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

**Saturday 30 July, 2022 (DOY 210)**

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.

*July 26*: Down Day (weather).

Cloud cover across our area of operations.

*July 27*: Flight day #8.

Acquired excellent data over the King Salmon area, including the Contact Creek fire scar, and the Kenai Peninsula. No visible smoke and clear sky conditions. Perhaps the best data acquisition day so far in 2022.

*July 28*: Down Day (weather).

Forecasts for clear skies returning to the Kenai Peninsula and Alaska Range broke down. Scattered clouds covered the area.

*July 29*: Flight day #9.

Initial plans to acquire data over the Mackenzie Mountains in central Yukon were aborted when the pilots could not establish communications with Canadian air traffic control. The team returned to the Fairbanks area to acquire lines that had not been previously captured under totally cloud/smoke-free conditions. Passes made over the flux towers at CPCRW and Delta Junction. Also acquired lines over the Bonanza Creek LTER and the intensively studied fire scar south of the Tanana River.

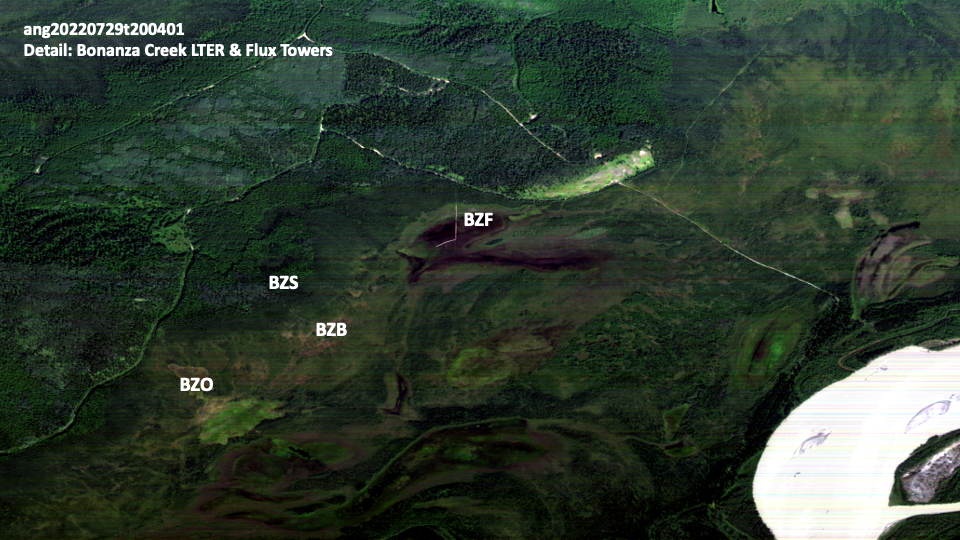


Figure . Detail from the AVIRIS acquisition over the Bonanza Creek LTER site showing the approximate location of the four flux towers: BZO = Old Thermokarst, BZS = Black Spruce, BZB = Thermokarst and BZF = Fen. One of the boardwalks can be seen near the BZF label. A bend in the Tanana River is seen in the lower right.

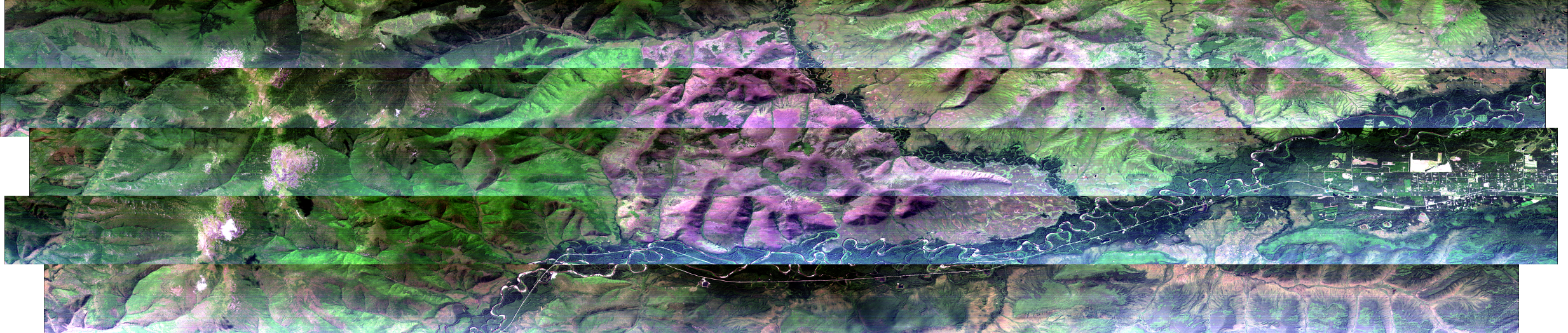


Figure . A composite of AVIRIS lines showing the liver-shaped Nugget Creek fire scar (bright pink) just east of Fairbanks along the Chena Hot Springs Road. This burn scar has been sampled by several ABoVE research teams. Note the rugged topography.

