

Arctic-Boreal Vulnerability Experiment 2022 Airborne Flights



L-band SAR Deployment Part 1: 12-16 August 2022

Peter Griffith (GSFC)
Chip Miller (JPL)
Liz Hoy (GSFC)



Deployment Calendar 9 August 2022



P-band planned to transit to Fairbanks on 18 August to conduct long-anticipated same-day flights with L-band

7	8	9	10	11	12	13
◀ AFRC G-III Maintenance				AFRC G-III L-Band ABoVE Alaska / Canada ▶		
				Pilot proficiency flight L: Pod Upload	L: Engineering L: Transit to Saskatoo Starlink VSFB Launch	L: TomoSAR
14	15	16	17	18	19	20
◀ AFRC G-III L-Band ABoVE Alaska / Canada ▶						
JSC G-III P-Band ABoVE Alaska / Canada ▶						
L: Hard Down Day / D	P: Pod Upload	L: Backup	L: Transit to Fairbanks	L: Seward Peninsula	L: North Slope	
	L: Transit to Yellowkni P: Transit to Palmdale	L: Open House L: Yellowknife	P: Engineering	P: Landslides Placehol P: Transit to Fairbanks	P: Seward Peninsula	P: North Slope
21	22	23	24	25	26	27
◀ AFRC G-III L-Band ABoVE Alaska / Canada ▶						
◀ JSC G-III P-Band ABoVE Alaska / Canada ▶						
L: Hard Down Day / D	L: Mackenzie Valley P: Mackenzie Valley	L: SW Alaska P: SW Alaska	L: Fairbanks L: Open House P: Backup	L: Transit to Palmdale L: Transit to Portland/ P: Landslides Placehol P: Transit to Seattle	L: Pod Download P: Transit to Palmdale	
28	29	30	31	Sen 1	2	3



Deployment Calendar 12 August 2022



P-band now anticipated to go to Fairbanks on 23 August

The delayed departure results in 1) the loss of coordinated same-day science flights with NASA802; and 2) the reduction in science flights from 4 to 3. We have decided to drop the Mackenzie Valley sortie from the P-band schedule to focus on acquiring the lines in Alaska that should be flown approximately 5 to 7 days previously by NASA802 with L-band.

14	15	16	17	18	19	20
				Pilot proficiency flight L: Pod Upload	L: Engineering L: Transit to Saskatoo Starlink VSFB Launch	L: Hard Down Day / D
◀ AFRC G-III L-Band ABoVE Alaska / Canada ▶						
JSC G-III P-Band ABoVE Alaska / Canada ▶						
L: TomoSAR	L: Transit to Yellowkni	L: Open House L: Yellowknife Minuteman III VSFB L	L: Backup	L: Transit to Fairbanks	L: Seward Peninsula P: Transit to Palmdale	P: Pod Upload L: North Slope
21	22	23	24	25	26	27
◀ AFRC G-III L-Band ABoVE Alaska / Canada ▶						P: Landslides Placehol
◀ JSC G-III P-Band ABoVE Alaska / Canada ▶						P: Transit to Seattle
P: Pod Upload L: Hard Down Day / D	L: Mackenzie Valley P: Engineering	L: SW Alaska P: Transit to Fairbanks	L: Fairbanks L: Open House P: SW Alaska	L: Transit to Palmdale L: Transit to Portland/ P: North Slope	L: Pod Download P: Seward Peninsula	



12 August 2022

Palmdale CA to Saskatoon SK



Instrument/Aircraft/Crew

- L-Band SAR (JPL)
- NASA802 C-20 (AFRC)
- REPORT DATE: 12 August 2022
- Aircraft Status: **GREEN (after wheel replacement)**
- Radar Status: **GREEN (after connector reset)**
- PPE Status: **GREEN**
- Current Deployment Location: Palmdale CA to Saskatoon SK
- Crew: Greg (Coach) Nelson, Shawn (Biggs) Kern, Joe Piotrowski, Carrie Worth, Vince Moreno, Steve Kuykendall, Otis Allen, Alvin Mitchell
- Instrument Operator: David Austerberry
- Data Processor: met up with Brian Hawkins in Saskatoon
- Scientist On Board: Peter Griffith



