*This is your quasi-daily update on the 2022 ABoVE Airborne Campaign*

**Monday 25 July, 2022 (DOY 205)**

Chip Miller is in Los Angeles.

Peter Griffith is in Maryland.

NASA’s 2022 airborne activities are scheduled to include AVIRIS-NG hyperspectral imaging (5 July – 25 August) and the L-band polInSAR (9 August – 22 August). Flights will provide acquisitions across the ABoVE domain in Alaska and northwestern Canada in coordination with ABoVE field work

ABoVE will coordinate with the DLR [CoMet 2.0 Arctic](https://www.halo-spp.de/Missions/CoMet-2-0-Arctic-2022/) (operating from Edmonton ~12 Aug – 15 Sep), [G-LiHT](https://gliht.gsfc.nasa.gov/) (6-30 July in southern/SW Alaska), and [NEON AOP](https://www.neonscience.org/data-collection/flight-schedules-coverage) (operating out of Deadhorse AK 20 July – 22 Aug) teams.

More information may be found on the summary page for the [ABoVE 2022 Airborne Campaign](https://above.nasa.gov/airborne_2017.html#2022)

**Sensor/Aircraft Summaries and 72-hour Look Aheads**

**AVIRIS-NG (Dynamic Aviation B-200**[**N53W**](https://flightaware.com/live/flight/N53W)**)**

*July 2*: Transit Great Falls MT (GTF) – Bellingham, WA – Juneau, AK – Fairbanks, AK

*July 3*: Crew rest day; Clean AVIRIS window

*July 4*: Hard Down Day; >5000 lightning strikes forecasted for AK

Jackie Hung and a Woodwell research team are in the YK Delta

*July 5*: First flight day.

Excellent cloud-free conditions found in several locations, but ALL LINES had significant low level smoke interference. It was impossible to see the ground in several locations. These are likely the conditions in Alaska until the August rains begin to extinguish the large wildfires.

Cloud front was further east than forecasted, so Beaver AK area box was aborted after 1 line. Moved north along the Dalton Hwy into less cloudy areas. Acquired several lines in the Toolik Lake area before clouds moved in there. Returned to the Fairbanks area where boxes over the Goldstream Valley, Nugget fire scar, and the BNZ LTER/APEX targets were acquired

*July 6*: Flight day #2.

Flew Beaver, AK grid, Coldfoot and Bettles lines, Grouse Creek fire scar grid, Hess Creek fire scar line, and CPCRW/flux towers line. Less smoky conditions in the north, but still far from ideal. Visible wavelengths severely compromised.

*July 7*: Down Day

Resetting crew clocks in advance of extended good weather forecasts

*July 8*: Down Day

Replacement pilot arrival delayed due to cancelled flight

*July 9*: Flight day #3.

Forecast for clear skies and low smoke over eastern North Slope

Flew lines over Dalton Hwy, Anaktuvuk River fire scar, Nuiqsut, and Deadhorse areas. Attempted flights over North Slope coastal boxes, but sea ice still covered more than 50% of the lines – will need to revisit these lines towards the end of July

*July 10*: Flight day #4.

Forecast for clear skies and no smoke over the Kotzebue/Noatak region

Tranist – entire Interior filled with smoke south of the Brooks Range

Sortie #1: flew Noorvik and Kotzebue grids

Sortie #2: flew all Lower and Upper Noatak Valley lines and part of the Selawik grid

Outstanding conditions all day long: clear skies and no smoke

Observed scattered clouds over the Seward Peninsula with increasing high cirrus during the day. Returned to dense smoke advisory in Fairbanks

*July 11*: Down Day

Clouds moving in across Alaska, no combination of clear skies and smoke-free conditions in any priority areas, so called for a down day after 2 long flying days

*July 12*: Down Day (Weather).

Forecasts at 0800 showed areas clear skies over Seward Peninsula and Kotzebue, but with significant uncertainty. Forecasts for Wed 7/13 showed better conditions, so we cancelled for today and are targeting Seward Peninsula (NGEE-Arctic) sites and completion of Kotzebue area lines on Wed 7/13. Mid-day satellite imagery shows that this was a good call with cloud cover remaining across the state, even the Sew Pen/Noatak region – see satellite imagery below

*July 13*: Flight day #5.

Forecasted large area of clear sky conditions over NW Alaska covering Noatak and Seward Peninsula. Smoke forecast shows it all moving into SE Alaska below a Wiseman-Bettles-Galena-Kaltag line. Acquired excellent data over the Huslia grid, then moved to the Seward Peninsula where clouds interfered with the acquisitions over the Council grid, but excellent data were obtained over Kougarok and Teller sites with NGEE-Arctic teams on the ground at those sites. 2nd attempt at acquiring the Council grid after refueling was more successful, although clouds still interfered with one end of the watershed

*July 14*: Down Day (weather).

