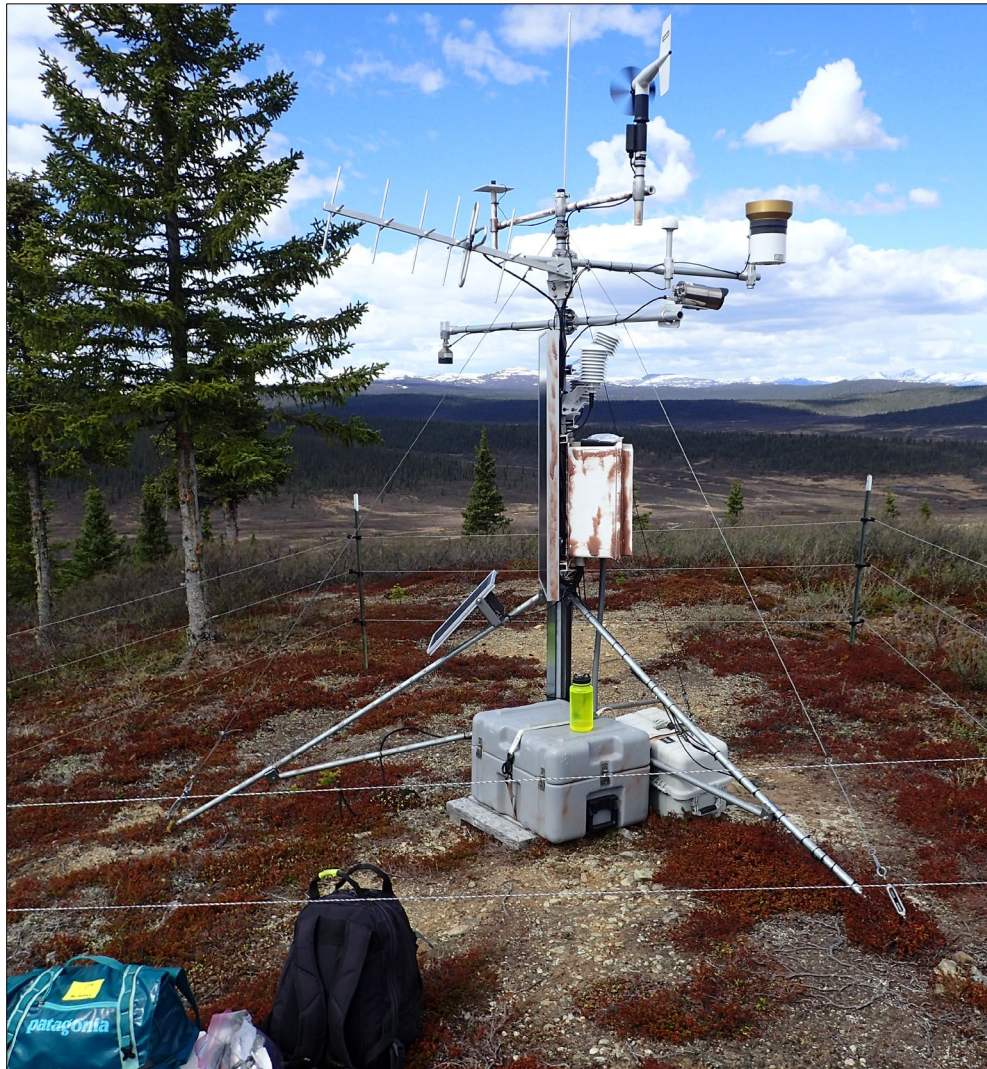


Climate Station Maintenance in the Central Alaska Inventory and Monitoring Network

2026 Summary



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September 2026

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Photo

Upper Charley weather station, Yukon-Charley Rivers National Preserve.
NPS/Ken Hill

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Abstract

The mission of the Central Alaska Network Inventory and Monitoring Program (CAKN) is to collect, compile and synthesize scientific information about the central network of parks to manage park resources "unimpaired for the enjoyment of future generations". The Inventory and Monitoring (I&M) Program is a major component of the National Park Service's (NPS) strategy to improve park management through greater reliance on scientific information.

The objective of the climate monitoring program is to monitor and record weather conditions at representative locations to identify long and short-term trends, provide reliable climate data to other researchers, and to participate in larger scale climate monitoring and modeling efforts beyond park boundaries. Thirteen remote automated I&M weather stations (RAWS) have been installed in CAKN parks since 2003. There are additional weather and climate stations in the parks run by state and federal agencies with specific objectives and missions. It is in the best interest of the CAKN program to cooperate with these other entities on maintenance site visits. During the 2026 field season maintenance site visits were conducted at twenty-five sites, including twelve CAKN RAWS, four SNOTEL (snow telemetry) stations, eight fire RAWS stations, and one NOAA climate reference network site.

This report summarizes all work for the 2026 field season and includes current sensor metadata. These annual operations reports are compiled each year along with other deliverables so that it is clear how the data were collected. For more information, including data access, weather summaries, and annual reports please visit the CAKN climate website at <https://www.nps.gov/im/cakn/climate.htm>.

List of Acronyms

Ah:	Amp hour
AT:	Air Temperature
AT-RH:	Air Temperature-Relative Humidity
CAKN:	Central Alaska Network
DENA:	Denali National Park and Preserve
DLP:	Data Logger Program
FTS:	Forest Technology Systems
GOES:	Geostationary Operational Environmental Satellite
GPS:	Global Positioning System
I&M:	Inventory and Monitoring
NESDIS ID:	National Environmental Satellite, Data, and Information Service Identifier
NPS:	National Park Service
NRCS:	Natural Resource Conservation Service
RAWS:	Remote Automated Weather Station
RG-TB:	Rain Gauge - Tipping Bucket
SD:	Snow Depth
SNOTEL:	Snow Telemetry
SR:	Solar Radiation
ST:	Soil Temperature
W:	Watt
WFMI:	Wildland Fire Management Information
WRST:	Wrangell-St. Elias National Park and Preserve
WS-WD:	Wind Speed - Wind Direction
YUCH:	Yukon-Charley Rivers National Preserve

Climate Station Locations

For the 2026 field season, the Central Alaska Network (CAKN) continued its climate monitoring program by visiting stations in Denali National Park and Preserve (DENA), Yukon-Charley Rivers National Preserve (YUCH), and Wrangell – St. Elias National Park and Preserve (WRST) (Figure 1). Thirteen CAKN climate stations were maintained (Table 1) along with NPS support at four NRCS snow and soil sites, eight fire RAWs stations, and one NOAA Climate Reference Network station. Annual maintenance includes downloading data, updating software and programming, replacing sensors, and troubleshooting problems. Maintenance is critical to provide continuous, high-quality meteorological data. The annual deliverables for the 2026 data year are available at:

<https://irma.nps.gov/DataStore/Reference/Profile/2319298>.