12 August 2022 Palmdale CA to Saskatoon SK



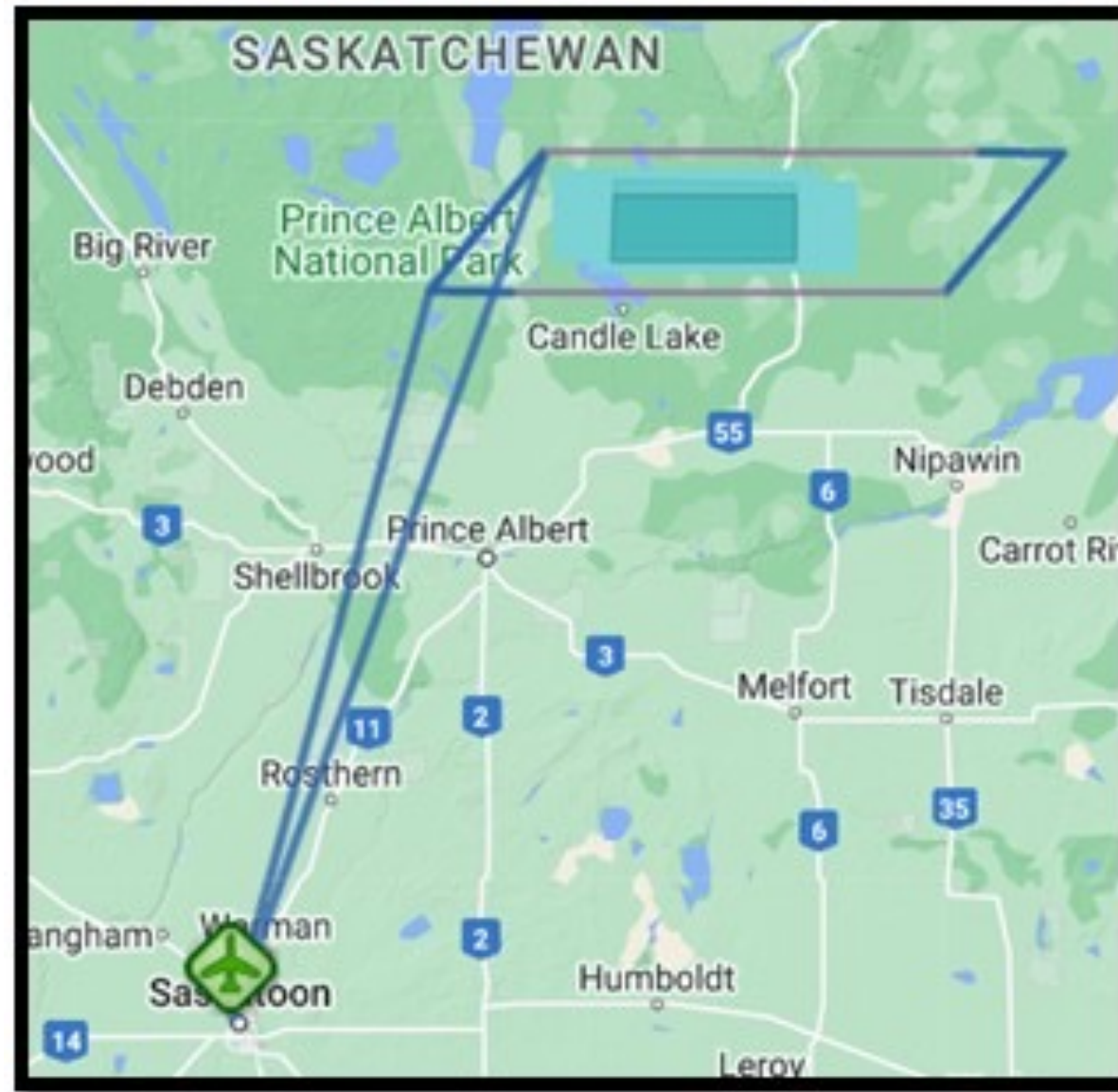


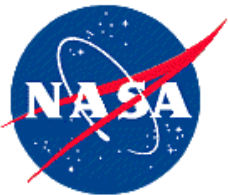
14 August 2022 Saskatoon to BERMS



Operations Summary:

