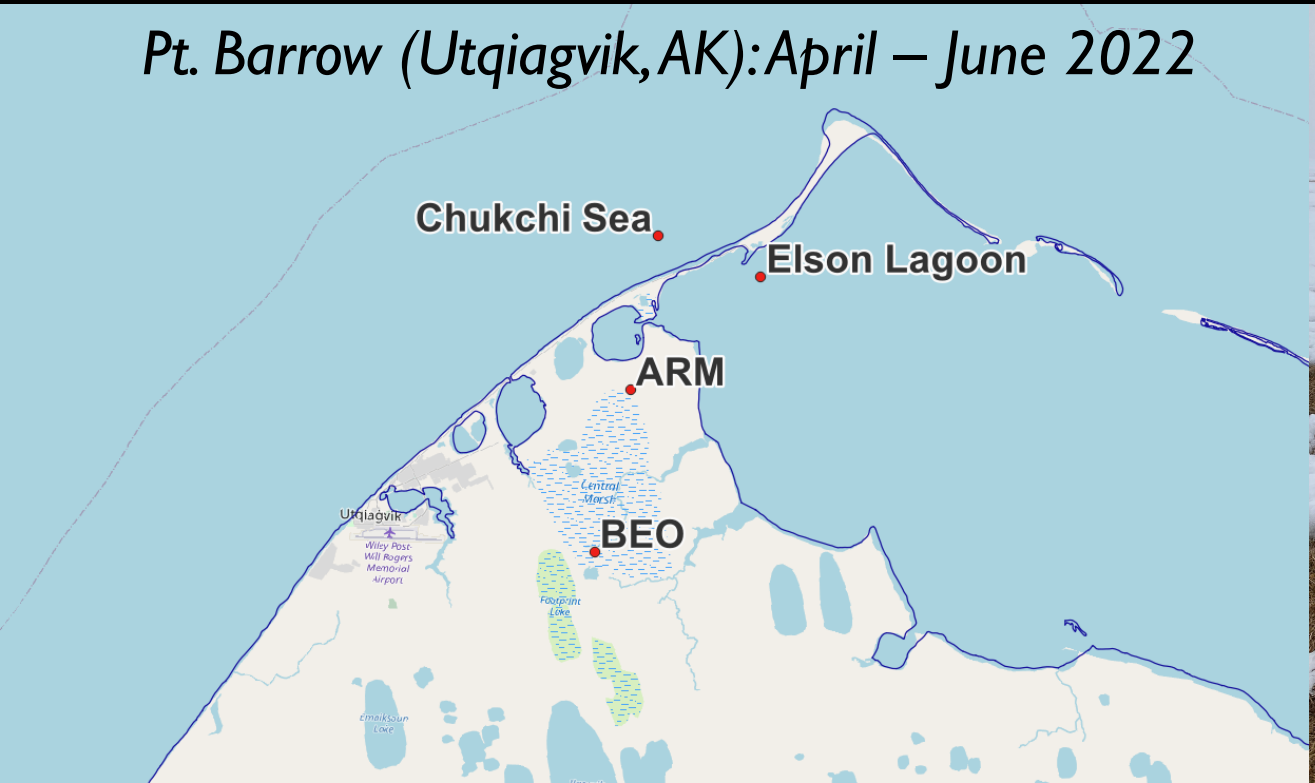
Snow Albedo Evolution Campaign (SALVO): Chasing Watts & Water on the Arctic Tundra & Sea Ice

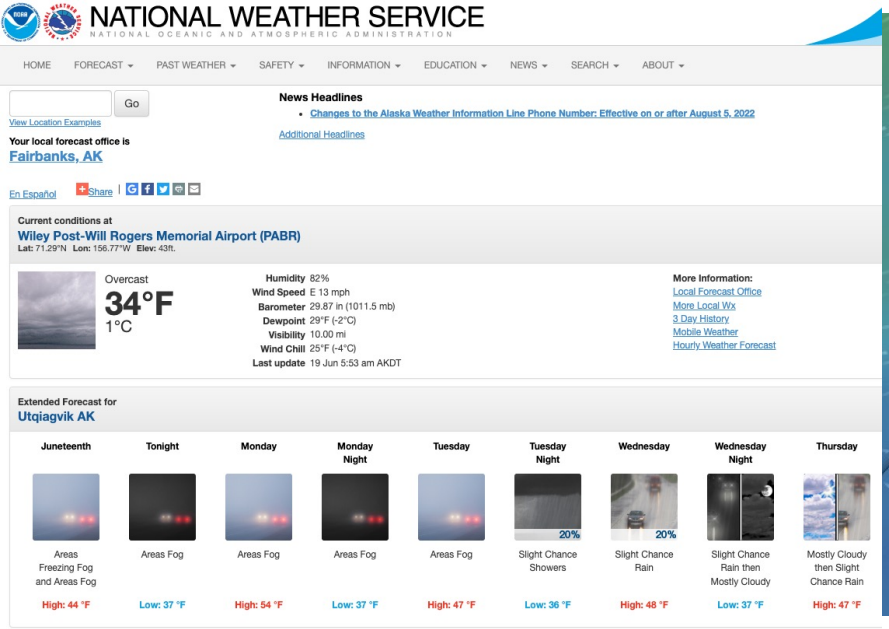
Pt. Barrow (Utqiagvik, AK): April – June 2022

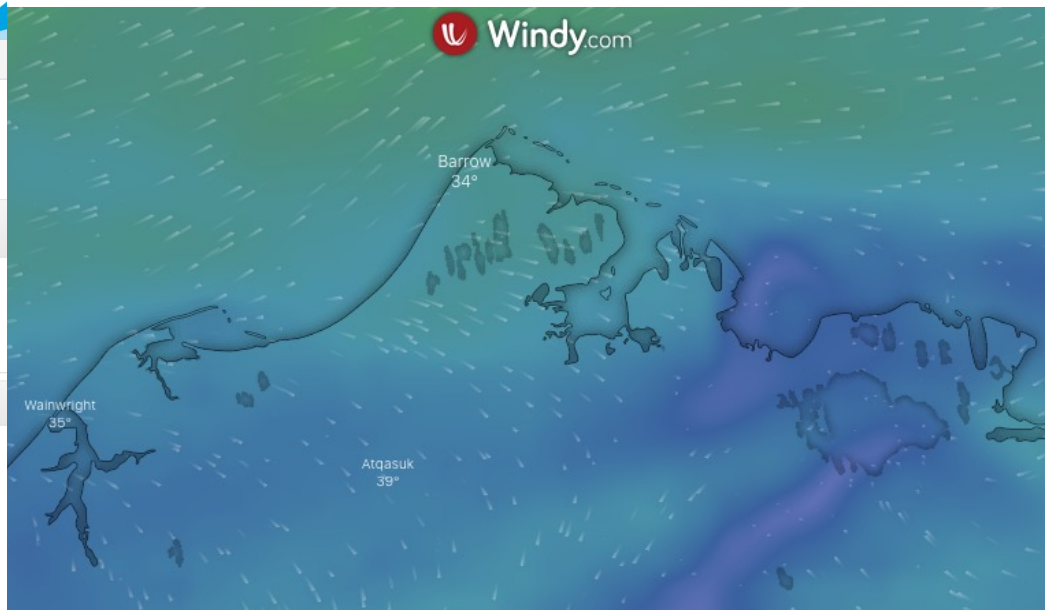



POLAR BEAR TRACKS

ASD FOR SPECTRAL ALBEDO

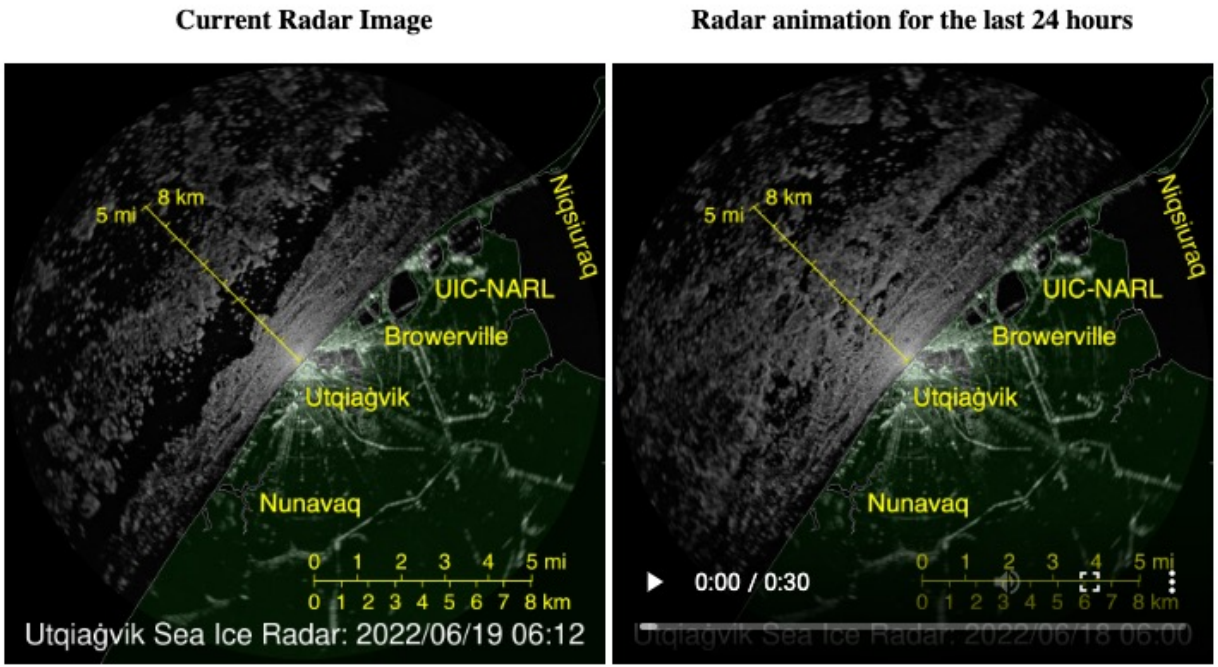
Snow Albedo Evolution Campaign (SALVO) – How to Navigate the Sea Ice





Snow Albedo Evolution Campaign (SALVO) – How to Navigate the Sea Ice

https://seaice.alaska.edu/gi/observatories/barrow_radar/



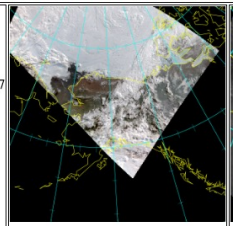
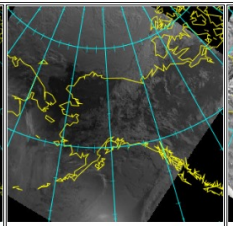
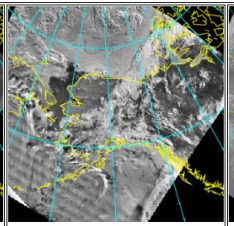
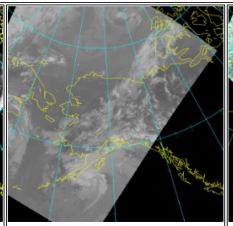
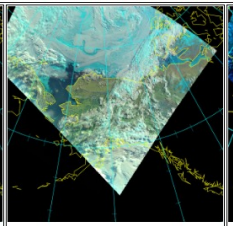
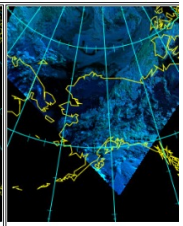
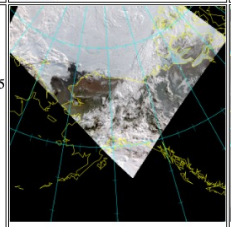
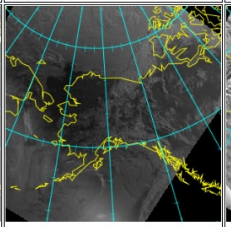
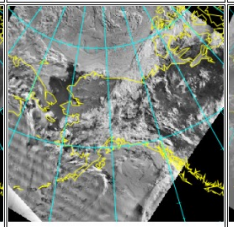
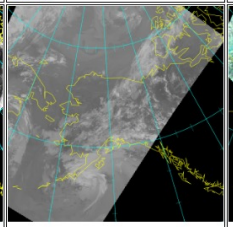
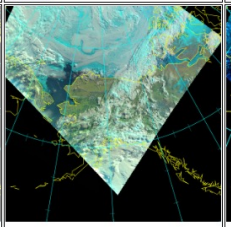
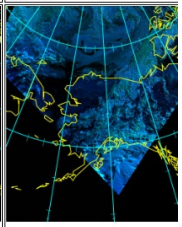
LEO Near Real-Time Imagery
http://hippy.gina.alaska.edu/distro/nrt/