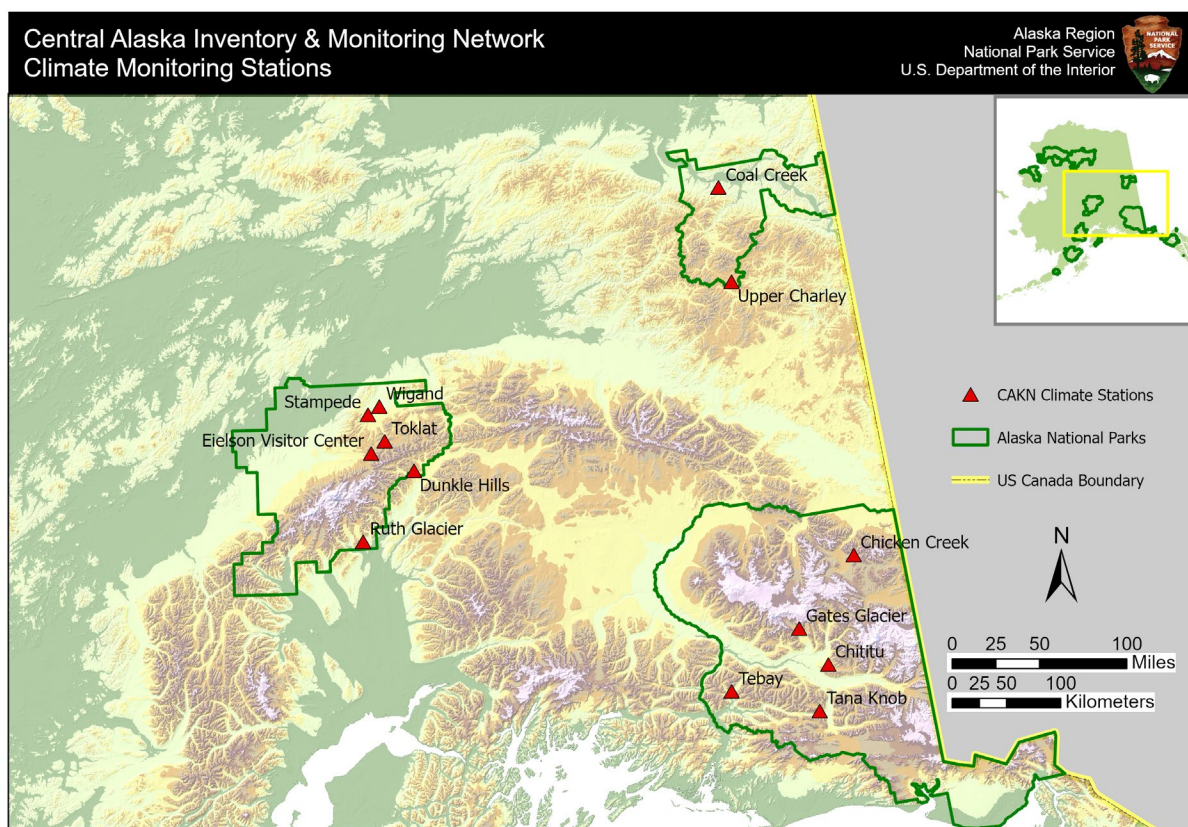


Figure 1. Locations of CAKN climate stations.

Table 1. Locations of CAKN climate stations maintained in 2026 field season.

Station Name	Latitude	Longitude	Elevation (m)	Park
Chititu	61.274	-142.621	1385	WRST
Chicken Creek	62.124	-141.847	1597	WRST
Tana Knob	60.908	-142.901	1140	WRST
Gates Glacier	61.603	-143.013	1237	WRST
Tebay	61.181	-144.342	573	WRST
Chisana SNOTEL/RAWS	62.072	-142.065	1012	WRST
May Creek SNOTEL/RAWS	61.348	-142.694	503	WRST
Klawasi RAWS	62.217	-144.995	2513	WRST
Strelna/Chitina RAWS	61.521	-144.198	1232	WRST
Upper Charley	64.517	-143.202	1114	YUCH
Coal Creek	65.314	-143.132	292	YUCH
Toklat	63.524	-150.043	890	DENA
Eielson Visitor Center	63.431	-150.309	1202	DENA
Wigand	63.814	-150.109	1716	DENA
Ruth Glacier	62.710	-150.540	1006	DENA
Stampede	63.747	-150.328	549	DENA
Dunkle Hills	63.268	-149.539	808	DENA
Wonder Lake CRN	63.452	-150.875	2163	DENA
Kantishna SNOTEL	63.540	-150.990	472	DENA
Tokositna SNOTEL	62.629	-150.775	259	DENA

Climate Station Maintenance Summaries

This section describes the maintenance details of twenty-six climate stations in CAKN organized by park unit. This work is being implemented based on Central Alaska Network (CAKN) climate vital sign protocols (Sousanes 2018) and standard operating procedures (Sousanes et al. 2017). The 2026 protocol and SOPs are available at: <https://irma.nps.gov/DataStore/Reference/Profile/2314004>.

See Appendix A for detailed logistics for each of the base locations. Appendices B and C provide sensor specifications and metadata.

Denali National Park and Preserve

Eielson Visitor Center

Date/Time: 6/10/2026 14:20

Personnel: Pam Sousanes and Ken Hill

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: low 50s

Damage:

Sensors replaced:

Removed AT/RH EE181 #18311600025188; WS-WD #87997; Snow depth SR50a #2551

Installed AT/RH EE181 # 21501600087651; WS-WD #87992; Snow depth SR50a #3183

Other hardware replaced: replaced tipping bucket screen

Additional Comments: Station looked good. SR50a height changed from 86.1 to 87.5 inches.

Potential Data Issues:

To Do:

1. Make new interpretive sign for enclosure door.



Figure 2. Eielson Visitor Center climate station, June 10, 2026.

Stampede

Date/Time: 6/10/2026 10:30

Personnel: Pam Sousanes and Ken Hill

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: low 60s

Damage: Power issue that wiped datalogger clean, including program. No data.

Sensors replaced:

Removed AT/RH 181 #2010600121464

Installed AT/RH EE181#201516001277a

Other hardware replaced: Charging regulator (likely Ok, need to test), battery cable.

Additional Comments: No program was running on the datalogger. No data, no files. Downloaded watch dog.txt file from DevCon – stats from 5/30/2026. Due to unknown power issue swapped charging regulator, battery cable, and tested power at multiple locations. Voltage would jump between 10.8, 11.2 and 13.2 volts. Individually the batteries read 13.2 when disconnected from the load. Finally isolated voltage fluctuations to one battery, removed and left one battery on site. After that there were no power fluctuations. Drilled a drainage hole in battery box and new hole in enclosure for battery cable. Sr50 height was changed to 82 inches.

Potential Data Issues:

1. No data from October 17, 2025 – site visit on June 10, 2026.

To Do: Add second battery to site at next field visit

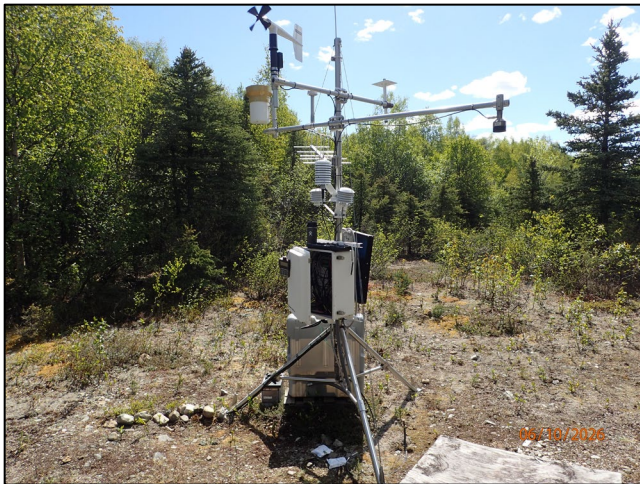


Figure 3. Stampede climate station, June 10, 2026.

Toklat

Date/Time: 6/9/2026 1810

Personnel: Ken Hill and Pam Sousanes

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: upper 40s

Damage: none

Sensors replaced:

Removed AT/RH EE181 #0150582; SR #68925; O5103 #58429

Installed AT/RH EE181 #04190; SR #63674; O5103 #95226

Other hardware replaced: none

Additional Comments: Station looked great.

Potential Data Issues: none

To Do:



Figure 4. Toklat climate station, June 9, 2026.