- FBO Kreos Aviation CYXE
- Onboard: Nelson, Kern, Piotrowski, Austerberry
- Science Flight takeoff at 0900 local
- Flight Plan 1823_v01 TomoSAR
- 18 lines planned, 18 lines flown with no issues.
- Nominal Radar and Aircraft Operations
- JPL field crew onsite at Boreal Ecological Research & Monitoring Site (BERMS)
- Thunderstorms but little precip at site
- Landed in CYXE

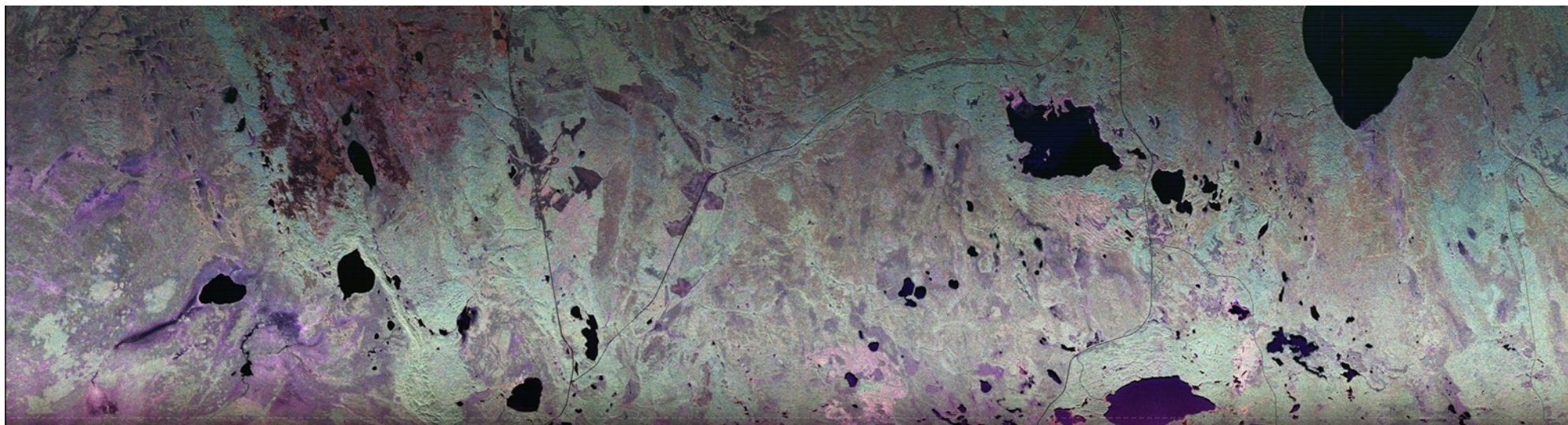
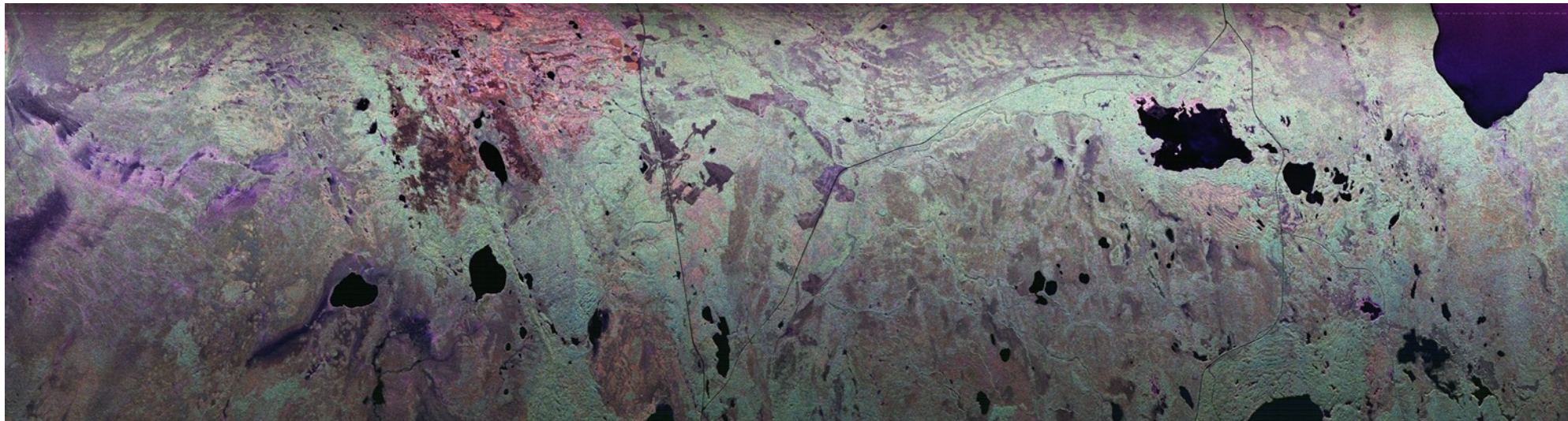