Not Secure | hippy.gina.alaska.edu/distro/nrt/

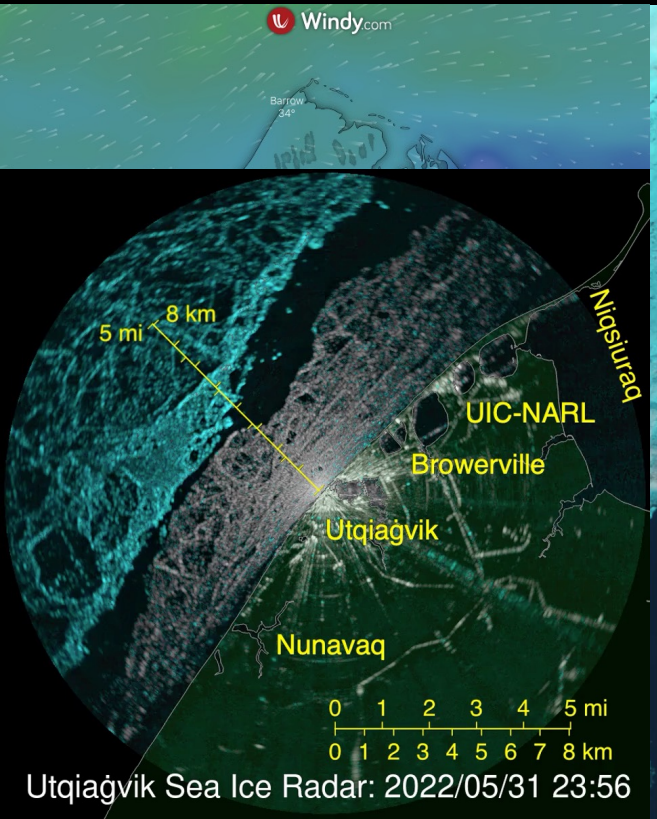
Geographic Information Network of Alaska

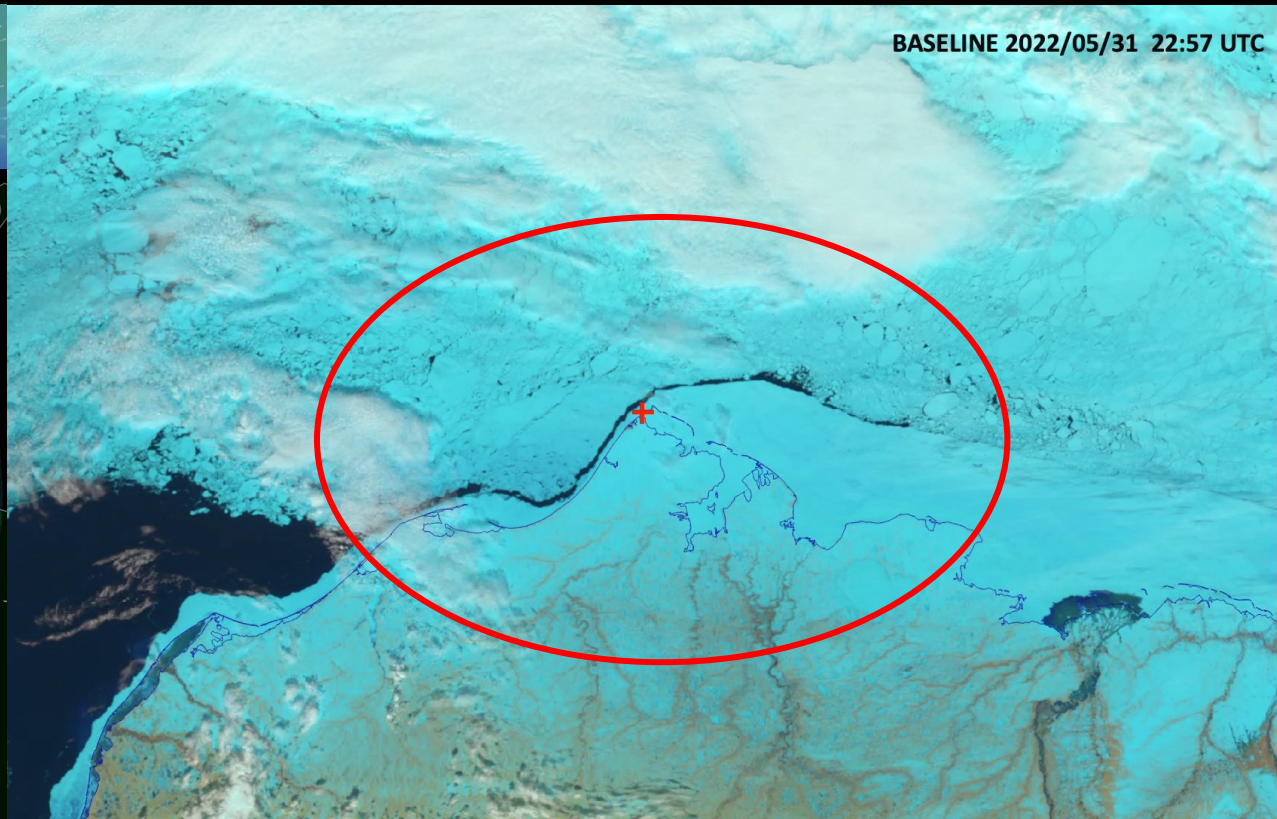
Recent NRT Scenes..

Generated at 2022/06/19 06:25 AKDT

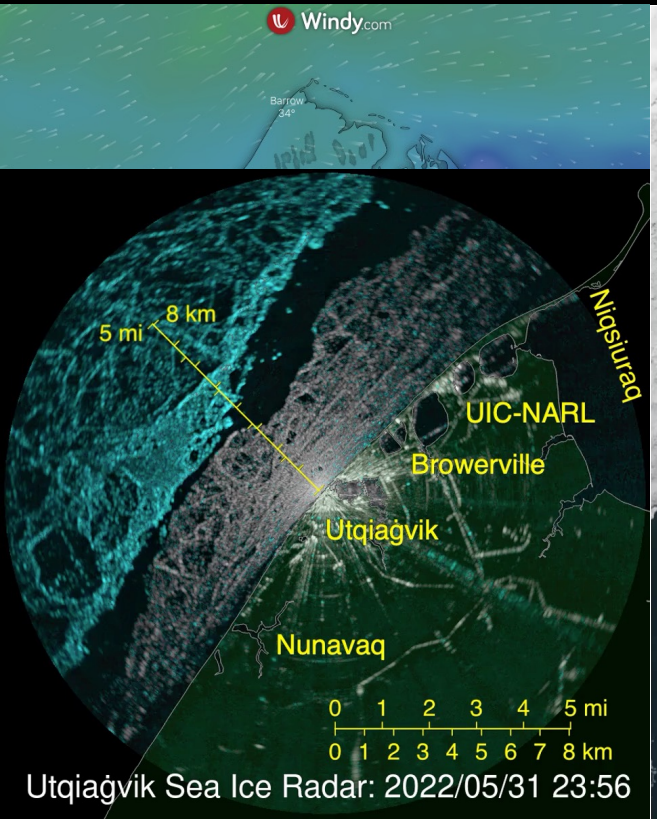
noaa20.20220619.1337 Captured At: 2022/06/19 05:37 AKDT 2022/06/19 13:37 GMT Age: 48 minutes						
	True Color Received at: UAF/GINA GeoTiff	Daynight band Received at: UAF/GINA GeoTiff	_DNB_adaptive Received at: UAF/GINA GeoTiff	VIIRS I05 Received at: UAF/GINA GeoTiff	DayLandCloud Received at: UAF/GINA GeoTiff	VIIRS Fire Temperature Received at: UAF/GINA GeoTiff
noaa20.20220619.1335 Captured At: 2022/06/19 05:35 AKDT 2022/06/19 13:35 GMT Age: 50 minutes						
	True Color Received at: Gilmore GeoTiff	Daynight band Received at: Gilmore GeoTiff	_DNB_adaptive Received at: Gilmore GeoTiff	VIIRS I05 Received at: Gilmore GeoTiff	DayLandCloud Received at: Gilmore GeoTiff	VIIRS Fire Temperature Received at: Gilmore GeoTiff

Snow Albedo Evolution Campaign (SALVO) – How to Navigate the Sea Ice





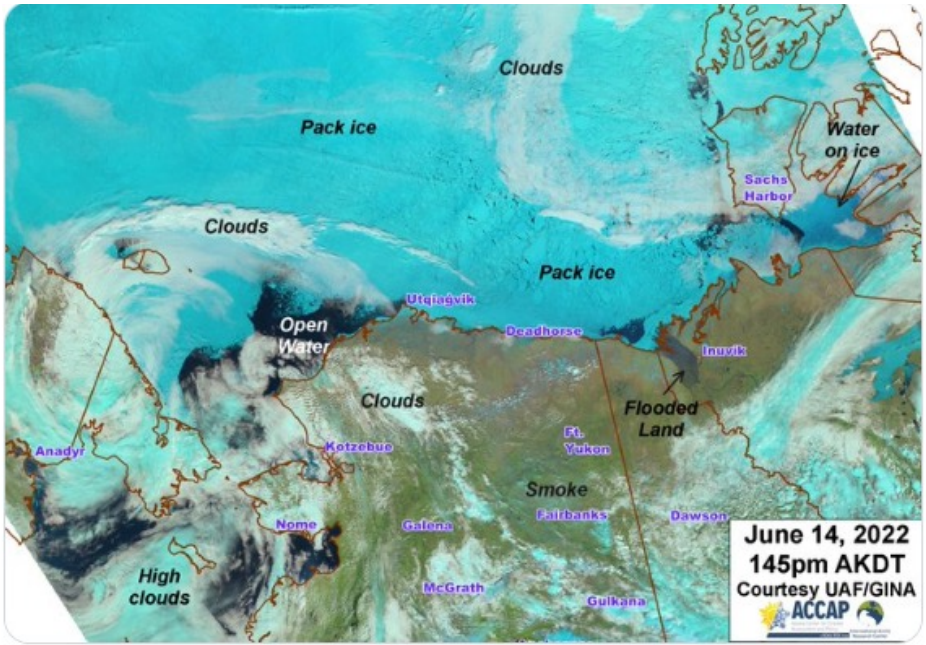
Snow Albedo Evolution Campaign (SALVO) – How to Navigate the Sea Ice



Snow Albedo Evolution Campaign (SALVO) – How to Plan Your Last Evening on the Ice

Rick Thoman
@AlaskaWx

False color satellite image eye candy from Tuesday afternoon. Lots of clear skies views of #seaice and developing open water in the Chukchi and Beaufort Seas. NOAA-20 VIIRS image courtesy @uafgina. #akwx #ntwx @Climatologist49



3:42 PM · Jun 14, 2022 · Twitter Web App

CHUKCHI SEA

June 14, 2022

A High-Latitude Proving Ground for CSPP LEO Software

Jen Delamere

Jay Cable

Carl Dierking

Owen Larson

Martin Stuefer

Greg Wirth

Hunter Barndt

Grace Veenstra

What is a NOAA/NESDIS Proving Ground?

What is a Proving Ground?

An effort to improve NOAA services through optimizing the use of satellite data along with other sources of data and information. The initiatives comprise a team of developers and users working together to improve an application in a testbed environment, providing assessments of utility from the users and feedback to the developers.

Why Have a Proving Ground in Alaska?
What don't we have for weather and geography?