Wigand

Date/Time: 6/10/2026

Personnel: Pam Sousanes and Ken Hill

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: low 60s, light winds

Damage:

Sensors replaced:

Removed AT/RH EE181 #201816000056321, SR Li200X #60149, WS-WD RM Young #87976

Installed AT/RH EE181 #2191160013562F, SR Li200X #63691, WS-WD RM Young #129043

Other hardware replaced: none

Additional Comments: Site transformation. Permafrost is thawing adjacent to the site near the NE tripod leg, extending to the north. Site will need to be moved soon, or it will topple over or sink. At present, the station remains level. SR50 height changed from 64 to 62.5. Soil sensors show evidence of heaving – up to 5 cm for deep sensor(s). Tightened polywire and repaired fence.

Potential Data Issues:

To Do:

1. Monitor permafrost thaw -be prepared to move site. Bring Geoblock to go under battery box.
2. Take notes on soil sensors – are they heaving, loose, good?
3. Many snow depth sensor errors. Replace sensor/transducer.

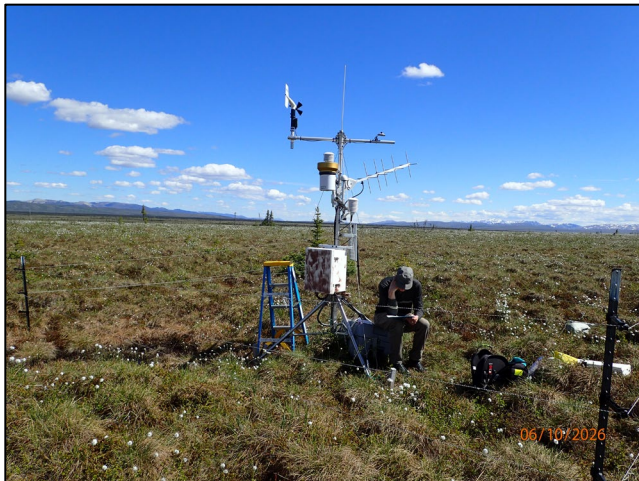


Figure 5. Wigand climate station June 10, 2026.

Dunkle Hills

Date/Time: 6/9/2026 1115

Personnel: Pam Sousanes and Ken Hill

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: upper 40s

Damage: Bear (?) damage. Many cables severed – GPS, Coax, wind, 109_2, snow.

Sensors replaced:

Removed AT/RH EE181 #1449D0; WS-WD #87973

Installed AT/RH EE181 #0044AB; WS-WD # 87999

Other hardware replaced: Replaced TX321. Swapped EE181 cable.

Additional Comments: Looks like a bear visited the site again. Many cables were damaged. Replaced all damaged cables/sensors. TX321 transmit light was on for 1+ hours and the time to next transmission had wrong year. Resolved after cycling power. Swapped the two external 12V batteries. Added STF4 at 90 cm.

Potential Data Issues:

To Do:

1. Add bear fence

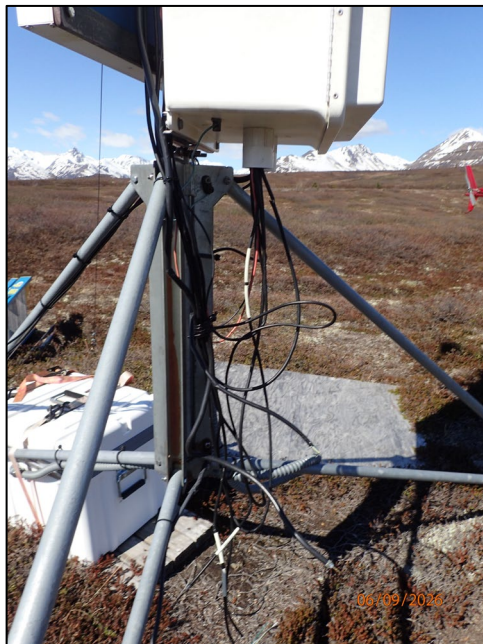


Figure 6. Dunkle Hills climate station June 9, 2026. Bear damage, cables pulled from bottom of enclosure (left) and station at end of site visit (right).

Ruth Glacier

Date/Time: 6/9/2026 14:10

Personnel: Ken Hill and Pam Sousanes

Logistics: A-star helicopter – Temsco – N149AE – Logan Molaison

Weather: upper 40s

Damage: Not transmitting. No obvious damage.

Sensors replaced:

Removed AT/RH EE181 #0674F, WS-WD #126353

Installed AT/RH EE181 #271102, WS-WD #159861

Other hardware replaced: TX325 for TX321

Additional Comments: Still a mystery as to why this station is not transmitting. Replaced the coax and cycled power to the transmitter, when that did not work the TX325 transmitter was swapped. The TX light flashed at transmission time, but no message was received. The Yagi was reoriented, so the coax connection was at the bottom (for moisture concerns). Maybe still a Yagi issue?? The Yagi and GPS antennas and cables looked fine. All connections looked good. Batteries were checked – one is from 2010 and one looks newer (Full River). Leveled SR sensor. Replaced many broken insulators on fence. Downloaded data, looked OK.

Potential Data Issues: none. First glance at logged data looked good.

To Do:

2. Replace Yagi, check azimuth alignment
3. Replace two 12 V batteries

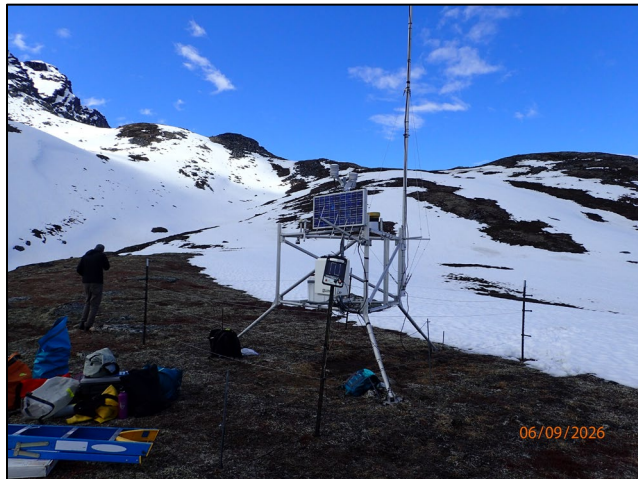


Figure 7. Ruth Glacier climate station June 9, 2026.

Denali Fire RAWS

DENA staff completed annual maintenance at all fire RAWS in summer 2026. More information is available through [WXx-Weather](#).

Denali Visitor Center: Annual maintenance performed 5/27/2026 by Shannon Coykendall and Eliza Lawrence. Replaced RH/AT (#49882), rain gauge (44040), SR (#53174), WS-WD (#46084), and station battery. Force scanned all sensors, mapped SR and WS/WD; zeroed tipping bucket and verified; data downloaded. Station in good order but sinking on south side. Rain gauge leveled.

Lake Minchumina: Annual maintenance performed 5/29/2026 by Sarah Hayes and Lexie Regetz. Replaced RH/AT (48921). Validated all sensors, mapped WS/W, zeroed and verified tipping bucket. Downloaded data. Trimmed some shrubs.

McKinley River: Annual maintenance performed 5/29/2026 by Sarah Hayes and Lexie Regetz. Replaced RH/AT (46306), SR (129776). Validated all sensors, mapped SR and WS/WD and verified tipping bucket. Downloaded data. Station in good order including bear fence. Trimmed some shrubs.

Wonder Lake: Annual maintenance completed by Shannon Coykendall and Lexie Regetz on 5/28/2026. Replaced RH/AT (46173), SR (124853), and station battery. Force scanned all sensors before and after change; mapped SR; zeroed tipping bucket and verified tipping bucket; data downloaded. Station in good order.