No storming of the Bastille for the ABoVE AVIRIS team today. Combination of dense low-level clouds and/or high cirrus across the state left no viable flight options.

*July 15*: Down Day (weather).

Clouds across Alaska with no viable flight options. Watching possible flight to the YK Delta on Sunday or Monday

*July 16*: Down Day (weather).

Clouds across Alaska with no viable flight options. Watching possible flight to the YK Delta on Sunday or Monday

*July 17*: Down Day (weather/icing).

The forecasted clear skies over the YK Delta were realized; however, a dense system of clouds and precipitation across the center of the state generated icing conditions up to 30,000 ft, and there was no way over or around them. No Go decision based on lack of viable transit options.

*July 18*: Down Day (weather).

A persistent low over the Bering Sea in sending dense cloud cover and precipitation swirling across Alaska in a series of cyclonic (counterclockwise) waves. The forecasts show these conditions persisting for most of the week. The benefit is that it is significantly suppressing the wildfire smoke. Elevating King Salmon, Kluane/Whitehorse, and Mackenzie Mountain targets in priority since these may open before other Alaska areas.

*July 19*: Down Day (weather).

The Barrow/Atqasuk area had excellent clear sky conditions in the early morning, but the satellite imagery and forecasts all suggested that the clouds would move in rapidly and cover the area by mid-day. Continuing to watch for target opportunities.

*July 20*: Down Day (weather).

Persistent low over the Bering Sea area sending waves of clouds across Alaska and western Canada.

*July 21*: Down Day (weather).

Persistent low over the Bering Sea area continues sending waves of clouds across Alaska and western Canada.

*July 22*: Down Day (weather).

Persistent low over the Bering Sea area continues sending waves of clouds across Alaska and western Canada.

*July 23*: Flight day #6

After 10 days of poor weather, there were areas of clear skies over the Fairbanks area. Multiple lines were flown with partial cloud obscuration in many, but the Goldstream grid lines were acquired under clear conditions. No noticeable smoke!

*July 24*: Flight day #7

Greatly improved conditions over Interior Alaska. Targets at Fairbanks, Delta Junction, Healy acquired. Afternoon clouds precluded a second sortie. Low/no smoke conditions.

*July 25*: Down Day (weather).

Large atmospheric river driving north through the Gulf of Alaska and sending dense cloud cover across our operations area.