14 August 2022
BERMS



VV Polarization On Board Processor Quicklooks



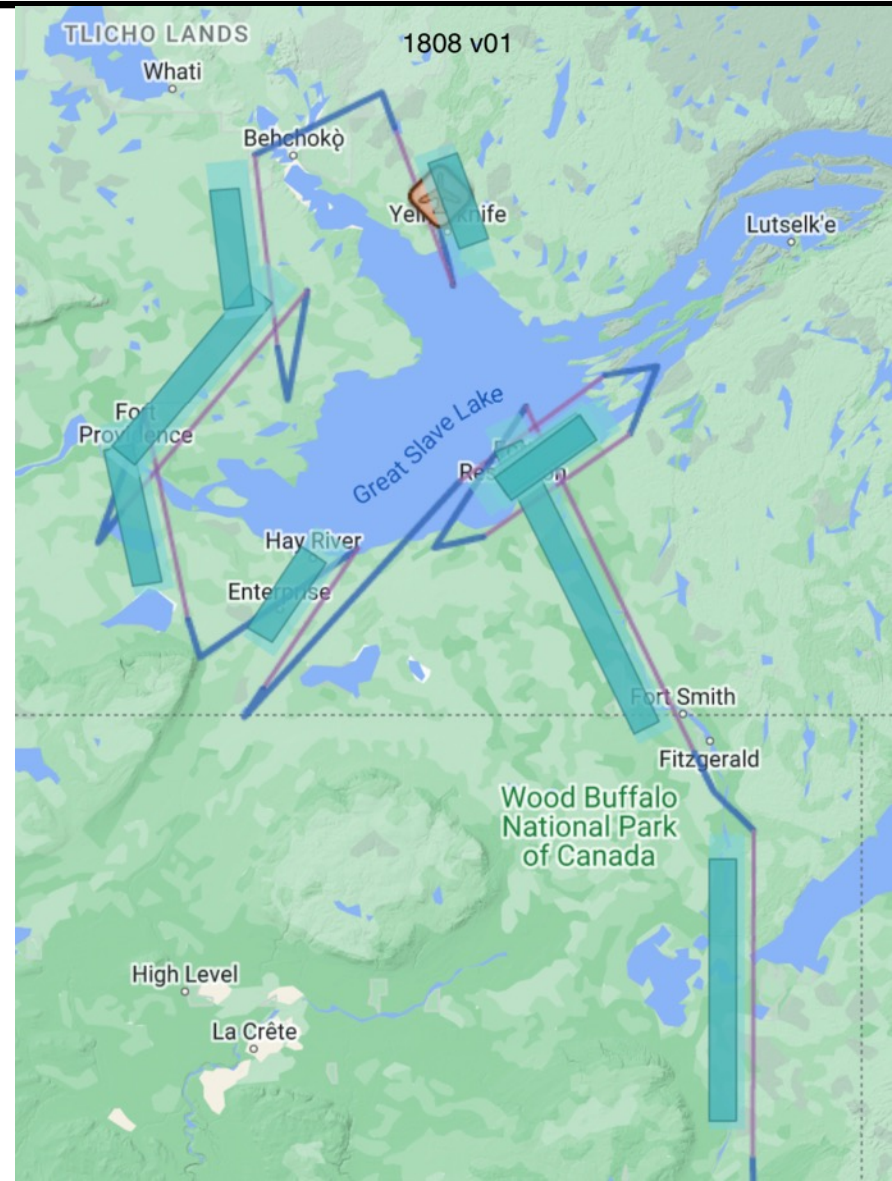


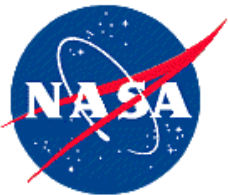
15 August 2022 Transit to Yellowknife



Operations Summary:

- FBO Kreos Aviation CYXE
- Crew: Greg (Coach) Nelson, Shawn (Biggs) Kern, Joe Piotrowski, Carrie Worth, Vince Moreno, Steve Kuykendall, Otis Allen, Alvin Mitchell
- Instrument Operator: David Austerberry
- Data Processor: met up with Brian Hawkins in Saskatoon
- Scientist On Board: Peter Griffith
- Science Flight takeoff at 0900 local
- Flight Plan 1808_v01
- 9 lines planned, 9 lines flown with no issues
- Nominal Radar and Aircraft Operations
- CFS, GNWT, Michigan Tech field crews
- No precipitation, some smoke
- Landed in CYZF Yellowknife