Denali SNOTEL

Tokositna SNOTEL 6/24/2026: Daniel Fisher and Lauren Austin from the Natural Resources Conservation Service completed the annual maintenance. Crew coordinated with Joe Reichert to provide access from Talkeetna with 570AE. The precipitation gage was flushed, and 10 gallons of fresh antifreeze were added for the winter. Sensors were replaced as needed according to the SNOTEL network protocols (National Engineering Handbook 2015).

Kantishna SNOTEL 8/12/2025: Keegan Krantz and Alex Rebentisch completed the maintenance. Access was by GOV. Denali Park Road permit was obtained through Shannon Coykendall. The precipitation gage was flushed, and 10 gallons of fresh antifreeze were added for the winter. Sensors were replaced as needed according to the SNOTEL network protocols (National Engineering Handbook 2015).

Wonder Lake Climate Reference Network Station (AK Denali 27N)

5/28/2026: Chuck Lindsay (NOAA contractor) performed site maintenance. Replaced the fuel cell and added fuel and got the station back up and running. The 12-volt batteries will need to be replaced this summer. Emptied the Geonor rain gage. The site was accessed by A-Star helicopter N149AE coordinating with the Wonder Lake RAWS maintenance with Shannon Coykendall and Lexie Regetz.

Wrangell-St. Elias

Chicken Creek

Date/Time: 7/18/2026 14:40

Personnel: Pam Sousanes

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer, Ashlee Girardi (manager)

Weather: upper 40s, cloudy.

Damage: none

Sensors replaced:

Removed: AT/RH EE181 #21005, Solar Rad Li200x# 102543, WS-WD #95219, TB #30464-402

Installed: AT/RH EE181 #0141DC, Solar Rad Li200X #89813, WS-WD TRM Young #53424, TB #not recorded.

Other hardware replaced:

Additional Comments: Station looked good. Tipping bucket looked OK and cable was OK, not certain what caused spike on June 29 with 12.22 inches recorded between 1900-2000. Replaced and reset to zero.

Potential Data Issues: Spike in RN_IN on June 29 of 12.22 inches – delete data point. The period between June 29 after the spike and the site visit on July 7 seems reasonable (0.54 inches). During site visit the total was reset to 0.0. After import, remove errant data point and use offset to correct accumulation and totals. Ken already adjusted the API data stream in Aquarius on July 16, 2026.

To Do:

- 1) In 2028, when replacing the Li200X – flag #89813 and either retire the sensor or have it re-cabled during calibration.
- 2) In 2029, when replacing the wind sensor – flag #53424 to have the cable rewired.



Figure 8. Chicken Creek climate station, July 7, 2026.

Chititu

Date/Time: 7/7/2026 17:46

Personnel: Pam Sousanes and Fleur Nicklen

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer, Ashlee Girardi (manager)

Weather: mid 40s.

Damage: none

Sensors replaced:

Removed: AT/RH EE181 #74351, Solar Rad Li200X # 83323

Installed: AT/RH EE181 #023406, Solar Rad Li200X #102542

Other hardware replaced: None

Additional Comments: Station looked great. No evidence of soil sensors heaving. Redid the bailing wire deterrent around the cables, seems to be working.

Potential Data Issues:

To Do:



Figure 9. Chititu climate station, July 7, 2026.

Gates Glacier

Date/Time: 7/8/2026 17:15

Personnel: Pam Sousanes

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer, Ashlee Girardi (manager)

Weather: mid 40s.

Damage: none

Sensors replaced:

Removed AT/RH EE181 #039AF, Solar Rad Li200X #100476, CR1000 #42993, TX321 #1617

Installed AT/RH EE181 #073183, Solar Rad Li200X #83212, CR1000X #62466, TX325 #300003926

Other hardware replaced: SD memory card on CC5MPX phenology camera. Card was swapped and checked on site (using card reader) but was missing from case when returned to the office. Could be on site – check in 2027. Replaced enclosure, replaced battery cable/conduit.

Additional Comments: Station looked good. Drilled multiple holes in bottom of battery box for drainage. Approx. 1 inch of water in bottom, drained and dried. Drilled second conduit hole in new enclosure for camera battery cable. The B-line solar panel mounting clamp is up against the back of the enclosure – OK for now but improving solar panel mount will alleviate the issue.

Potential Data Issues: none

To Do:

1. Replace solar panel with new small 50-watt panel with improved mounting.
2. Replace old CH12R charging regulator or use the CH12R for the camera battery and install another charging regulator for the station (would free up some space in enclosure).



Figure 10. Gates Glacier climate station on July 8, 2026.

Tebay

Date/Time: 7/7/2026 14:45, returned 7/9/2026 12:56 pm

Personnel: Pam Sousanes and Fleur Nicklen

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer, Ashlee Girardi (manager)

Weather: low 50s

Damage: None.

Sensors replaced:

Removed AT/RH swapped EE181 #1206E5, Solar Radiation Li200X #36882, SR50a #unkown – no markings on sensor

Installed AT/RH swapped EE181 #139662, Solar Radiation Li200X #60148, SR50a #unkown – no markings on sensor

Other hardware replaced: Added micro SD card to datalogger.

Additional Comments: To address the Sr50a sensor issue: 1) replaced the sensor head – but continued to read “NAN Inch” in public table, 2) swapped the sensor cable – still reading “NAN Inch”, so replaced the sensor head with action packer spare – still not reading correctly. Ken discovered programming error where the ATC value was not being recorded (value used in the snow depth reading). Returned to site on July 9 and loaded new program (Teaby_2026). Snow depth value read zero and appears to be working, although there are some spikes since the site visit. Remeasured distance. Cross brace and hardware still on site. Fleur and Ashlee rehabbed the fence – the extra strand of polywire seems to be effective. A black bear was spotted near the station on departure.

Potential Data Issues:

SDI: 02/24/2026 02:00 through 4/8/2026 08:00 reading NAN. Values on either side of issue seem OK. Started reading NAN again on 6/11/2026 22:00 through 07/09/2026 (site visit).

To Do:

Monitor snow depth values – replace sensor head again if continues.



Figure 11. Tebay climate station, July 7, 2026.

Tana Knob

Date/Time: 7/8/2026 10:33

Personnel: Pam Sousanes, Fleur Nicklen installed dendrometers

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer, Ashlee Girardi (manager)

Weather: low 50s.

Damage: Crossbars were slightly out of level.

Sensors replaced:

Removed AT/RH EE181 #0992A, Solar Rad Li200X #90559

Installed AT/RH EE181 #004379, Solar Rad Li200X #943042

Other hardware replaced:

Additional Comments: AT/RH sensor failed, but there was no obvious damage to sensor or cable or wiring. Fence needed minor repairs. Current crossbar setup is not optimal. Guy wires exert too much pressure on upper crossbar configuration pushing it out of level. The tripod legs are bowed due to snow loads over the years. Enclosure is shedding fiberglass. Upgrade to CR1000X and TX325 during upgrade and replace coax, GPS cable, and solar panel wires. Battery box and conduit are OK. Fleur Nicklen installed dendrometers on six trees near the station. Note taking done by Ashlee Girardi.

Potential Data Issues:

AT/RH: 12/15/20251000 through 7/8/2026 1000 (site visit). Bad sensor, delete ATF_EE181 and RHP_181 values for this period.