Sea Ice

Avalanches

Volcanic Ash

River Ice & Floods

Forest Fires

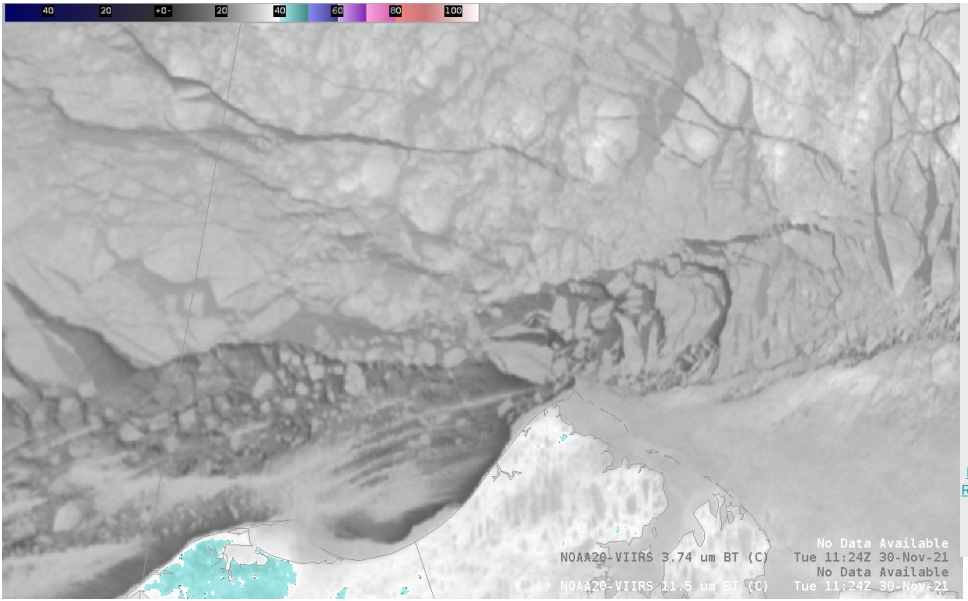
Coastal Storms

Smoke & Air Quality

Heavy Precip

Why Have a Proving Ground in Alaska? Lots of Agency Interest

VIIRS: Northern AK Sea Ice, 11/30/21



Federal Partners

National Park Service

Bureau of Land Management

Alaska Fire Service

NOAA - National Weather Service

NOAA - Joint Polar Satellite System

NASA

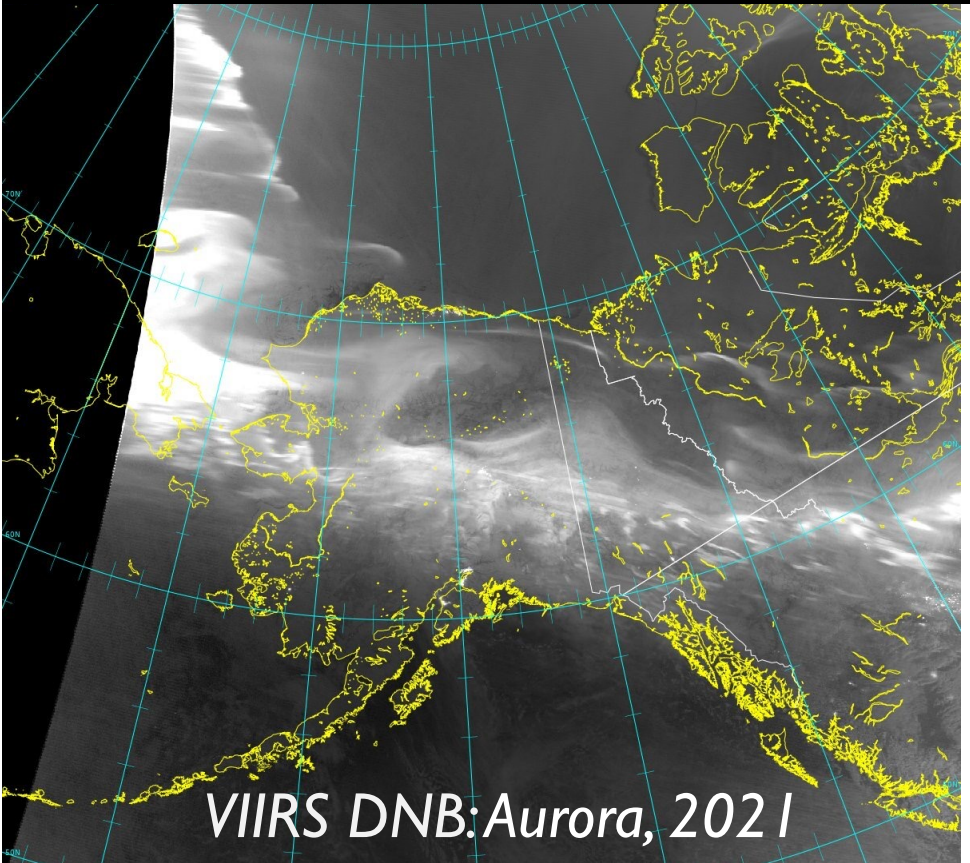
NASA - Short-term Prediction Research and Transition Center (SPoRT)

United States Geological Survey

United States Fish & Wildlife Service

Alaska EPSCoR

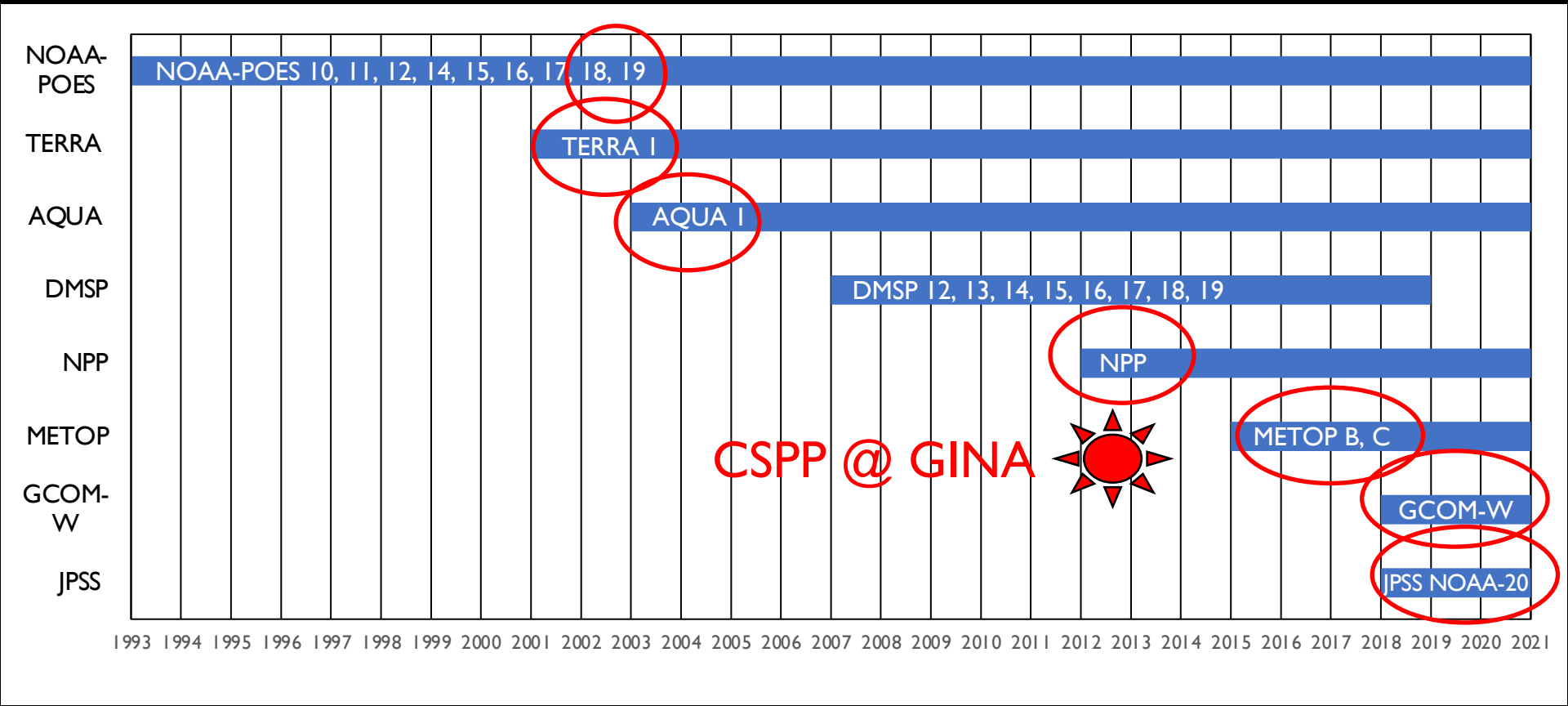
Why Have a Proving Ground in Alaska? Lots of Academic Interest



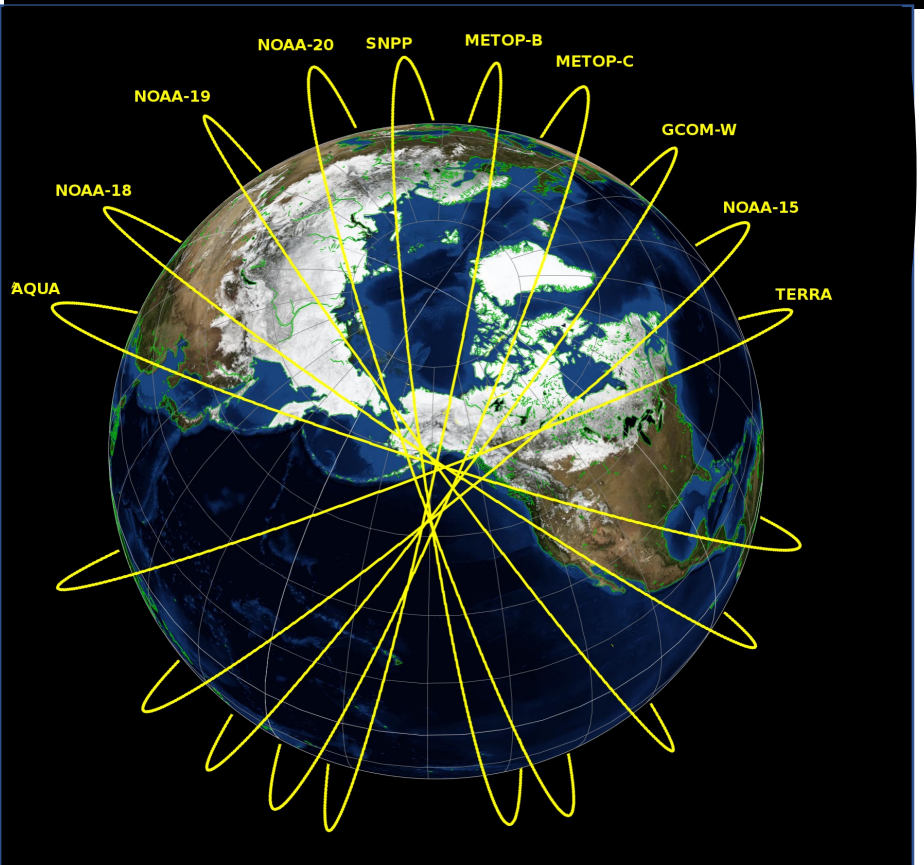
Academic Partners

- Alaska Satellite Facility
- https://www.gi.alaska.edu/
- International Arctic Research Center
- Scenarios Planning for Alaska + Arctic Planning
- Alaska Center for UAS Integration
- University of Alaska Anchorage
- University of Alaska Fairbanks
- Alaska Volcano Observatory
- Alaska Fire Science Consortium
- Colorado State University - Cooperative Institute for Research in the Atmosphere
- University of Wisconsin - Cooperative Institute for Meteorological Satellite Studies

Why Have a Proving Ground in Alaska?
GINA DB Reception Over the Years

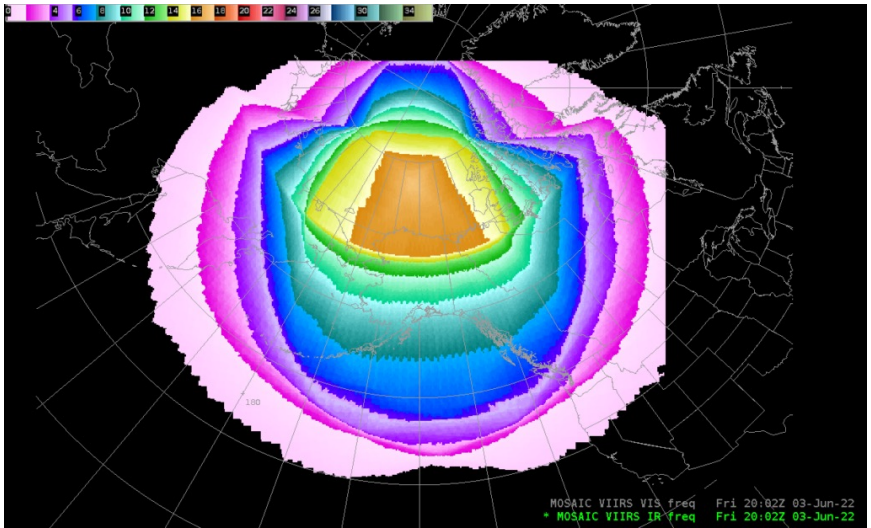


Why Have a Proving Ground in Alaska?
Lots of Pass Coverage with DB Antennas



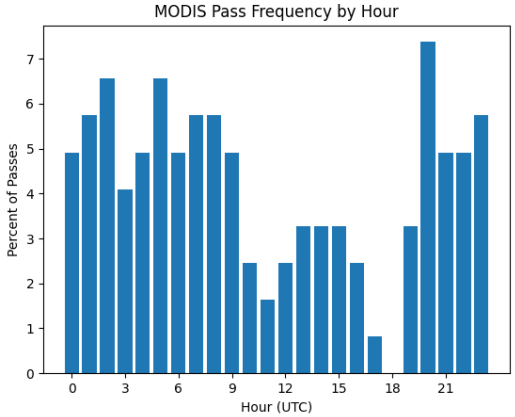
VIIRS: Two satellite combination doubles coverage

- Northern AK: ~18 passes/day
- Southern AK: 6-8 passes/day



Why Have a Proving Ground in Alaska?
Lots of Pass Coverage with LEO DB Antennas

MODIS



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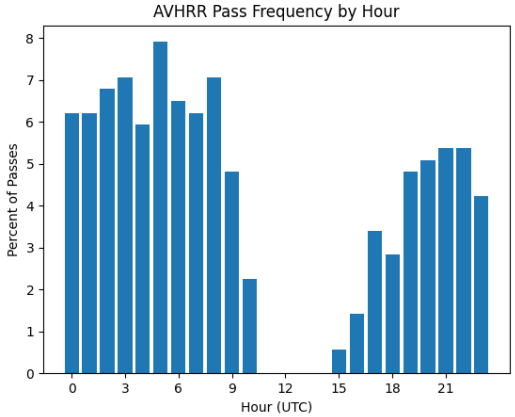
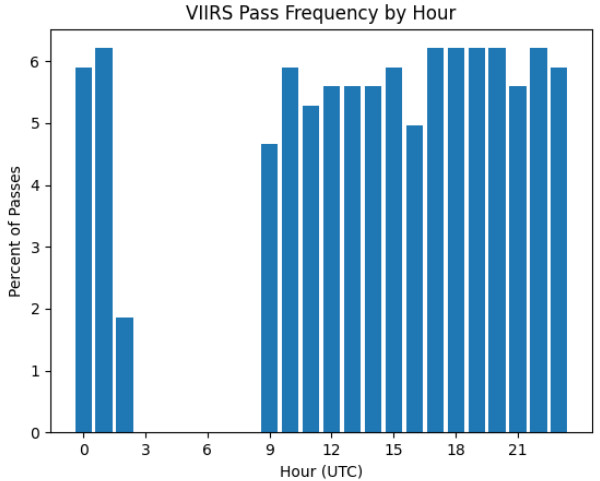
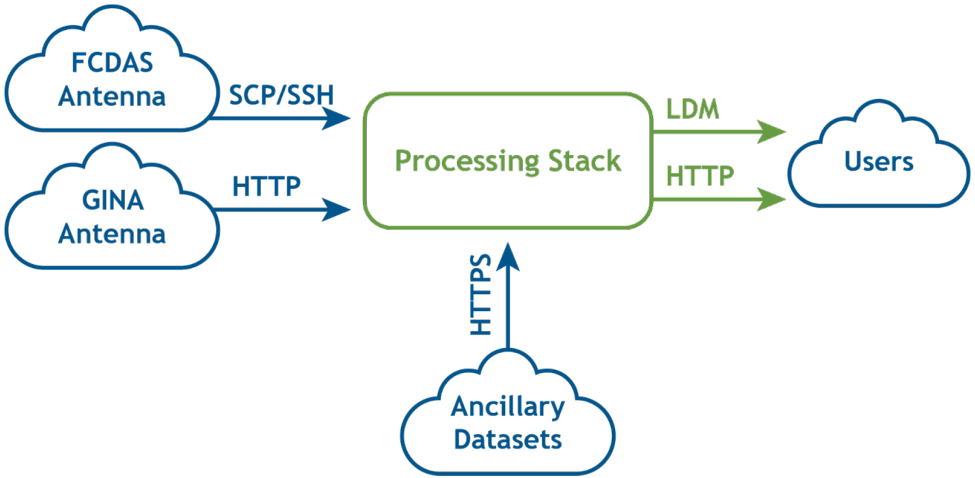