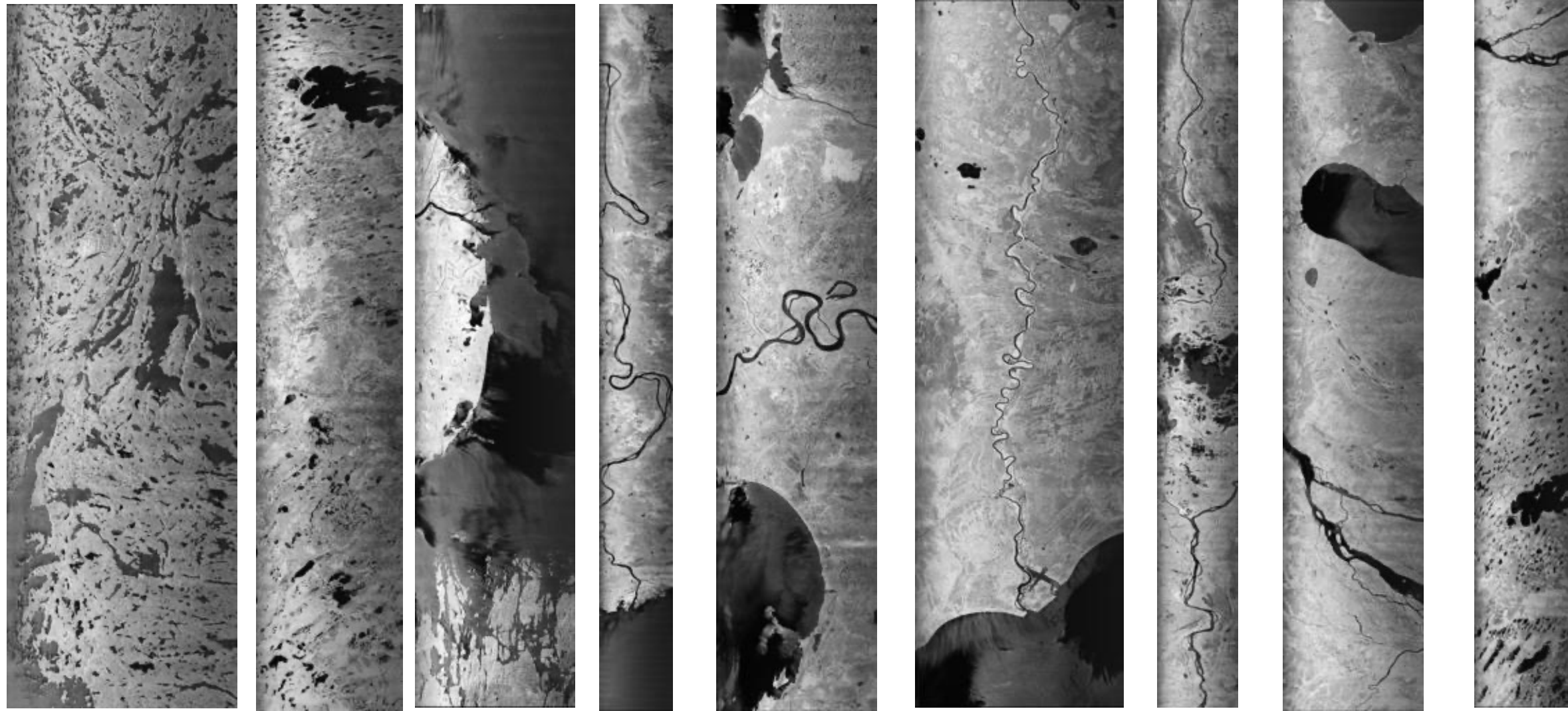




15 August 2022
Transit to Yellowknife



VV Polarization On Board Processor Quicklooks





15 August 2022 Transit to Yellowknife



Laura Bourgeau-Chavez Soil Moisture



Jacki Tsetta Leaf Spectra



Mike Battaglia Thaw Depth



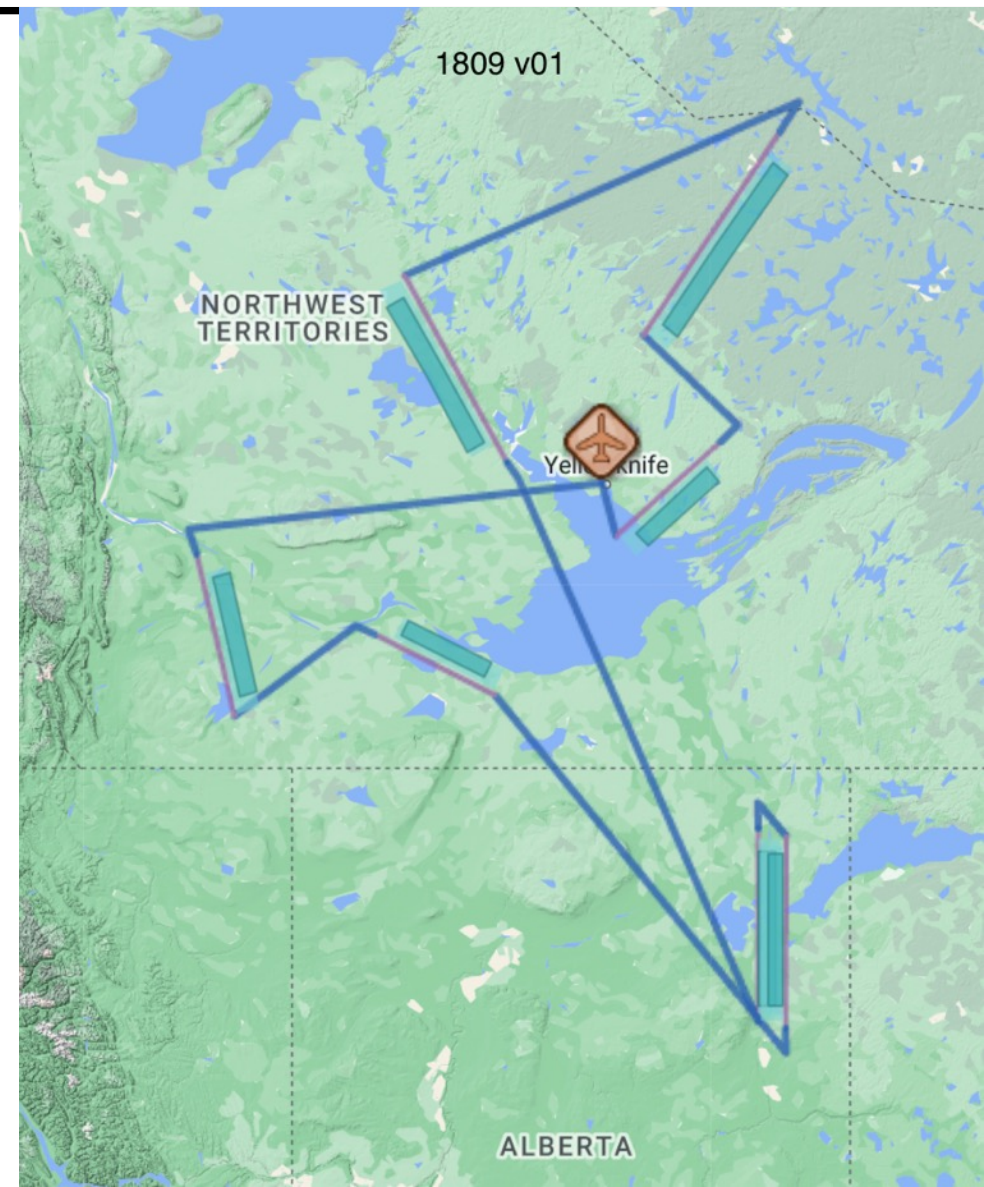