To Do:

1. Replace tripod. Replace enclosure. Replace batteries.
2. Upgrade datalogger and transmitter to CR1000XE and TX325
3. Replace Coax, GPS cable, and solar panel wires

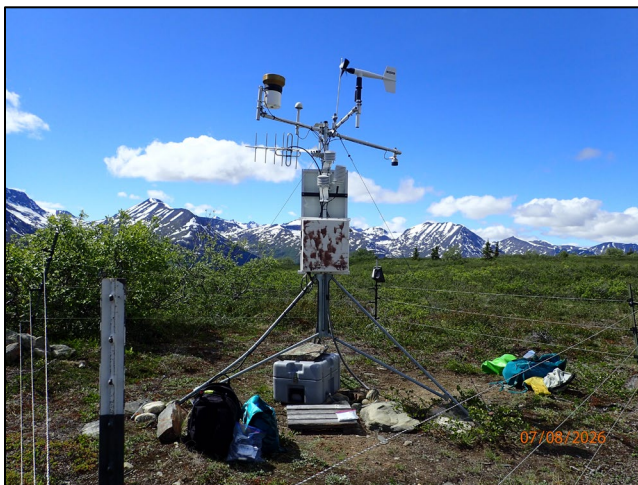


Figure 12. Tana Knob climate station on July 8, 2026.

Wrangell-St. Elias Fire RAWS

Sarah Hayes and Tim Nolan completed RAWS maintenance at May Creek and Chisana 5/14/2026, Klawasi on 5/12/2025, and Chitina/Strelna on 5/22/2025. Information on sensor swaps are available in [WXx-Weather](#). Fleur Nicklen installed dendrometers on four trees around the May Creek RAWS on July 8, 2026.

Wrangell-St. Elias SNOTEL

The SNOTEL sites at May Creek and Chisana were maintained by NRCS on August 10, 2026. Daniel Fisher accessed the site via fleet fixed-wing from Gulkana with Kelly Galscott as pilot. Sensors were replaced as needed according to the SNOTEL network protocols (National Engineering Handbook 2015). The precipitation gages were flushed, and 10 gallons of fresh antifreeze liquid added for the winter. The electric fences were repaired.

Yukon-Charley Rivers National Preserve

Coal Creek

Date/Time: 6/4/2026

Personnel: Ken Hill

Logistics: A-star helicopter – Temsco – N31NS – Eric Steinbauer

Weather: low 70s, calm.

Damage:

Sensors replaced:

Removed AT/RH EE181#2498E, Snow SR50a #5060

Installed AT/RH EE181 #1941E, Snow SR50a #11628

Other hardware replaced:

Additional Comments: Station looked great. No evidence of heaving for the replicate soil sensors.

Potential Data Issues: none

To Do:



Figure 13. Coal Creek climate station, June 4, 2026.

Upper Charley

Date/Time: 6/4/2026

Personnel: Ken Hill

Logistics: A-star helicopter – Temsco – N31NS – Erik Steinbauer

Weather: upper 50s

Damage: Tipping bucket off mounting bracket, at 45° angle.

Sensors replaced:

Removed AT/RH EE181 #149866, SR Li200X #43130, WS-WD RM Young #95225, TB replaced #45234-810

Installed AT/RH EE181 #139580, SR Li200X #60147, WS-WD RM Young #95888, TB installed #unknown

Other hardware replaced: Swapped SD memory card in CC5MPX camera.

Additional Comments: Replaced tipping bucket. Site looked good other than tipping bucket. Two voles were on site (maybe under battery box). Re-leveled solar radiation mount it was a few degrees off to the south. Suspect that tipping bucket bracket broke off due to icing. Most winter photos were ice-effected (riming). Fleur Nicklen installed dendrometers on site (x6). Replaced a few insulators on fence.

Potential Data Issues:

RN_IN dates. No change in value from 1/16/2026 – 6/4/2026 1000 (site visit)

To Do: Station regularly receives heavy rime ice that damages the tipping bucket. Consider improving the mounting mechanism.

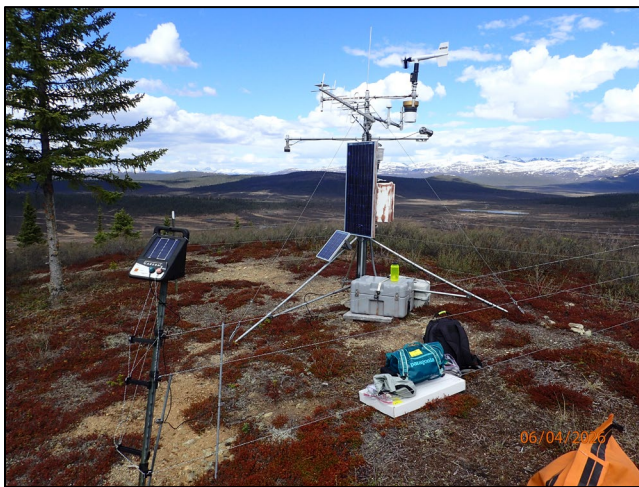


Figure 14. Upper Charley station June 4, 2026.

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- National Engineering Handbook. 2015. United States Department of Agriculture Natural Resources Conservation Service. Part 622, Snow Survey and Water Supply Forecasting. Chapter 5, Maintenance and Calibration.
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Appendix A. Logistics Summary 2026

DENA Logistics

May 28: The Wonder Lake CRN site was accessed by helicopter N149AE. Chuck Lindsay, Shannon Coykendall, and Lexie Regetz. Chuck was dropped off at site while Shannon and Lexie did the Wonder Lake RAWS maintenance.

June 24, 2026: Tokostina Snotel accessed by helicopter 570AE from Talkeetna. Daniel Fisher (NRCS) and Lauren Austin (NRCS) did the maintenance.

July 9-10, 2026: Dunkle, Ruth Galcier, Toklat, Stampede, Wigand, and Eielson Visitor Center were completed by Ken Hill and Pam Sousanes. Site accessed via DENA fire A-star helicopter N149AE with pilot Logan Molaison. Ken was at the park with his family and joined each day. Pam drove GOV and stayed at Admin Camp.

August 10, 2026: Kantishna SNOTEL accessed by Denali Park Road. Road permit obtained from Shannon Coykendall at Denali. Keegan Krantz and Alex Rebentisch did the Snotel maintenance and spent the night at Friday Creek camp.

WRST Logistics

July 7-9, 2026

Personnel: Pam Sousanes, Fleur Nicklne, Ashlee Girardi (helicopter manager - detail from BICY), Erik Steinbauer (Temsco helicopter pilot).

Aircraft: Temsco A-star 350B3 Wildland Fire Service exclusive use fire helicopter

Fuel: Fireweed Airstrip, with Temsco's code for Fireweed Fuel LLC and Gulkana (commercial fuel).

Housing: NPS May Creek cabin for two nights.

Vehicles: GOV from Fairbanks.

Stations maintained: Chititu, Tana Knob, Gates Glacier, Tebay and Chicken Creek.

Narrative: On **July 7** Pam and Fleur drove GOV from Fairbanks to Gulkana and met the helicopter at the NPS Gulkana hangar. Ashlee stashed her fire ready gear and the medical stretcher in the Gulkana hangar. Heather Yates, chief ranger, delivered the May Creek key to Gulkana and requested that we retrieve property numbers from radios at May Creek. Fueled at the Gulkana commercial fuel tank due to uncertainty about whether the Jet A had been cycled this season (could not get into tank to cycle the fuel). All crew and gear were loaded, and two sites were maintained on July 7 – Tebay and then Chititu. Spent the evening at May Creek. Ashlee and Erik stayed in the cabin and Pam and Fleur set up tents. May Creek camp was in good shape and the keys worked perfectly (there had been some issues with keys not working the previous week). On **July 8** we fueled at Fireweed first and then all headed to Tana Knob. After Tana we dropped Fleur off at May Creek so she could spend the day installing dendrometers near the May Creek RAWS. The rest of the crew headed to Chicken Creek since the weather was decent and then ended the day working at Gates Glacier. Left Gates at 8 pm. The morning of **July 9** Ashlee received a Teams message that there was a SAR. Isaac Hull had attempted to contact all of us in the middle of the night, but none of our communication devices were

on. Ashlee and Erik left on the SAR ~ 8 am and returned ~9:30. Packed up gear, loaded up and returned to Gates Glacier to finish up and then back to Tebay to load the new program. After Tebay the crew returned to Gulkana. Pam and Fleur unloaded and drove back to Fairbanks (transported a rifle to the NPS Fairbanks hangar for Heather Yates). Helicopter returned to Fairbanks, via Denali due to low clouds in Isabel Pass.