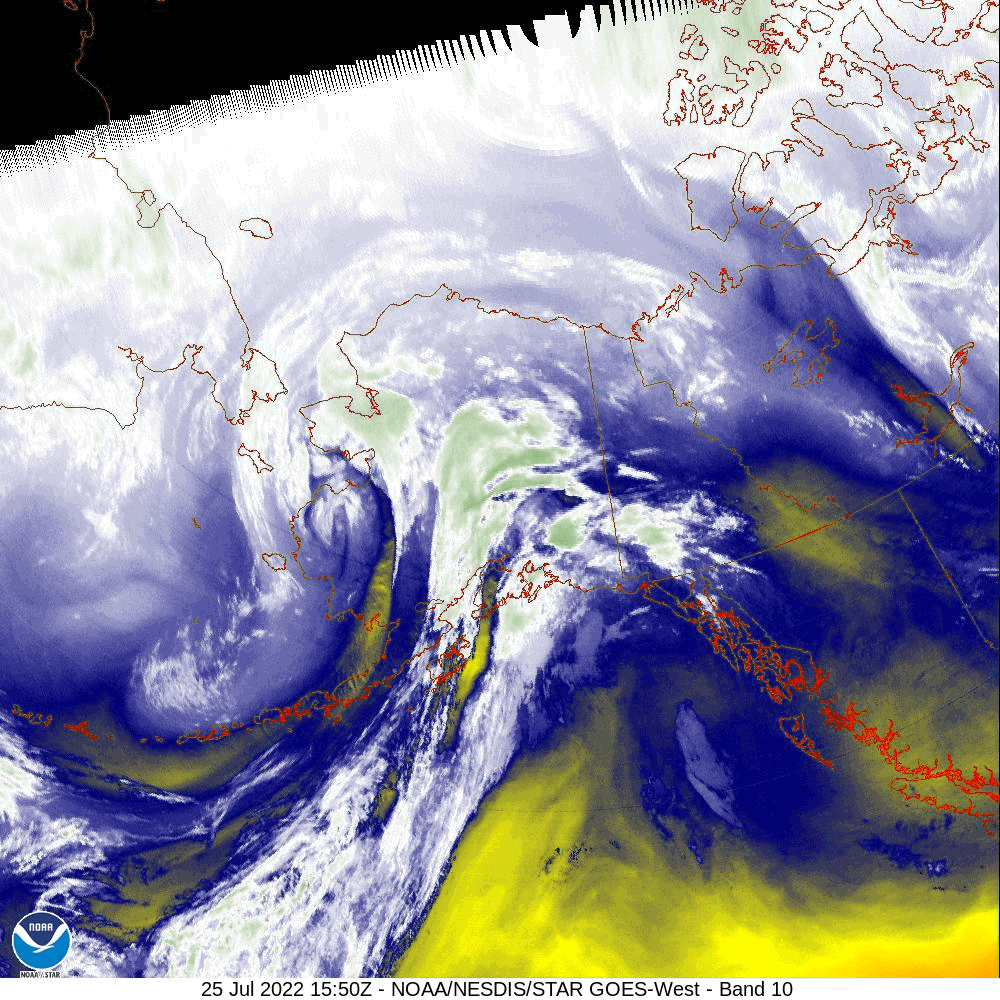


Figure . Atmospheric river injecting dense cloud cover into all ABoVE operations areas on 25 July. AKDT = UTC – 8 hours

**AVIRIS Operations 72-hour Look Ahead & Transition to Canada**

Our macro plan was to transition to Inuvik/Mackenzie Delta targets around 25 July. However, the team will stay in Alaska longer for several reasons

* Extended period of cloud cover leaves many AK targets as yet unacquired
* Window for high quality AK target acquisitions this week (26-28 July)
* Persistent clouds over Inuvik/Mackenzie Delta area forecasted through 30 July
* Current first officer not qualified to fly in Canada – awaiting replacement

Therefore, we will plan to operate from Fairbanks through at least 29 July. If forecasts for the Inuvik area do not significantly improve, we will consider transitioning directly to Yellowknife for target acquisition in the Great Slave Lake region with the possibility to make single day sorties to the Mackenzie Delta area.

*July 26*: Target flight day.

Forecasts suggest clear sky areas north of Dawson City, YT for lines in the Mackenzie Mountains. Watch

*July 27*: Potential flight day.

Forecasts for clear skies over the King Salmon area. Watch.

*July 28*: Potential flight day.

Forecasts for clear skies over Anchorage/Kenai Peninsula Targets. Watch for updates

*Revised Alaska area priorities:*

* Priority 1 = YK Delta grid
* Priority 2 = Barrow/Atqasuk Area and Deadhorse coastal regions
* Priority 3 = King Salmon and Anchorage areas
* Priority 4 = Dempster Hwy/Mackenzie Mountain sites (from Fairbanks)
* Priority 5 = Whitehorse/Kluane Lake/Skagway areas (refuel in Juneau)
* Priority 6 = Interior AK/Fairbanks Area under smoke-free conditions – pick up or collections of opportunity to/from PAFA

Delaying Barrow and Deadhorse coastal flights as long as possible to capture later phenology (Barrow) and minimal coastal sea ice

Phil Brodrick & John Chapman continue to post AVIRIS quicklooks for all 2022 ABoVE flights: <https://avng.jpl.nasa.gov/pub/ABoVE/quicklooks/>.

**G-LiHT (Dynamic Aviation Beechcraft King Air** [**N80Y**](https://flightaware.com/live/flight/N80Y)**)**

Integration & Testing (Bridgewater, VA):  28-30 June 2022

Transit to AK: 1-6 July 2022

Base of Operation and Dates :

Kodiak, AK -- 6-16 July 2022

Aniak, AK -- 16-26 July 2022

Kodiak, AK -- 26-30 July 2022

[Description of science flights and motivation](https://above.nasa.gov/airborne_2017.html#2022)

*July 2*: G-LiHT transits from Bridgewater VA – Perry, IA

*July 3*: G-LiHT transits from Perry IA – Sheridan County, WY

*July 4*: G-LiHT transits Sheridan County, WY – Wenatchee, WA

*July 4*: G-LiHT transits Sheridan County, WY – Wenatchee, WA – Juneau, AK

*July 5*: G-LiHT transits Juneau, AK – Kodiak AK; in position to begin operations