AVHRR



Why Have a Proving Ground in Alaska?
Keep customers close to the data….low latency

GINA's Near Real-Time Processing on UAF campus:
A Dev System &
Production System Featuring CSPP



GINA: Suite of CSPP LEO Products

Products	SNPP NOAA-20	NOAA-18 NOAA-19	Metop-B Metop-C	Terra Aqua	GCOM-W	CSPP-LEO (DATE)
Calib & GeoLocation	VIIRS, CrIS, ATMS					SDR (2012)
Single-Channel Imagery & RGBs	VIIRS	AVHRR	AVHRR	MODIS		POLAR2GRID (2015)
Aerosol OD, Volcanic Ash	VIIRS					EDR (2012)
Soundings	CrIS, ATMS		IASI, AMSU/MHS			HEAP (2020) (NUCAPS - 2015)
Clouds	VIIRS	AVHRR	AVHRR	MODIS		CLAVR-x (2014)
Precipitation	ATMS	AMSU/MHS	AMSU/MHS		AMSR2	MiRS (2014) GAASP (2020)

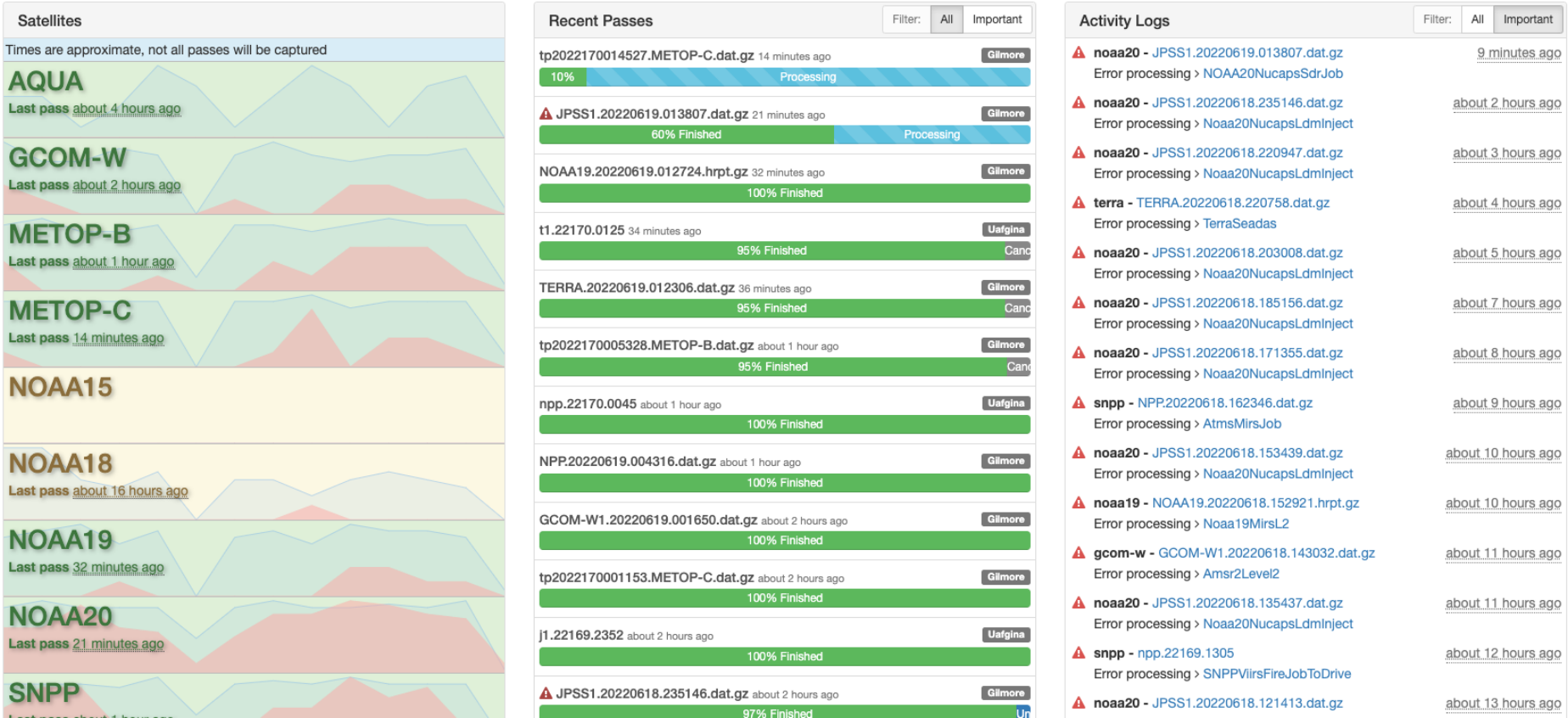
https://cimss.ssec.wisc.edu/cspp//

GINA: Suite of CSPP LEO Products

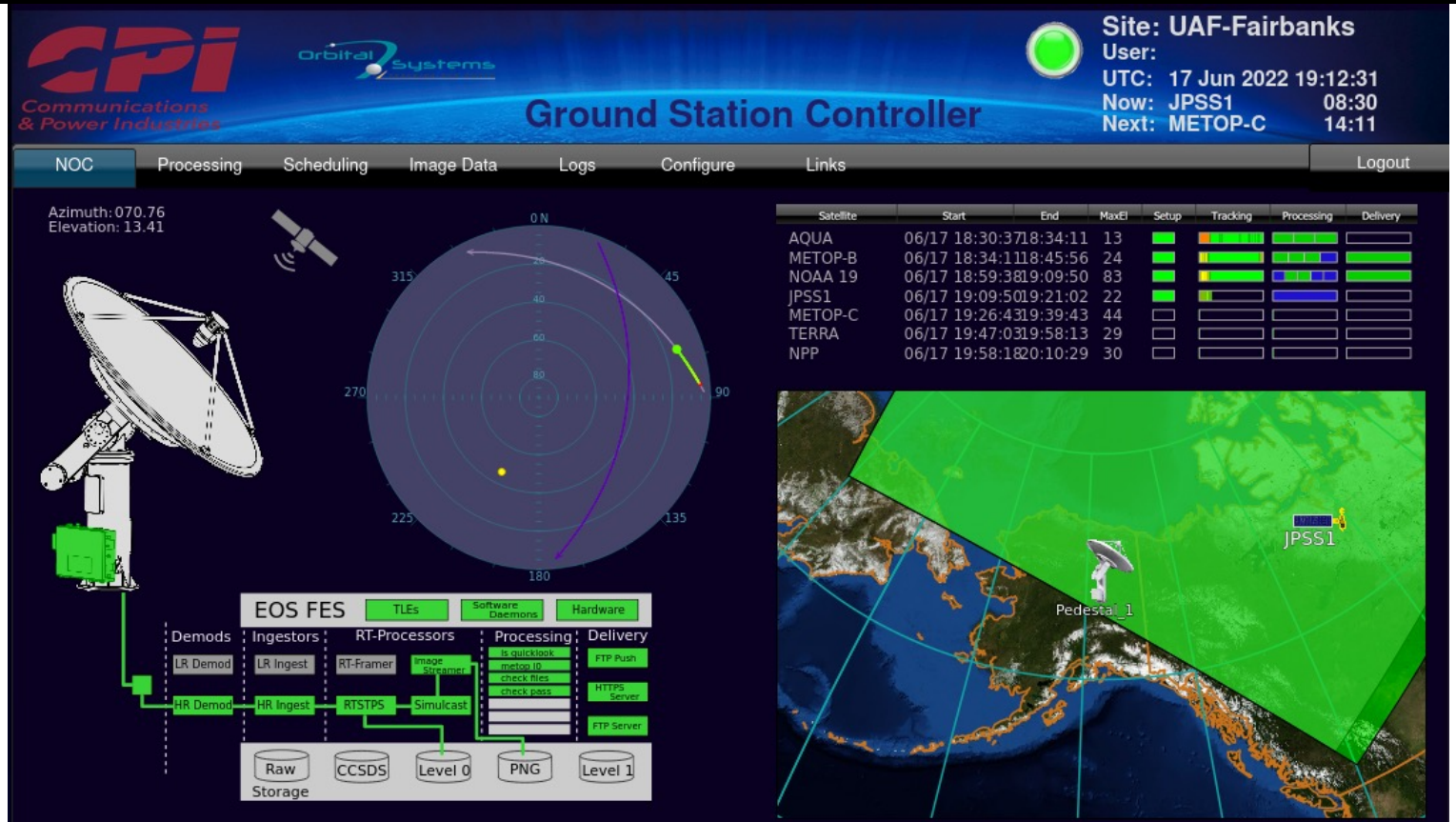
Products	SNPP NOAA-20	NOAA-18 NOAA-19	Metop-B Metop-C	Terra Aqua	GCOM-W	CSPP-LEO
Ocean Winds					AMSR2	GAASP (2020)
Ocean SST	VIIRS			MODIS	AMSR2	ACSPO (2015)
Fire Detection	VIIRS					Active Fire (2013)
Flood Detection	VIIRS					George-Mason *

https://cimss.ssec.wisc.edu/cspp/

GINA NRT Dashboard
nrt-ops.gina.alaska.edu



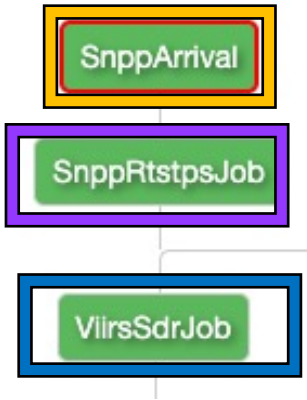
Incoming Pass on Sandy Dog (Orbital Antenna)



GINA NRT Pass on Dashboard
nrt-ops.gina.alaska.edu

Visible - easy to access, centralized monitoring of job status and statistics

Available - redundancy, failover and apply updates with minimal downtime



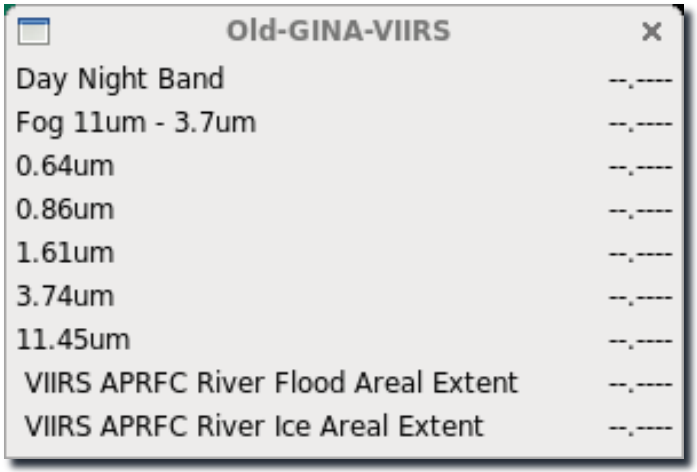
Scalable - ability to scale up and down processing and storage resource as needed

Tooling - needs to be able to run a wide variety of processing tools from different groups/vendors