*July 30*: Down Day (weather).

Satellite data showed dense clouds over most of our operating area in the morning and there were no signs of significant clearing in any of the forecasts.

*July 31*: Hard Down Day/Crew Rest.

Forecasts suggest no clear sky areas in the domain. We will take a crew rest day so that we have unbroken flight readiness through the crew change. Forecasts indicate that there may be opportunities to fly the North Slope and other high priority areas during the week.

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

The transition to Canadian targets will occur after the next pilot change, and no earlier than 5 August. At that point both pilots will be qualified for Canadian flight operations. New AVIRIS Instrument operators are scheduled to arrive in Fairbanks on 3 August.

The current plan is to proceed directly from Fairbanks to Yellowknife. Mackenzie Delta area targets will be acquired from Yellowknife, as conditions allow. This will also allow us greater access to the Great Slave Lake area targets that already have field teams operating in them.

*July 31*: Hard Down Day/Crew Rest.

*August 1*: Potential flight day (low probability).

Forecasts for dense clouds and precipitation across most of Alaska and the Yukon. Potential openings over the Mackenzie Mountains and Old Crow, and perhaps the Barrow area. Watch for updates

*August 2*: Potential flight day (low probability).

Forecasts for dense clouds and precipitation across most of Alaska and the Yukon. Watch for updates

*Revised Alaska area priorities:*

* Priority 1 = YK Delta grid
* Priority 2 = Barrow/Atqasuk Area and Deadhorse coastal regions
* Priority 3 = Dempster Hwy/Mackenzie Mountain sites (from Fairbanks)
* Priority 4 = Whitehorse/Kluane Lake/Skagway areas (refuel in Juneau)

POLARIS investigators continue to staff the YK Delta area collecting flux measurements

PI W Moses considers the sea ice along the North Slope coast to have moved far enough offshore for acquisition of coastal imagery in the Niuqsut-Deadhorse area.

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 Fairbanks AK; Fairbanks area flight

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

*July 26*: G-LiHT in Anchorage AK; Anchorage area flight

*July 27*: G-LiHT in Anchorage AK; Seward - Valdez area flight

*July 28*: G-LiHT in Kodiak AK; Iliamna area flight

**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

July 24 – No flight – Weather

July 25 – No flight – Weather

July 26 – No flight – Weather

July 27 – No flight – Weather

July 28 – No flight – Weather (wintry mix of rain and snow)

July 29 – 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> :

1700 AKDT on 7/29/22: 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>

Last updated: 29 Jul 2022, 17:00. 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 (25,170 acres, +400 acres since 7/15/22)
* Clear (72,157 acres, no change since 7/15/22)
* Chitanana (100,233 acres, +12000 acres since 7/19/22)

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 essentially out
* 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: 7/29/2022 4:02:00 AM  
37554 acres

Helicopter 930 conducted a reconnaissance flight over the fire and multiple smokes in the interior. The fire will remain monitored.

**Clear fire**

Discovered: 6/21/2022 5:05:10 PM  
Last updated: 7/29/2022 5:51:55 AM  
72185 acres

High pressure will build over the fire area. Sunny and slightly warmer conditions will develop. Recent rain showers have moderated fire behavior. Continued smoldering and creeping will be the prominent behavior.

**Chitanana fire**

Discovered: 6/19/2022 7:45:00 PM  
Last updated: 7/26/2022 1:50:47 PM  
100233 acres

Backhaul of suppression equipment and fireline repair.

**Bitzshitini fire**

Discovered: 6/19/2022 5:04:00 PM  
Last updated: 7/26/2022 6:52:01 AM  
70970 acres

Unstaffed and being monitored by air resources.

**Contact Creek fire**

Discovered: 5/29/2022 10:10:53 PM  
Last updated: 7/22/2022 4:07:17 PM  
10654.2 acres

The fire was declared out 7/3 at 1800.

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

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