*July 6*: G-LiHT in Kodiak AK; no flights on tracker

*July 9*: G-LiHT in Kodiak AK; 2 sorties near King Salmon, AK

*July 10*: G-LiHT in Kodiak AK; 2 sorties near King Salmon, AK

*July 11*: G-LiHT in Kodiak AK; flying near Dillingham, AK

*July 12*: G-LiHT in Kodiak AK; no activity

*July 13*: G-LiHT in Kodiak AK; Kodiak Island flight

*July 14*: G-LiHT in Kodiak AK; local Kodiak flight

*July 15*: G-LiHT in Kodiak AK; local Kodiak flight

*July 16*: G-LiHT in Kodiak AK; no activity

*July 17*: G-LiHT in Kodiak AK; no activity

*July 18*: G-LiHT in Kodiak AK; local Kodiak flight

*July 20*: G-LiHT in Kodiak AK; local Kodiak flight

*July 21*: G-LiHT in Kodiak AK; Dillingham area flight

*July 22*: G-LiHT in Kodiak AK; King Salmon area flight

*July 23*: G-LiHT in Kodiak AK; Fairbanks area flight

*July 24*: G-LiHT in Kodiak AK; Fairbanks area flight – CPCRW and BNZ/APEX

**NEON Airborne Observation Platform #1 (**[**Daily Flight Reports**](https://www.neonscience.org/data-collection/daily-flight-reports)**)**

July 17 – Transit through Fairbanks

July 18 – NEON AOP arrives in Deadhorse

July 19 – No flight – Weather

July 20 – No flight – Weather

July 21 – No flight – Weather

July 22 – No flight – Weather

July 23 – No flight – Weather

**UPDATED: L-band SAR (JSC G-III**[**NASA2**](https://flightaware.com/live/flight/N992NA)**)**

June - July: planned non-ABoVE CONUS flights

Aug 12: Transit Houston – Saskatoon (TBC)

Aug 13: BERMS area TomoSAR

Aug 14: Transit to Yellowknife

Aug 18: Transit to Fairbanks

**NEW: P-band SAR (NASA C-20A** [**N802NA**](https://airbornescience.nasa.gov/tracker/#status/N802NA)**)**

Aug 18: Transit Palmdale to Fairbanks

Aug 19-22: Same day science flights with L-band SAR

Aug 23: Transit Fairbanks to Palmdale

**CoMet 2.0 Arctic (HALO G-550**[**D-ADLR**](https://flightaware.com/live/flight/DADLR)**)**

Aug 6: Transit to Edmonton

Aug 10: First candidate flight day

**Weather Forecast: ABoVE Domain**

GEOS-FP for ABoVE: <https://fluid.nccs.nasa.gov/missions/mission_ABOVE/>

HRRR for Alaska: <https://rapidrefresh.noaa.gov/alaska/>

Windy weather visualization: [https://www.windy.com/](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.windy.com%2F&data=05%7C01%7Cpeter.c.griffith%40nasa.gov%7Cad658dc1e59a4d3cac4008da57aa3f21%7C7005d45845be48ae8140d43da96dd17b%7C0%7C0%7C637918685965419609%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=9VKGntYPS4KZXym6nEFk%2FRvIog08d5is%2FkyO0qX2RoE%3D&reserved=0)

FAA Weather Cameras – Interactive map with Alaska and Canadian cameras: <https://weathercams.faa.gov/>

Alaska Fires and Smoke Predictions: <http://smoke.alaska.edu/current_fires.html>

Canada Wildfire smoke maps (+ Alaska): <http://firesmoke.ca/forecasts/current/>

NWT Active Fires: <https://www.enr.gov.nt.ca/en/services/wildland-fire-update/nwt-live-fire-map>

Sea ice extent: <https://www.weather.gov/afc/ice>

Solar Elevation Calculator: <https://aa.usno.navy.mil/data/AltAz>

**Fire activity updates 7/19/22** <http://smoke.alaska.edu/current_fires.html> :

0900 AKDT on 7/19/22: Fairbanks AQI = 2

<https://www.iqair.com/us/usa/alaska/fairbanks>

Lightning strike map

<https://www.arcgis.com/apps/webappviewer/index.html?id=f5c311fa930d4831916c3f27984e97fd&extent=-21498469.1666%2C7047820.6016%2C-12281998.0441%2C11636488.2836%2C102100>