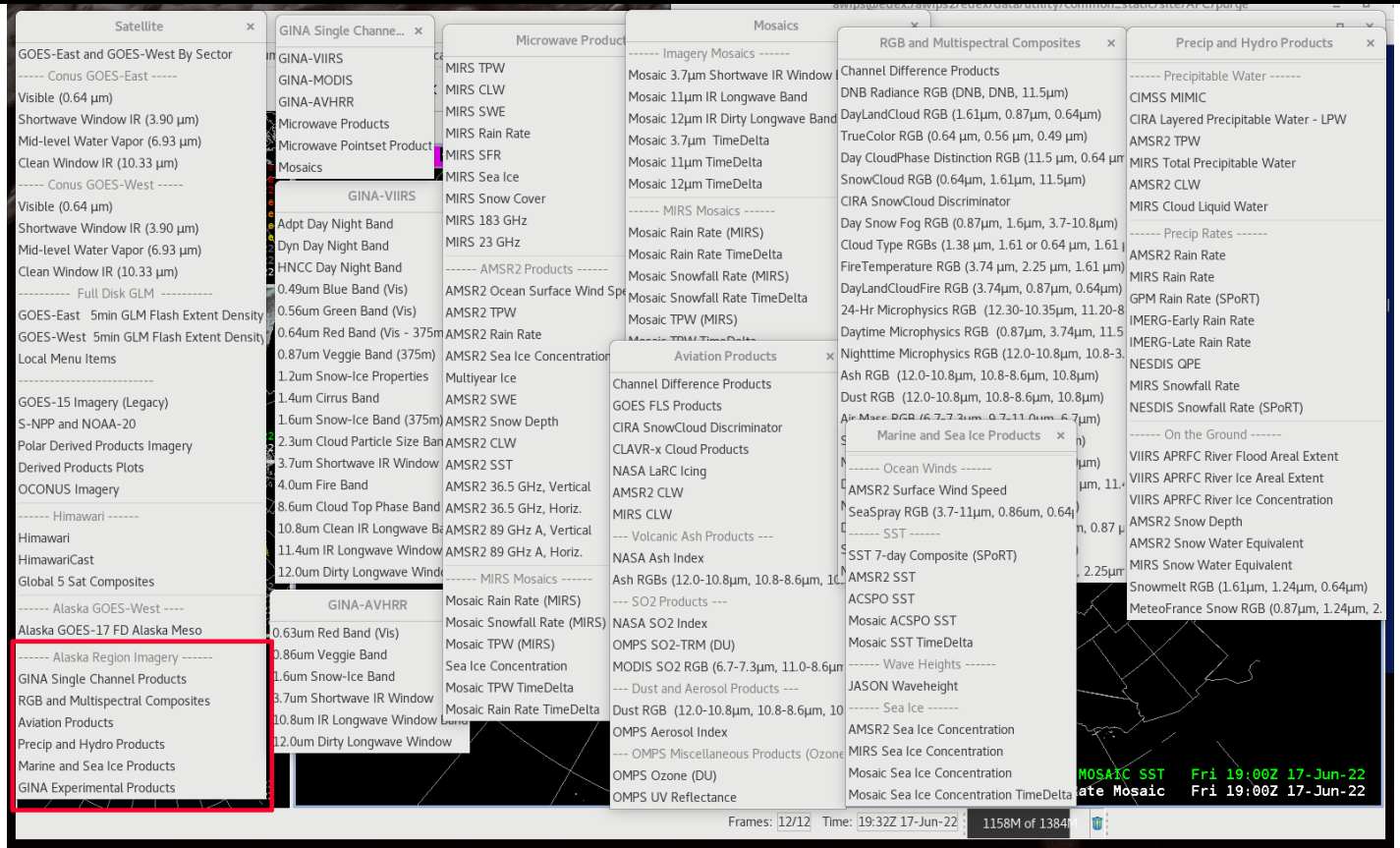
Distribution – public server, web portals, ESRI mapping layers, AWIPS

Processing logs Products

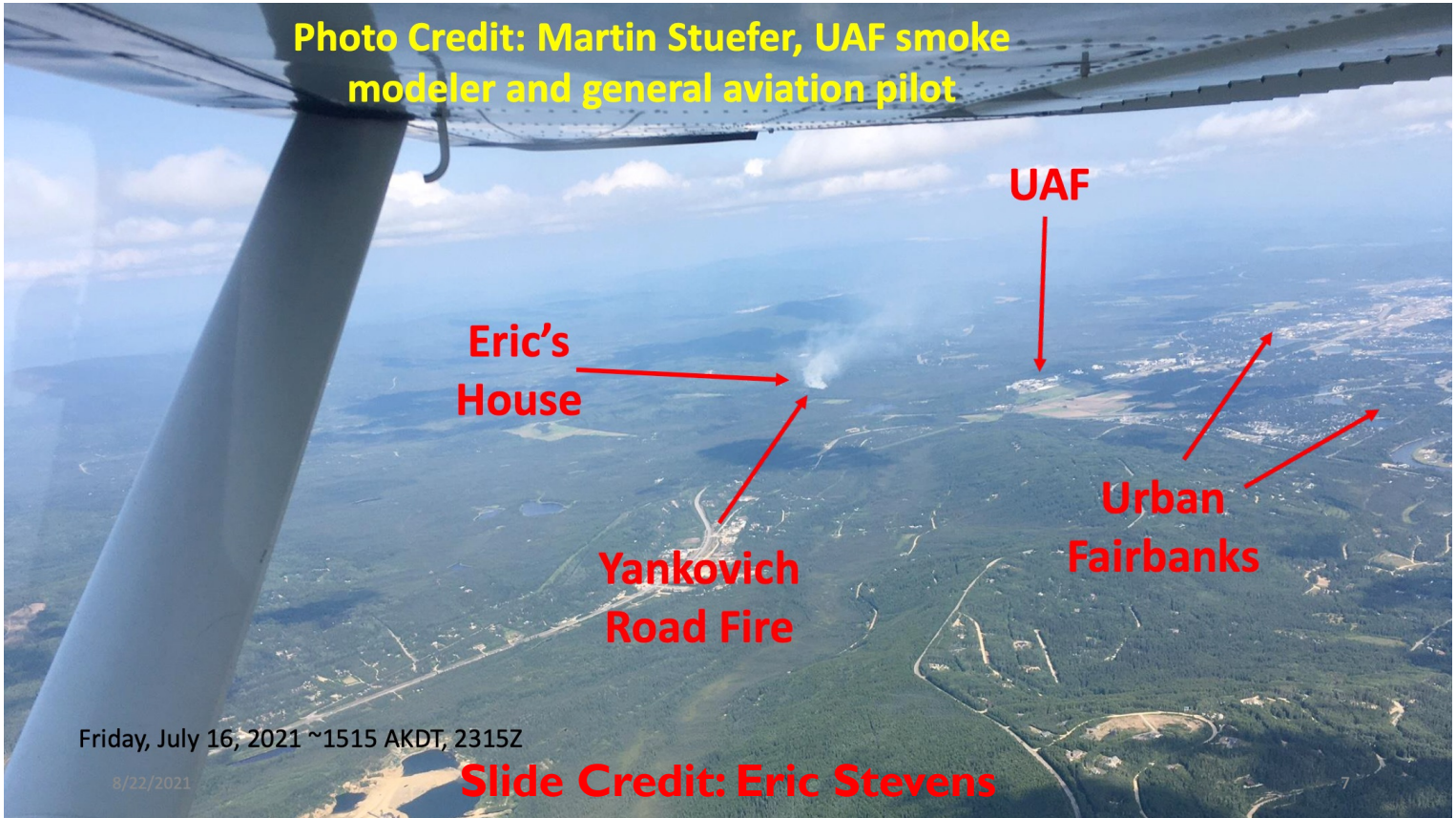
~2014 LEO AWIPS Menu @ GINA & NWS



2022 LEO AWIPS Menu @ GINA & NWS

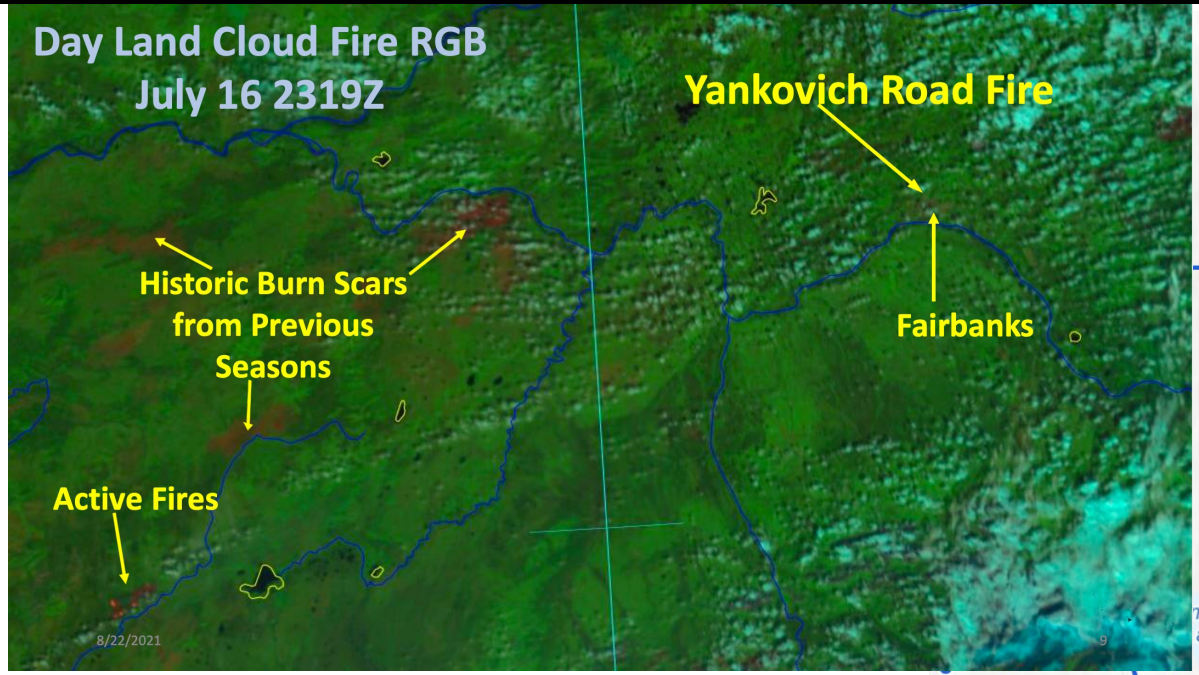


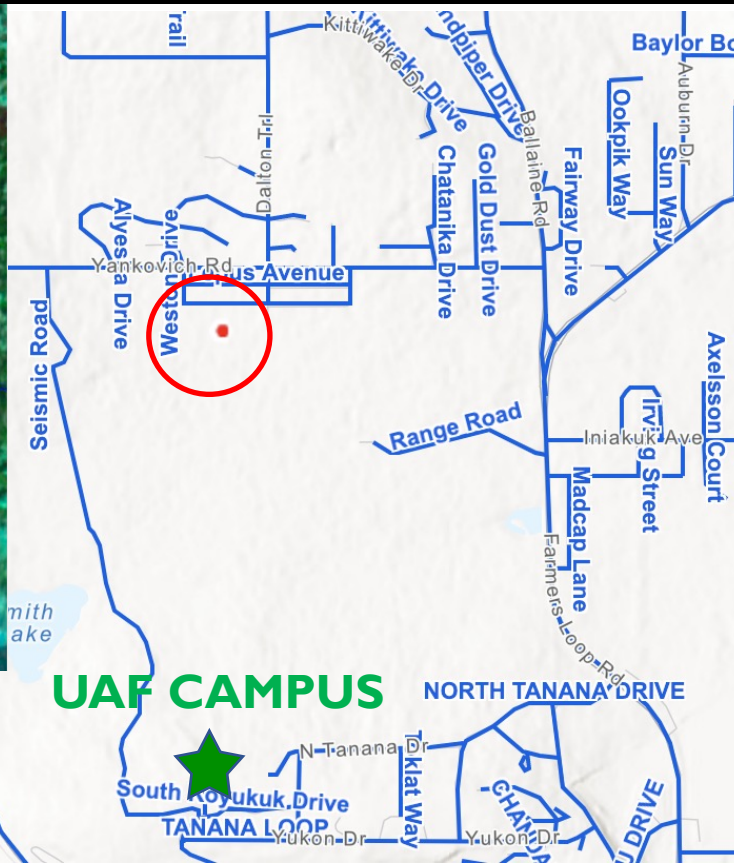
Fire at the Wildland Urban Interface: Yankovich Road Fire at UAF (July 16, 2021)



Fire at the Wildland Urban Interface: Yankovich Road Fire at UAF (July 16, 2021)

Fire at the Wildland Urban Interface (WUI): Yankovich Road Fire at UAF (July 16, 2021)



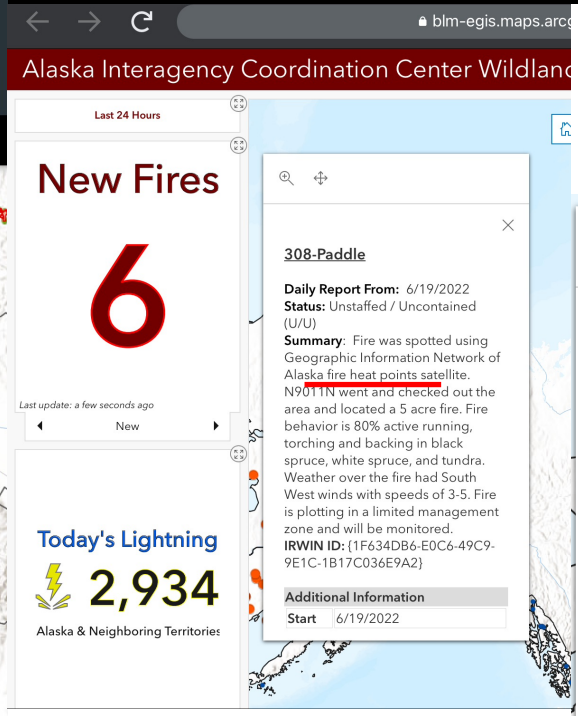


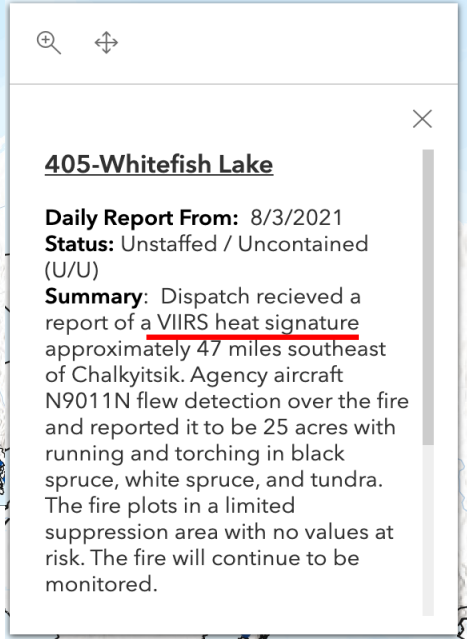
Credit: Eric Stevens
Meteorologist
AK Interagency Coordinate Center