August 10, 2026. The SNOTEL site at May Creek and Chisana was accessed from Gulkana with a fleet fixed wing aircraft with Kelly Glasscott as the fleet pilot. Daniel Fisher (NRCS) drove from Palmer to complete the maintenance.

YUCH Logistics

6/4/2026

Personnel: Ken Hill, Fleur Nicklen, Chad Leshuk, and Erik Steinbauer (pilot).

Aircraft: N31NS. Temsco A-star on exclusive use contract with NPS eastern area fire program.

Fuel: Jet A tanks at AFS, Fort Wainwright. Refueled at Coal Creek.

Vehicles: Government vehicle to Fort Wainwright/AFS heli base

Stations maintained: Coal Creek and Upper Charley

Equipment: All equipment transported via government vehicle and aircraft.

Narrative: Crew flew from Fort Wainwright to Upper Charley and Coal Creek and returned to Fairbanks the same day.

Appendix B. CAKN I&M Station Specifications

Tables B1 through B6 provide details on the climate station specifications.

Table B1. Sensor specifications.

Measurements	Model/Manufacturer/Item#	Purchased from:
Air Temperature 1/Relative Humidity	EE181 Temperature and Relative Humidity Probe	Campbell Scientific
Air Temperature 2	109 Temperature Probe (primary beginning summer 2016)	Campbell Scientific
Air Temperature 3	109 Temperature Probe (secondary beginning in 2022 – replaced Therm-X)	Campbell Scientific
Wind Speed and direction	RM Young 05103/05103-45 (alpine version); or 05108 HD Alpine version	Campbell Scientific
Precipitation (summer rainfall)	Texas Electronics TE525WS Rain Gage	Campbell Scientific
Solar Radiation (incoming)	LI-COR LI200X, LI200RX, CS320	Campbell Scientific
Snow Depth	SR50A sonic ranging sensor	Campbell Scientific
Soil Temperature	107 or 109 Temperature Probe (3)	Campbell Scientific

Table B2. Datalogger specifications.

Datalogger	Purchased from:
CR1000-XT/CR1000X- XT Measurement and Control System	Campbell Scientific

Table B3. Satellite communication specifications.

Satellite Communication	Model/Item #	Purchased From:
GOES Satellite transmitter	TX321/TX325 GOES Transmitter	Campbell Scientific
GPS Antenna	GPS Antenna 3.3 V 17992	Campbell Scientific
GPS Cable	Antenna Cable 18017	Campbell Scientific
GOES Antenna	GOES 11 dBi YAGI RHCP Antenna 25316	Campbell Scientific
Coaxial Cable	Antenna Cable RG8 COAXNTN	Campbell Scientific

Table B4. Power specifications.

Power	Model	Purchased From:
Batteries	Concorde Sun Extender PV 1040 T 12 Volt 100 Amp hour (2)	ABS Alaskan/RES Fairbanks
Solar Panel	60-75 watt	Varies
Battery Box	Pelican Hardigg Single Lid Case	AllCases
Charging Regulator	CH100/200 12V Charging Regulator	Campbell Scientific

Table B5. Hardware specifications.

Station Hardware - Item	Type/Model	Purchased from:
Tripod	CM110 10 ft. stainless-steel tripod w/grounding kit	Campbell Scientific
Guyline Kit	Guy Kit for Tripod 19239	Campbell Scientific
Crossarm – 4 ft.	CM204 Sensor crossarm with mounting hardware – 4ft	Campbell Scientific
Crossarm – 6 ft.	CM206 Sensor crossarm with mounting hardware – 6ft	Campbell Scientific
Enclosure with (2) 1.5" diameter holes and mounting hardware for tripod	Weather Resistant 16" x 18" enclosure ENC 16/18 – DC -MM	Campbell Scientific

Table B6. Electric fence specifications.

Electric Fence Parts	Type/Model	Purchased from:
Metal fence posts	6 ft. T-Posts	Various local vendors
T-Post Insulators	5-inch extender insulators	Various local vendors
Poly wire	200 ft. Poly-wire	Various local vendors
Solar fence charger	10 mile low impedance fence charger – various models	Various local vendors

Appendix C. CAKN RAWS Components by Climate Station

Tables C1 through C 13 provide metadata on each climate station.

Table C1. Metadata for Chicken Creek climate station.

Station Name	Item	Model	Start Date
Chicken Creek	Antenna	25316 YAGI	8/21/2004
Chicken Creek	AT	109	7/6/2016
Chicken Creek	AT (2)	109 (2)	7/29/2022
Chicken Creek	AT-RH	EE181	7/8/2026
Chicken Creek	Battery	100 AH (x2)	8/21/2004
Chicken Creek	Cross arm	CM204	8/21/2004
Chicken Creek	Datalogger	CR1000	6/19/2013
Chicken Creek	DLP	Chicken2022	7/29/2022
Chicken Creek	GPS	17992 GPS	7/3/2014
Chicken Creek	RG-TB	TE525	7/8/2026
Chicken Creek	SD	SR50a	6/28/2025
Chicken Creek	Solar Panel	75 W	8/21/2004
Chicken Creek	SR	Li200x	7/8/2026
Chicken Creek	ST -10 cm	107	7/7/2020
Chicken Creek	ST -20 cm	107	7/7/2020
Chicken Creek	ST -50 cm	107	7/7/2020
Chicken Creek	ST -100 cm	107	7/7/2020
Chicken Creek	Tripod	CM106	8/21/2004
Chicken Creek	TX321	NESDIS ID 39603396	7/12/2018
Chicken Creek	WS/WD	5103	7/25/2023

Table C2. Metadata for Chititu climate station.

Station Name	Item	Model	Start Date
Chititu	Antenna	25316 YAGI	8/20/2004
Chititu	AT	109	6/30/2016
Chititu	AT (2)	109 (2)	7/29/2022
Chititu	AT-RH	EE181	7/7/2026
Chititu	Battery	100 AH (x1)	7/8/2020
Chititu	Cross arm	CM204	8/20/2004
Chititu	Cross arm	CM206	8/20/2004
Chititu	Datalogger	CR1000X	7/25/2023
Chititu	DLP	Chititu_2023_CR1000X	7/25/2023
Chititu	Enclosure	ENC 16/18	8/20/2004
Chititu	GPS	17992 GPS	6/21/2013
Chititu	RG-TB	TE525	8/20/2004
Chititu	SD	SR50a	Out 2021
Chititu	Solar Panel	75 W	8/20/2004
Chititu	SR	Li200x	7/7/2026
Chititu	ST -10 cm	107	7/14/2024
Chititu	ST -20 cm	107	7/14/2024
Chititu	ST -50 cm	107	7/14/2024
Chititu	ST -100 cm	107	7/14/2024
Chititu	Tripod	CM106	8/20/2004
Chititu	TX325	NESDIS ID 396020E0	7/25/2023
Chititu	WS/WD	5103	7/14/2024

Table C3. Metadata for Coal Creek climate station.