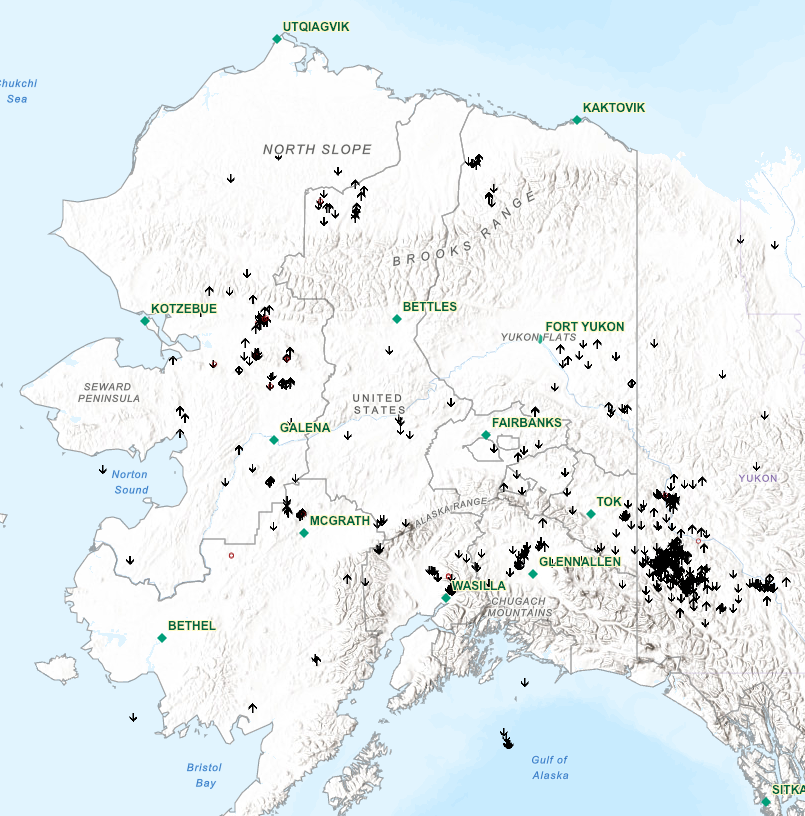


Figure . Lightning strike map for Alaska 16-18 July 2022. Tremendous reduction in lighting strikes across the state since the beginning of the month

Last updated: 19 Jul 2022, 10:00. Data from the [Alaska Interagency Coordination Center](https://fire.ak.blm.gov/predsvcs/maps.php), which is currently tracking 500 fires in Alaska (active, smoldering or in the process of being demobilized).

Multiple large fires burning west of Fairbanks:

* Minto Lakes (37,554 acres, no change since 7/11/22)
* Tanana River (24,751 acres, +1000 acres since 7/15/22)
* Clear (72,157 acres, +1300 acres since 7/15/22)
* Chitanana (99,040 acres, +55000 acres since 7/12/22)

Multiple large (>100,000 acre) fires burning in SW Alaska and the YK Delta contributing to smoky conditions across Interior AK. Fires of particular note:

* Douglas (23,124 acres) south of Coldfoot is burning on both sides of the Dalton Hwy and may impact travel between Fairbanks and Deadhorse
* Hog Butte (206, 061 acres) between Lake Minchumina and Nikolai
* Tatlawiksuk (229,439 acres), Aghaluk Mountain (116,000 acres), and Koktuli River/Pike Creek (205,866 acres) causing smoke over most of western and Interior AK
* East Fork (167, 000 acres) and Apoon Pass (84,000 acres), both near St Mary’s

**Minto Lakes fire**

Discovered: 6/21/2022 4:34:39 PM  
Last updated: 7/19/2022 6:03:12 AM  
37554 acres

The team has begun its transition off of this incident as it has been down graded to a Type 3 fire. They remain in place and will continue their efforts to demobilize the incident on 7/19.

**Clear fire**

Discovered: 6/21/2022 5:05:10 PM  
Last updated: 7/19/2022 6:12:22 AM  
72157 acres

A period of cooler moist conditions has moderated fire behavior in the near term. Smoldering and creeping are predominant in the fire area.

**Chitanana fire**

Discovered: 6/19/2022 7:45:00 PM  
Last updated: 7/19/2022 5:59:37 AM  
99040 acres

Resources continue to hold, improve, mop up, secure, and monitor around cabins, residences, other structures and allotments within the fire area. In addition, point protection continues for structures and other values at risk around the Chitanana fire.

**Bitzshitini fire**

Discovered: 6/19/2022 5:04:00 PM  
Last updated: 7/15/2022 5:31:24 AM  
69359 acres

This fire is unstaffed and in patrol by air resources.

**Contact Creek fire**

Discovered: 5/29/2022 10:10:53 PM  
Last updated: 7/14/2022 11:08:17 PM  
10654 acres

N208W flew the 151 fire and reported that no smoke was visible.

\*\*\* Ground truth providers seeking information on timing of potential overflights should text or email Chip Miller and Peter Griffith \*\*\*

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