When WUI Contains Smokejumpers & Muskoxen
https://youtu.be/FPWgzQ2p9V8

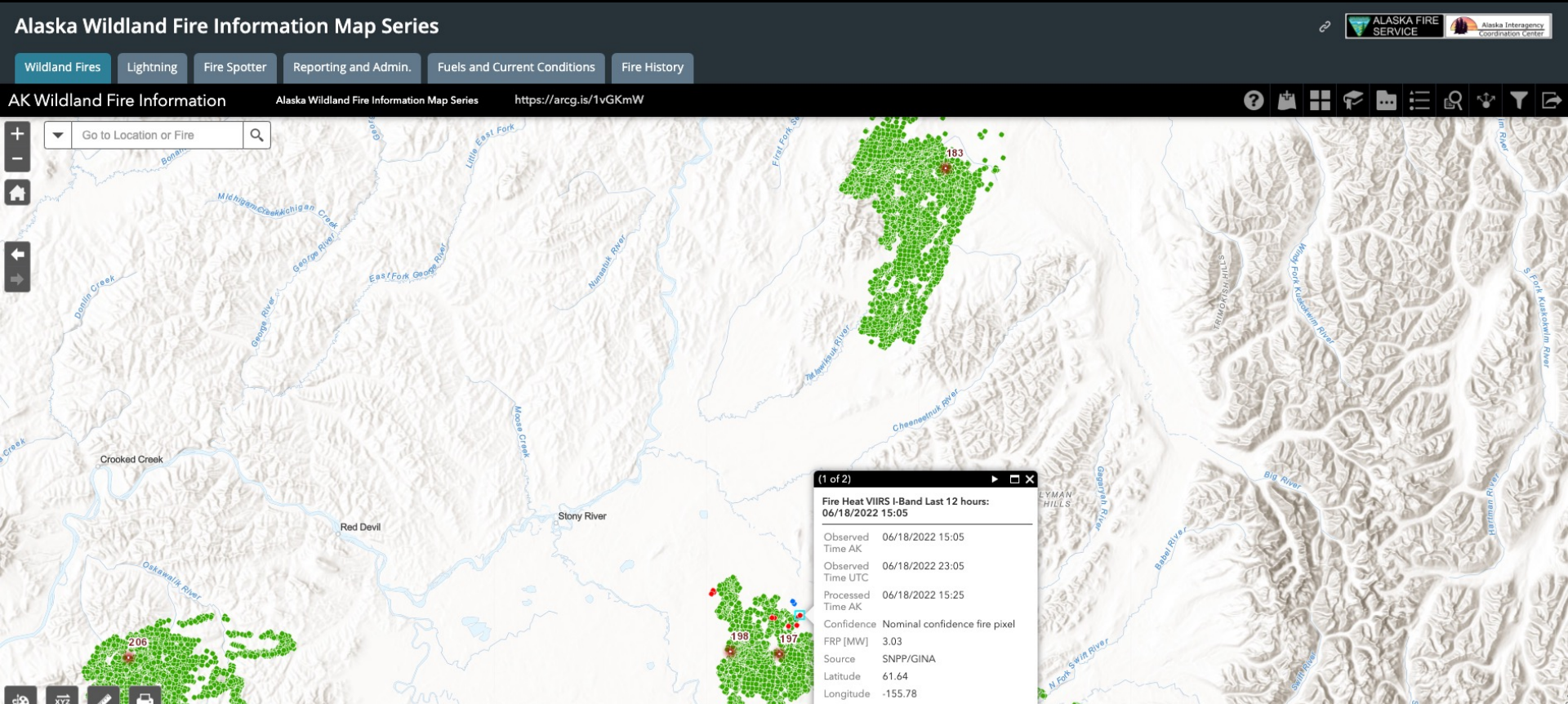
“Chasing Red Dots….”

https://arcg.is/1aa8Lq





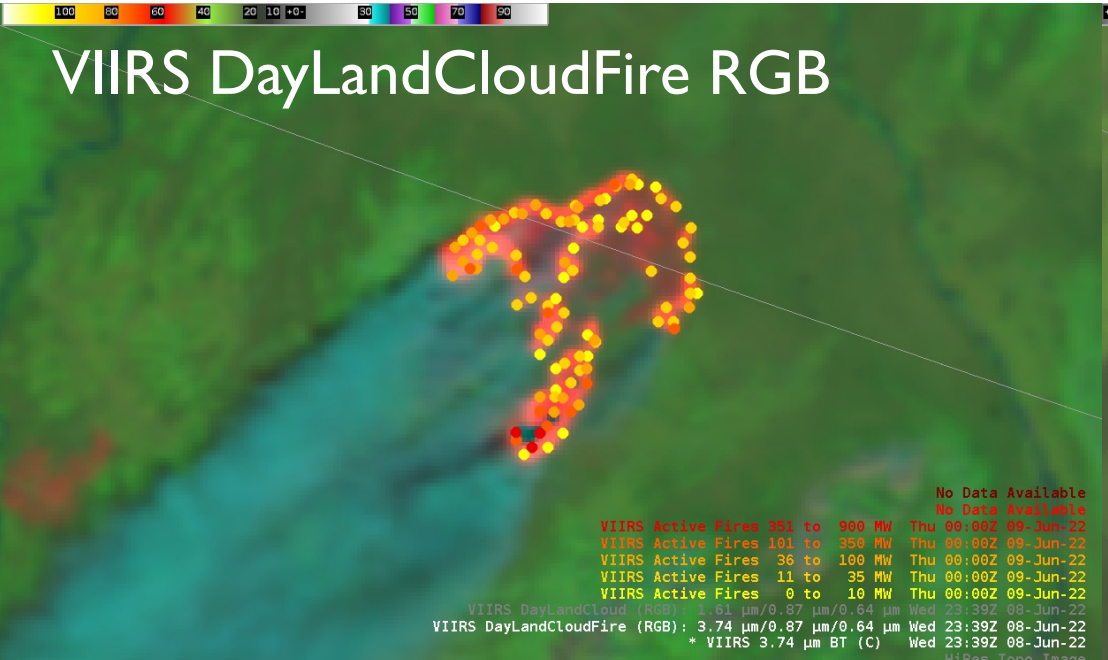
2022: CSPP VIIRS Active Fire in Production
June 18, 2022 Lime Complex

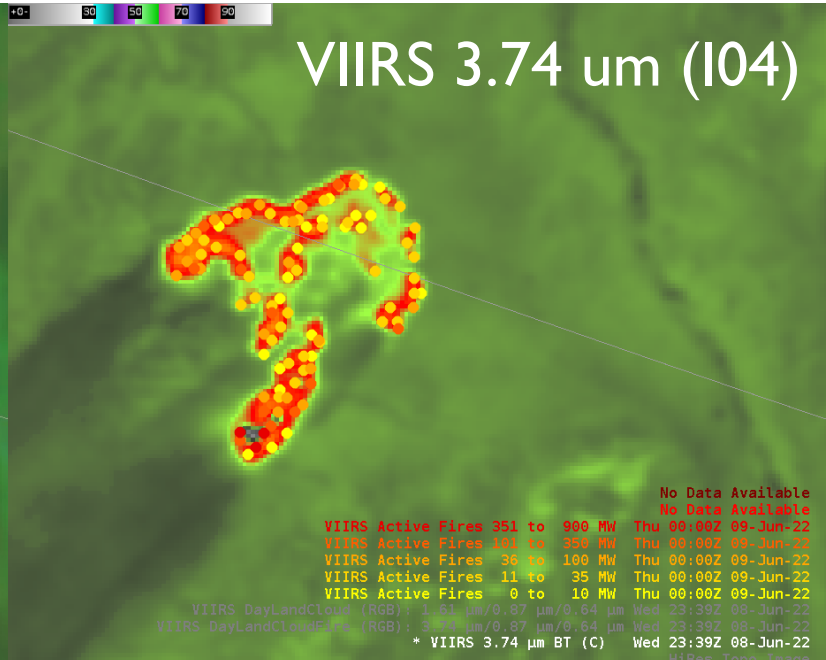


2022: VAF Product Available for AWIPS

Tatlawiksuk Fire #183

June 9, 2022 near McGrath, AK (smoldering now at 131,000 acres)