Station Name	Item	Model	Start Date
Coal Creek	Antenna	25316 YAGI	9/16/2004
Coal Creek	AT	109	7/6/2016
Coal Creek	AT (2)	109 (2)	8/8/2022
Coal Creek	AT-RH	EE181	6/4/2026
Coal Creek	Battery	100 AH (x2)	6/18/2024
Coal Creek	Crossarm	3/4"	9/16/2004
Coal Creek	Crossarm	3/4"	9/16/2004
Coal Creek	Datalogger	CR1000	7/24/2013
Coal Creek	DLP	CoalCreek2022	8/8/2022
Coal Creek	Enclosure	ENC 16/18	6/18/2024
Coal Creek	GPS	17992 GPS	9/8/2012
Coal Creek	RG-TB	TE525	9/16/2004
Coal Creek	SD	SR50a	6/4/2026
Coal Creek	Solar Panel	75 W	9/16/2004
Coal Creek	SR	Li200x	5/22/2025
Coal Creek	ST1	107	9/16/2004
Coal Creek	ST2	107	9/16/2004
Coal Creek	ST3	107	9/16/2004
Coal Creek	STF1_2	107	8/8/2022
Coal Creek	STF2_2	107	8/8/2022
Coal Creek	STF3_2	107	8/8/2022
Coal Creek	Tripod	CM106	9/16/2004
Coal Creek	TX321	NESDIS ID 39605670	6/14/2018
Coal Creek	WS/WD	5103	6/18/2024

Table C4. Metadata for Dunkle Hills climate station.

Station Name	Item	Model	Start Date
Dunkle Hills	Antenna	25316 YAGI	8/1/2002
Dunkle Hills	AT	109	8/11/2016
Dunkle Hills	AT (2)	109_2	6/9/2026
Dunkle Hills	AT-RH	EE181	6/9/2026
Dunkle Hills	Battery	100 AH (x2)	6/9/2026
Dunkle Hills	3/4"	CM204	8/1/2002
Dunkle Hills	3/4"	CM206	8/1/2002
Dunkle Hills	Datalogger	CR1000	5/26/2015
Dunkle Hills	DLP	Dunkle_2022	6/20/2023
Dunkle Hills	Enclosure	ENC 16/18	9/19/2011
Dunkle Hills	GPS	17992 GPS	6/9/2026
Dunkle Hills	RG-TB	TE525	8/1/2002
Dunkle Hills	SD	SR50a	6/9/2026
Dunkle Hills	Solar Panel	75 W	8/1/2002
Dunkle Hills	SR	Li200x	6/19/2025
Dunkle Hills	ST1	107	7/10/2024
Dunkle Hills	ST2	107	7/10/2024
Dunkle Hills	ST3	107	7/10/2024
Dunkle Hills	ST4 – 90 cm	107	6/9/2026
Dunkle Hills	Tripod	CM106	8/1/2002
Dunkle Hills	TX321	NESDIS ID 3960B582	7/19/2025
Dunkle Hills	WS/WD	5103	6/9/2026

Table C5. Metadata for Eielson Visitor Center climate station.

Station Name	Item	Model	Start Date
Eielson	Antenna	25316 YAGI	6/4/2005
Eielson	AT	109	9/8/2016
Eielson	AT (2)	109 (2)	8/16/2022
Eielson	AT-RH	EE181	6/10/2026
Eielson	Battery	100 AH (x2)	6/4/2005
Eielson	Crossarm	3/4"	6/4/2005
Eielson	Datalogger	CR1000	5/28/2014
Eielson	DLP	Eielson2022	8/16/2022
Eielson	Enclosure	ENC 16/18	6/4/2005
Eielson	GPS	17992 GPS	6/4/2005
Eielson	RG-TB	TE525	5/29/2025
Eielson	SD	SR50a	6/10/2026
Eielson	Solar Panel	75 W	6/4/2005
Eielson	SR	Li200x	8/12/2025
Eielson	Tripod	CM106	6/4/2005
Eielson	TX321	NESDIS ID 39604506	8/21/2018
Eielson	WS/WD	5103	6/10/2026

Table C6. Metadata for Gates Glacier climate station.

Station Name	Item	Model	Start Date
Gates Glacier	Antenna	25316 YAGI	7/6/2005
Gates Glacier	AT	109	6/29/2016
Gates Glacier	AT (2)	109 (2)	7/29/2022
Gates Glacier	AT-RH	EE181	7/8/2026
Gates Glacier	Battery	100 AH (x2)	6/30/2025
Gates Glacier	Camera	CC5MPX	6/21/2013
Gates Glacier	Camera Battery/Solar Panel	12 Volt – 100 AH / 10 W panel	8/19/2023
Gates Glacier	Crossarm	3/4"	7/6/2005
Gates Glacier	Crossarm	CM206	7/6/2005
Gates Glacier	Datalogger	CR1000X	7/8/2026
Gates Glacier	DLP	GatesGI_2026	7/8/2026
Gates Glacier	Enclosure	ENC 16/18	7/8/2026
Gates Glacier	GPS	17992 GPS	7/6/2005
Gates Glacier	RG-TB	TE525	7/6/2005
Gates Glacier	SD	SR50	8/19/2023
Gates Glacier	Solar Panel	75 W	7/7/2020
Gates Glacier	SR	Li200x	7/8/2026
Gates Glacier	ST1	107	6/27/2019
Gates Glacier	ST2	107	6/27/2019
Gates Glacier	ST3	107	6/27/2019
Gates Glacier	Tripod	CM106	6/21/2013
Gates Glacier	TX325	NESDIS ID 39608018	7/8/2026
Gates Glacier	WS/WD	5103	7/14/2024

Table C7. Metadata for Ruth Glacier climate station.

Station Name	Item	Model	Start Date
Ruth Glacier	Antenna	25316 YAGI	9/6/2008
Ruth Glacier	AT	109	6/21/2017
Ruth Glacier	AT (2)	109	6/30/2023
Ruth Glacier	AT-RH	EE181	6/9/2026
Ruth Glacier	Battery	100 AH (x2)	6/23/2010
Ruth Glacier	Battery Cable	Power Cable	6/13/2012
Ruth Glacier	Charging Regulator	CH-200	6/30/2023
Ruth Glacier	Datalogger	CR1000X	7/11/2024
Ruth Glacier	DLP	RUGA_2025	6/18/2025
Ruth Glacier	Enclosure	ENC 16/18	6/26/2019
Ruth Glacier	GPS	17992 GPS	9/6/2008
Ruth Glacier	RG-TB	TE525	9/6/2008
Ruth Glacier	SD	SR50a	7/11/2024
Ruth Glacier	Solar Panel	75 W	9/6/2008
Ruth Glacier	SR	Li200x	6/18/2025
Ruth Glacier	ST1	107	9/6/2008
Ruth Glacier	ST2	107	9/6/2008
Ruth Glacier	ST3	107	6/24/2014
Ruth Glacier	ST4 – 90 cm	107	6/26/2019
Ruth Glacier	Tripod	FTS RAWS Lunar Lander	9/6/2008
Ruth Glacier	TX325	NESDIS ID 396063EA	6/9/2026
Ruth Glacier	Yagi antenna	Coaxial Cable	8/11/2020
Ruth Glacier	WS/WD	5103 (30')	6/9/2026

Table C8. Metadata for Stampede climate station.