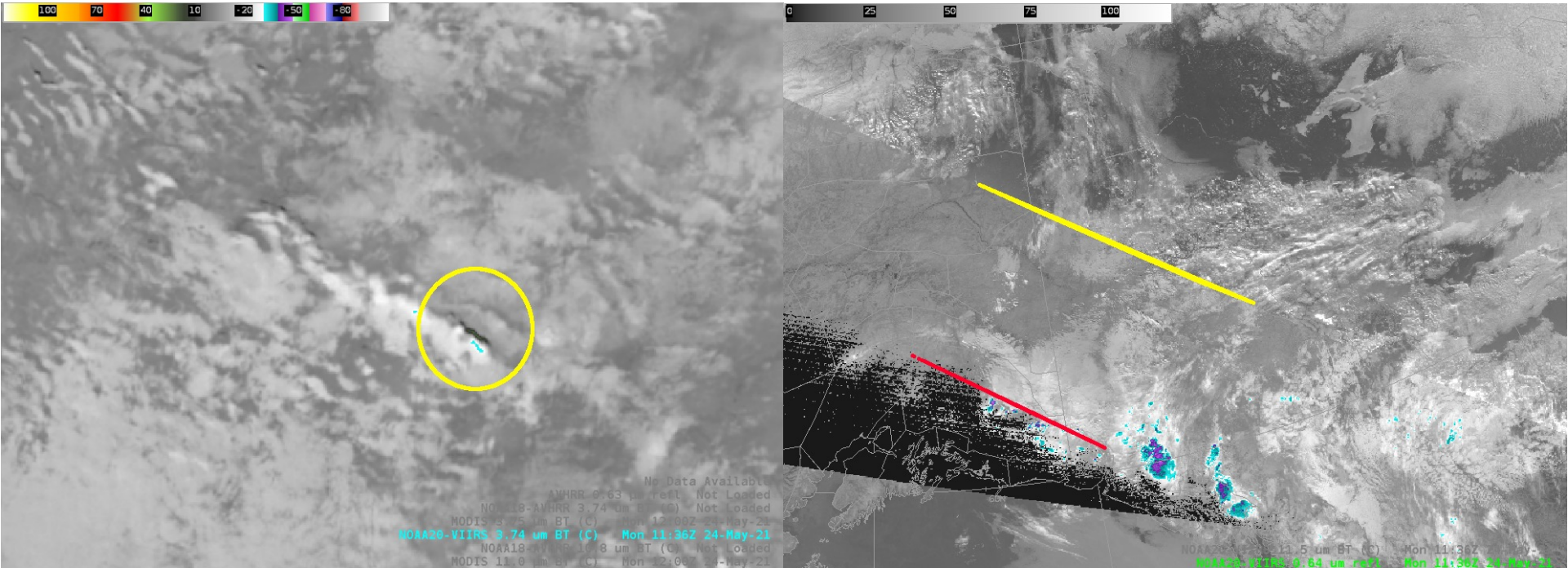




GINA Works with Algorithm Developers: Explaining the Unexpected

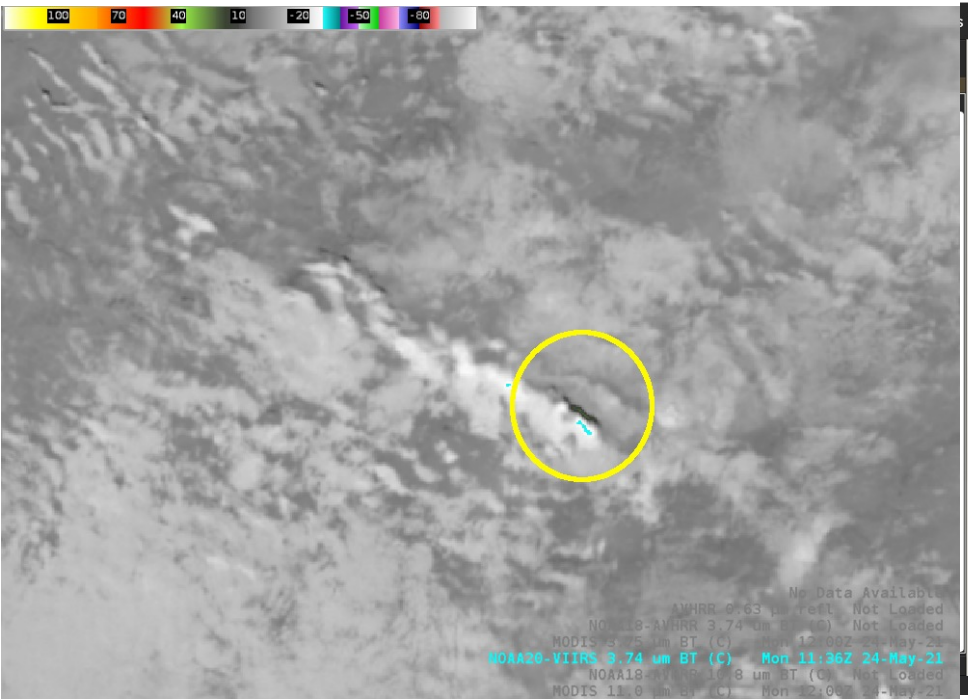
Canadian Yukon May 24, 2021

Seven Anomalous Fire Points

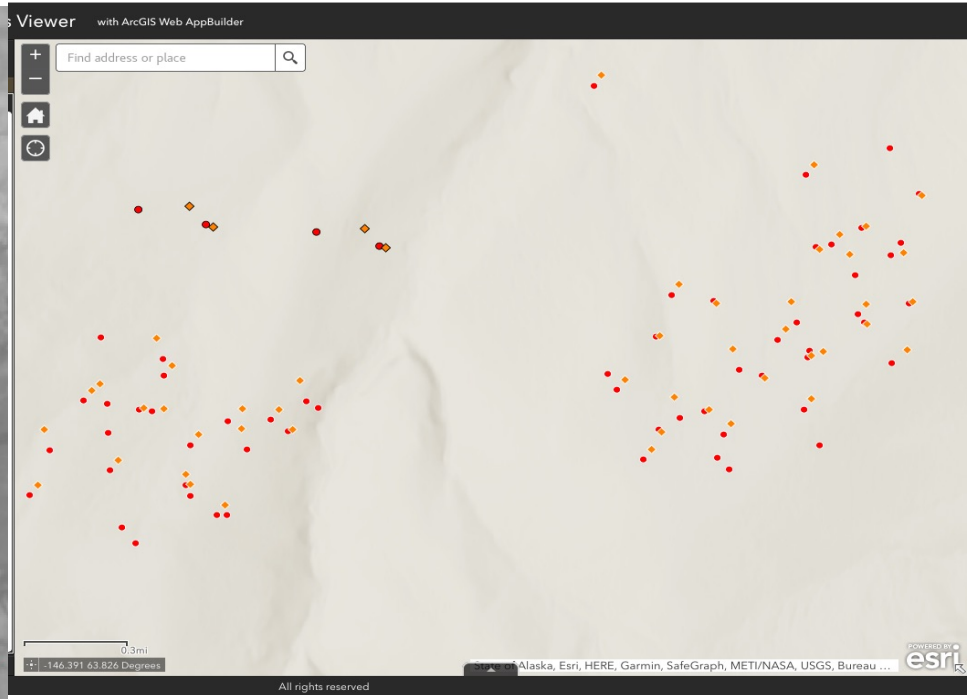


GINA Works with Algorithm Developers: Explaining the Unexpected

Canadian Yukon May 24, 2021 Seven Anomalous Fire Points



Geolocation Differences between NOAA-CSPP VAF and NASA IPOPP

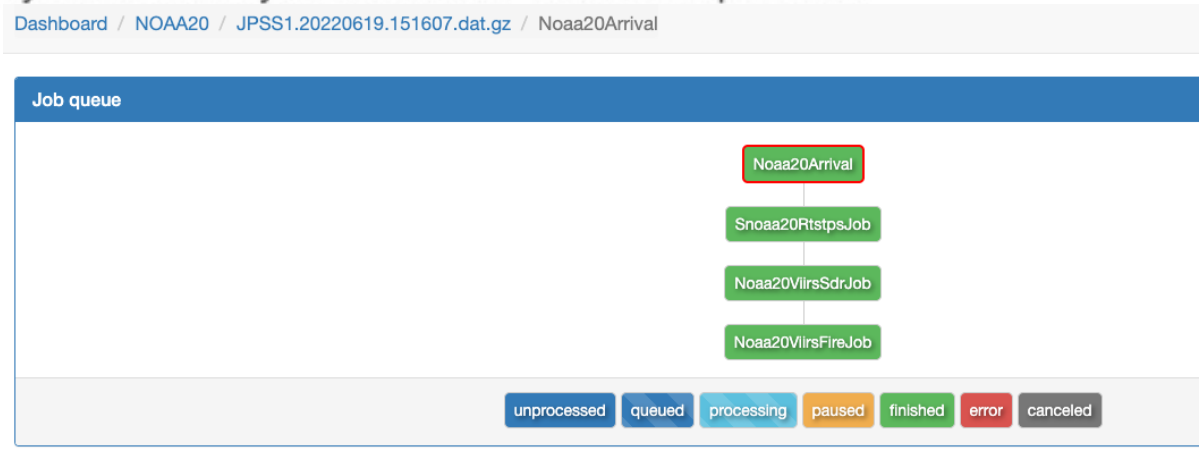


GINA Works with CSPP Developers: New Version of VAF in GINA Dev Ops

CSPP Release History

June 7, 2022 (CSPP NOAA VIIRS Active Fire Software Version 2.0)

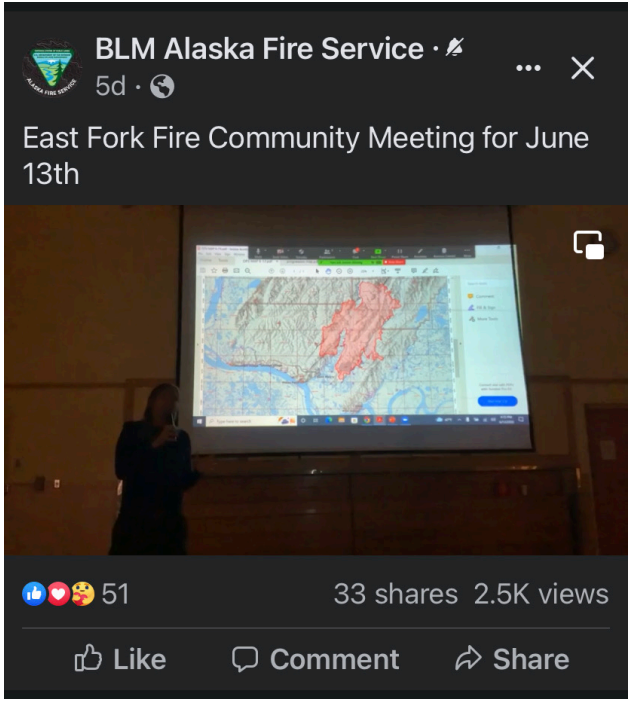
- New release of NOAA JPSS Active Fire software supporting the Visible Infrared Imaging Radiometer Suite (VIIRS) imager. The NOAA JPSS fire team at the NOAA NESDIS Center for Satellite Applications and Research (STAR) provided the software which has been adapted and tested for execution in a real-time direct broadcast environment. This version includes an updated VIIRS I-Band algorithm, and the inclusion of a Persistent Anomaly retrieval array in the NetCDF and .txt output files.



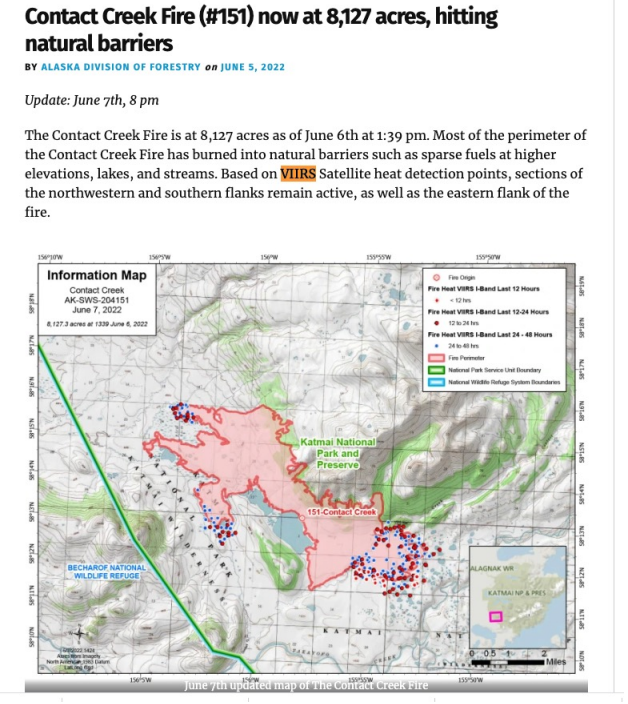
2022: Give Talks & Develop Training Materials: gina.alaska.edu/training-resources/quick-quides-briefs

2022: VIIRS Product Recognition On The Web

Facebook
(K. Scholl, Operations Chief)



Alaska Wildland Fire Info
https://akfireinfo.com/Alaska



Contact Creek Fire (#151) now at 8,127 acres, hitting natural barriers

BY ALASKA DIVISION OF FORESTRY *on* JUNE 5, 2022

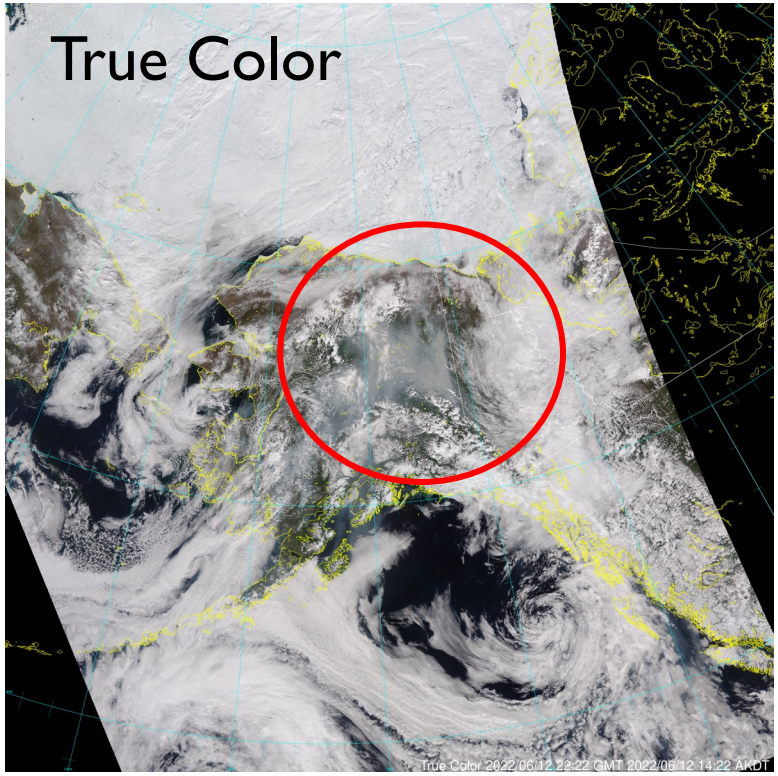
Update: June 7th, 8 pm

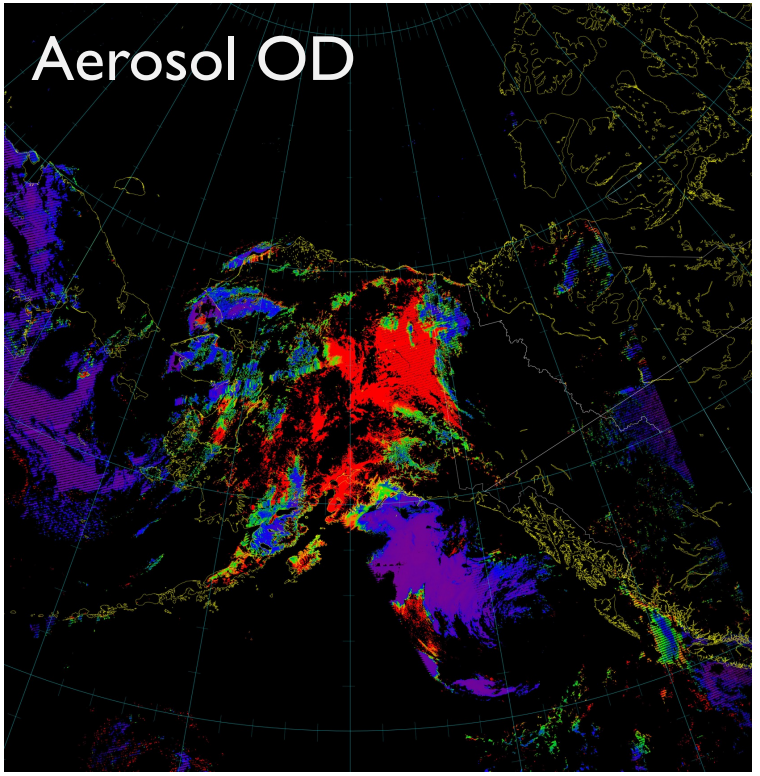
The Contact Creek Fire is at 8,127 acres as of June 6th at 1:39 pm. Most of the perimeter of the Contact Creek Fire has burned into natural barriers such as sparse fuels at higher elevations, lakes, and streams. Based on VIIRS Satellite heat detection points, sections of the northwestern and southern flanks remain active, as well as the eastern flank of the fire.