Station Name	Item	Model	Start Date
Stampede	Antenna	YAGI	6/19/2025
Stampede	AT	109	8/11/2016
Stampede	AT (2)	109 (2)	6/23/2022
Stampede	AT-RH	EE181	6/10/2026
Stampede	Battery	100 AH (x2)	7/10/2024
Stampede	Crossarm	3/4"	8/1/2002
Stampede	Datalogger	CR1000X	8/13/2025
Stampede	DLP	SMPA_2024	7/10/2024
Stampede	Enclosure	ENC 16/18	8/13/2025
Stampede	GPS	17992 GPS	6/19/2025
Stampede	RG-TB	TE525	6/23/2022
Stampede	SD	SR50a	9/16/2014
Stampede	Solar Panel	75 W	8/1/2002
Stampede	SR	Li200x	6/19/2025
Stampede	ST1	109	8/8/2019
Stampede	ST2	109	8/8/2019
Stampede	ST3	109	8/8/2019
Stampede	ST4 – 90 cm	109	8/8/2019
Stampede	Tripod	CM106	6/14/2021
Stampede	TX325	NESDIS ID 3960A6F4	8/13/2025
Stampede	WS/WD	5103	7/10/2024

Table C9. Metadata for Tana Knob climate station.

Station Name	Item	Model	Start Date
Tana Knob	Antenna	25316 YAGI	7/5/2005
Tana Knob	AT	109	6/28/2016
Tana Knob	AT (2)	109 (2)	7/29/2022
Tana Knob	AT-RH	EE181	7/8/2026
Tana Knob	Battery	100 AH (x2)	7/5/2005
Tana Knob	Crossarm	CM204	7/5/2005
Tana Knob	Crossarm	CM206	7/5/2005
Tana Knob	Datalogger	CR1000	7/2/2014
Tana Knob	DLP	Tana2022	7/29/2022
Tana Knob	Enclosure	ENC 16/18	7/5/2005
Tana Knob	GPS	17992 GPS	7/5/2005
Tana Knob	RG-TB	TE525	6/28/2016
Tana Knob	SD	SR50	7/29/2022
Tana Knob	Solar Panel	75 W	7/5/2005
Tana Knob	SR	Li200x	7/8/2026
Tana Knob	ST1	107	6/24/2021
Tana Knob	ST2	107	7/10/2018
Tana Knob	ST3	107	7/5/2005
Tana Knob	Tripod	CM106	6/27/2012
Tana Knob	TX321	NESDIS ID 3960709C	7/10/2018
Tana Knob	WS/WD	5103	6/30/2025

Table C10. Metadata for Tebay climate station.

Station Name	Item	Model	Start Date
Tebay	Antenna	25316 YAGI	7/6/2020
Tebay	AT	109	7/15/2024
Tebay	AT (2)	109 (2)	7/15/2024
Tebay	AT-RH	EE181	7/7/2026
Tebay	Battery	100 AH (x1)	7/6/2020
Tebay	Crossarm	CM204	7/8/2005
Tebay	Crossarm	CM206	7/8/2005
Tebay	Datalogger	CR1000X	8/19/2023
Tebay	DLP	Tebay_2025	6/28/2025
Tebay	Enclosure	ENC 16/18	7/8/2005
Tebay	GPS	17992 GPS	7/8/2005
Tebay	RG-TB	TE525	7/15/2024
Tebay	SD	SR50a	7/7/2026
Tebay	Solar Panel	75 W	7/8/2005
Tebay	SR	Li200X	7/7/2026
Tebay	ST1	107	6/28/2025
Tebay	ST2	107	6/28/2025
Tebay	ST3	107	6/28/2025
Tebay	Tripod	CM106	7/3/2014
Tebay	TX325	NESDIS ID 3960936E	8/19/2023
Tebay	WS/WD	5103	6/28/2025

Table C11. Metadata for Toklat climate station.

Station Name	Item	Model	Start Date
Toklat	Antenna	25316 YAGI	6/16/2005
Toklat	AT	109	9/9/2016
Toklat	AT (2)	109 (2)	6/23/2022
Toklat	AT-RH	EE181	6/9/2026
Toklat	Battery	100 AH (x2)	6/5/2019
Toklat	Crossarm	3/4"	6/16/2005
Toklat	Datalogger	CR1000X	9/1/2023
Toklat	DLP	Toklat_2023_CR100X_TX325	9/1/2023
Toklat	Enclosure	ENC 16/18	6/16/2005
Toklat	GPS	17992 GPS	5/28/2014
Toklat	RG-TB	TE525	9/9/2016
Toklat	SD	SR50a	8/24/2021
Toklat	Solar Panel	75 W	6/16/2005
Toklat	SR	Li200x	6/9/2026
Toklat	ST1	107	6/16/2005
Toklat	ST2	107	6/16/2005
Toklat	ST3	107	6/16/2005
Toklat	Tripod	CM106	6/16/2005
Toklat	TX325	NESDIS ID 396063EA	9/1/2023
Toklat	WS/WD	5103	6/9/2026

Table C12. Metadata for Upper Charley climate station.

Station Name	Item	Model	Start Date
Upper Charley	Antenna	25316 YAGI	8/3/2005
Upper Charley	AT	109	8/8/2022
Upper Charley	AT (2)	109 (2)	8/8/2022
Upper Charley	AT-RH	EE181	6/4/2026
Upper Charley	Battery	100 AH (x2)	5/22/2025
Upper Charley	Camera	CC5MPX	7/23/2013
Upper Charley	Camera Battery/Solar Panel	12 Volt – 100 AH / 10 W panel	8/6/2015
Upper Charley	Crossarm	3/4"	8/3/2005
Upper Charley	Crossarm	CM206	8/3/2005
Upper Charley	Datalogger	CR1000	9/7/2012
Upper Charley	DLP	UCharley2022	8/8/2022
Upper Charley	Enclosure	ENC 16/18	8/3/2005
Upper Charley	GPS	17992 GPS	9/8/2012
Upper Charley	RG-TB	TE525	6/4/2026
Upper Charley	SD	SR50a	6/13/2017
Upper Charley	Solar Panel	75 W	8/3/2005
Upper Charley	SR	Li200x	6/4/2026
Upper Charley	ST1	107	7/23/2013
Upper Charley	ST2	107	7/23/2013
Upper Charley	ST3	107	7/23/2013
Upper Charley	ST4 – 75 cm	107	5/14/2019
Upper Charley	Tripod	CM206	8/3/2005
Upper Charley	TX321	NESDIS ID 3960D064	6/13/2018
Upper Charley	WS/WD	5103	6/4/2026

Table C13. Metadata for Wigand climate station.

Station Name	Item	Model	Start Date
Wigand	Antenna	25316 YAGI	8/3/2005
Wigand	AT	109	8/11/2016
Wigand	AT (2)	109 (2)	6/23/2022
Wigand	AT-RH	EE181	6/10/2026
Wigand	Battery	100 AH (x2)	8/13/2013
Wigand	Crossarm	3/4"	8/13/2013
Wigand	Crossarm	CM206	8/13/2013
Wigand	Datalogger	CR1000	8/13/2013
Wigand	DLP	Wigand2022	6/23/2022
Wigand	Enclosure	ENC 16/18	8/13/2013
Wigand	GPS	17992 GPS	8/13/2013
Wigand	RG-TB	TE525	8/13/2013
Wigand	SD	SR50a	8/13/2013
Wigand	Solar Panel	10W	6/21/2023
Wigand	SR	Li200x	6/10/2026
Wigand	ST1	107	8/19/2023
Wigand	ST2	107	8/19/2023
Wigand	ST3	107	8/19/2023
Wigand	ST4	107	removed
Wigand	ST5	107	removed
Wigand	Tripod	CM206	8/13/2013
Wigand	TX321	NESDIS ID 39600060C	8/8/2019
Wigand	WS/WD	5103	6/10/2026