June 7th updated map of The Contact Creek Fire

Air Quality from CSPP LEO EDRs: Assessing the Column Aerosol Optical Depth

VIIRS 22:22 UTC 12 Jun22





2022: A Year of Active Fire Effort Across the State of Alaska

"Yesterday June 18, the year-to-date number of acres burned by wildfires in Alaska reached 1,005,196. This is the earliest date for reaching a million acres since this statistic was first tracked in 1990."
- https://akfireinfo.com

2022 Alaska Wildland Fire Numbers

As of Saturday morning, June 18

Division of Forestry

- Number of wildfires: 276
- Acres burned statewide: 1,005,196
- New fires yesterday: 11
- Active fires: 102
- Staffed fires: 16
- Personnel assigned: 606
- Human-caused: 163
- Lightning/natural-caused: 70
- Undetermined causes: 41
- Unknown 2

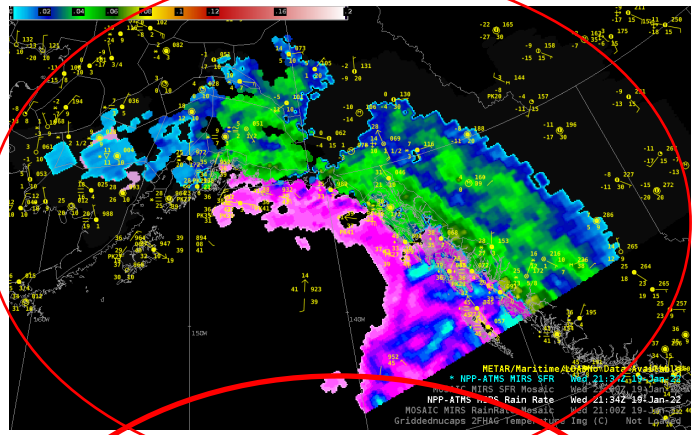
Central Creek Airstrip Fire (#295) on Friday, June 18, 2022. DOF photo

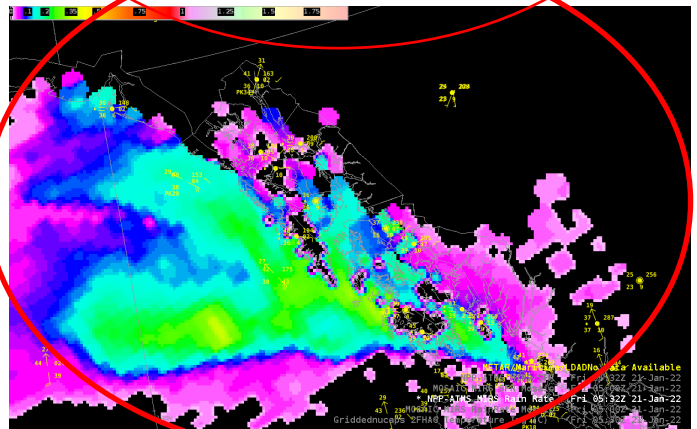
Atmospheric Rivers Do Floweth Over SE Alaska: And Direct-Broadcast Floats Along (Jan 2022)

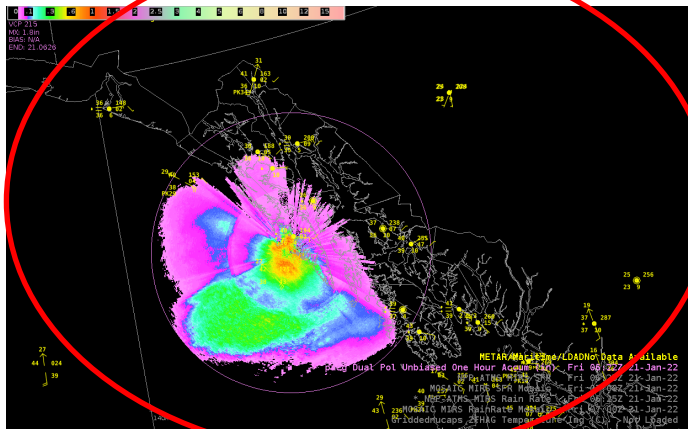
Southeast Alaska 48Hr Precip Totals (inches)

Snettisham Powerhouse	8.11
Sawmill Creek	6.60
Juneau NWS Office	6.57
South Douglas Boat Harbor	6.43
Sitka	6.21
Yakutat CRN	5.38
Juneau	5.21
Bartlett Cove	4.90
Ted Stevens Lab (NOAA)	4.88
Taku River	4.84
Mendenhall River	4.80
Hoonah RAWS	4.73
Yakutat	3.94
Auke Bay	3.60
Silvis Powerhouse	3.28
Angoon	3.20
Eaglecrest Top	3.06
Gustavus CRN	2.95
Shelter Cove RAWS	2.65
Beaver Falls Powerhouse	2.30

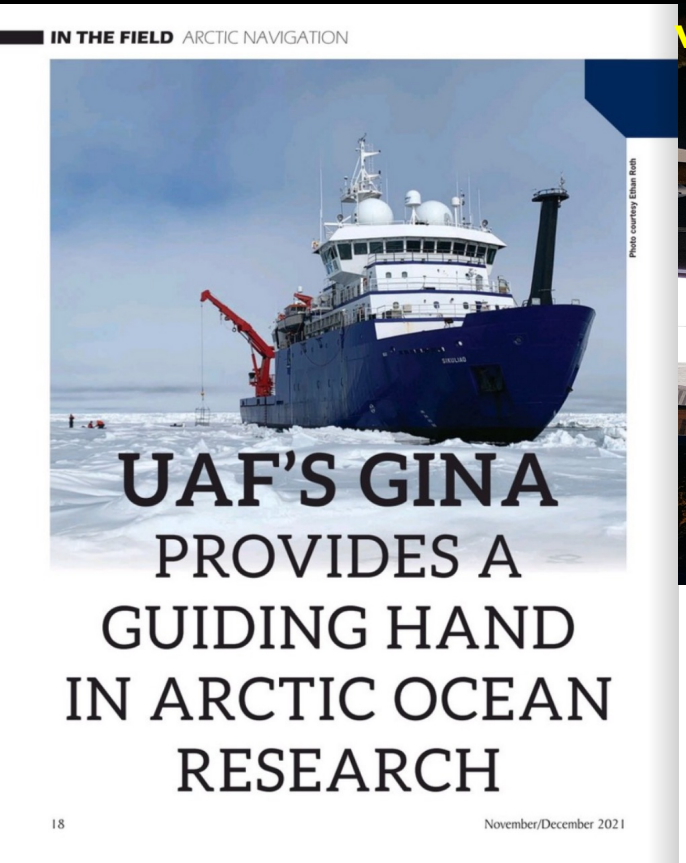
valid as of Sat Jan 22nd 02:46 pm - NWS Juneau



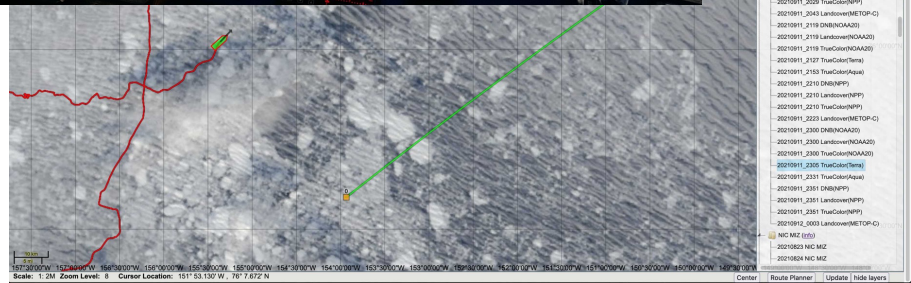




Navigating the Arctic:
The R/V Sikuliaq Pushes Further North (Fall 2021)



www.sikuliaq.alaska.edu/ops/mapserver.html



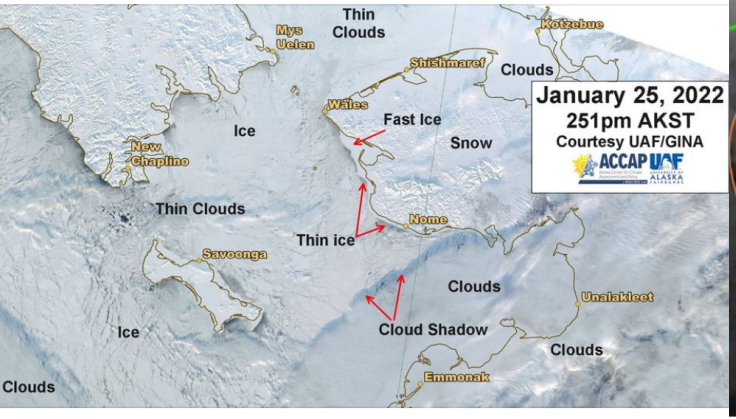
Credit:
Rod Boyce
Steve Roberts

Direct-Broadcast on Social Media: Fan Favorites

Facebook

Rick Thoman
Admin · 21 hrs ·

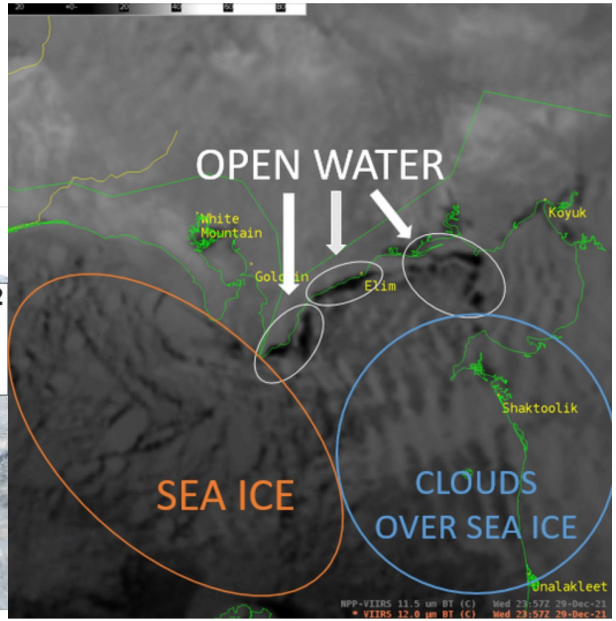
Mostly clear skies through the Bering Strait and around St. Lawrence Island Tuesday afternoon gives us our best view yet of sea ice in this region, at least as seen from 500 miles up. Gotta say, from the western science remote sensing perspective, sea ice is looking pretty robust for late January. But what do the experts (that's you) say? Most of Norton Sound is cloud covered in this image.



19 3 Comments

US National Weather Service Fairbanks Alaska
December 29, 2021 at 8:18 PM ·

We've had some observations informing us of some pockets of open water in Norton Sound near Elim and surrounding areas. Satellite imagery can show us where those pockets are, as well as surrounding sea ice cover and clouds over the sea ice. #AKwx

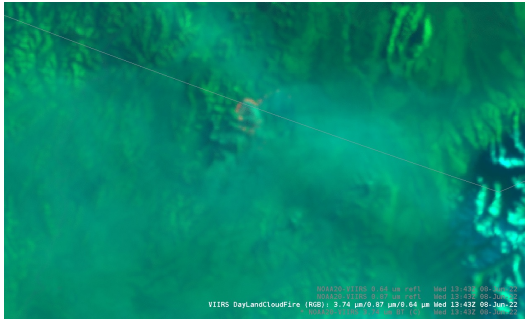


Dana Moudra and 171 others 17 Comments 32 Shares

Twitter (@uafgina)

GINA
@uafgina

The Tatlawiksuk Fire, 41 miles south of McGrath, has been burning steadily since the recent lightning storms in Southwest Alaska last week. This VIIRS DayLandCloudFire gif shows the change of the fire perimeter (in bright red) from June 8th to June 9th. #akwx #AWIPS



https://gina.alaska.edu: Data & Training
satellite@gina.alaska.edu: Reach Out

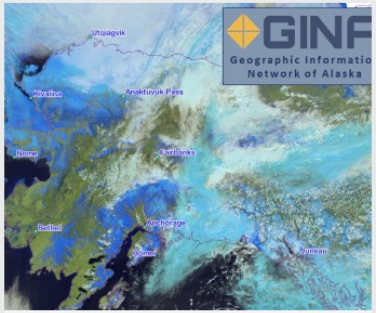


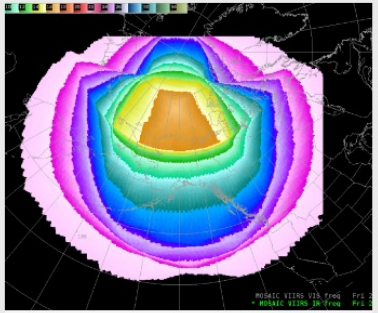
IMAGE SHOWCASE

May's Spring Snowmelt Across Alaska

May 18, 2022

It was declared green-up in Fairbanks on May 17, 2022 but there's still snow across Alaska. This RGB image taken on May 17 using VIIRS ...

Read More →



BLOG

VIIRS Pass Frequency

June 15, 2022

GINA collects satellite data around the clock from the satellites that pass over Alaska every day. This graphic shows the number of VIIRS infrared passes ...

Read More →

NEWS

VAWS Workshop on NOAA's Regional Climate Services

June 13, 2022

There's an upcoming webinar this Wednesday, June 15 at 1:00 PM AKDT! The speaker is Dr. Jessica Cherry, RCS Director ...

Read More →

TWITTER

@uafgina

MONTHLY VAWS WEBINARS

https://uaf-accap.org/events/about-accap-webinars/

A Delamere on Denali:
A Personal Thank You to NWS-Alaska, CIMSS, Rick Thoman, GINA Staff


JUNE 6TH
13:46 AK, 21:46 UTC
HOG BUTTE
FIRE #185