16 August 2022 Yellowknife Local



Operations Summary:

- FBO Deton Cho CYZF
- Crew: Greg (Coach) Nelson, Shawn (Biggs) Kern, Joe Piotrowski
- Instrument Operator: David Austerberry
- Scientist On Board: Peter Griffith
- Guests: Jacki Tsetta and Ryan Walsh
- Science Flight takeoff at 0900 local
- Flight Plan 1809_v01
- 7 lines flown with 1 restart
- Nominal Radar and Aircraft Operations
- Bill Quinton (WLU) at Scotty Creek
- Cloud cover but no deep convection over Daring Lake. Still quite a bit of smoke around Yellowknife.
- Landed at CYZF Yellowknife
- Open House with DLR HALO

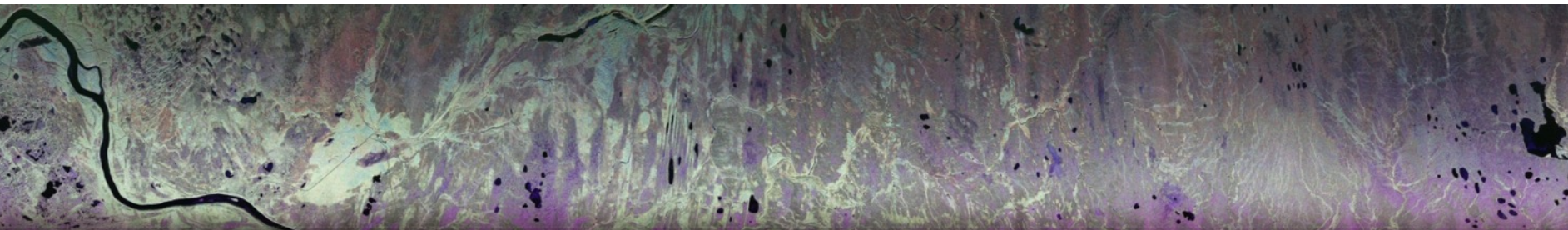




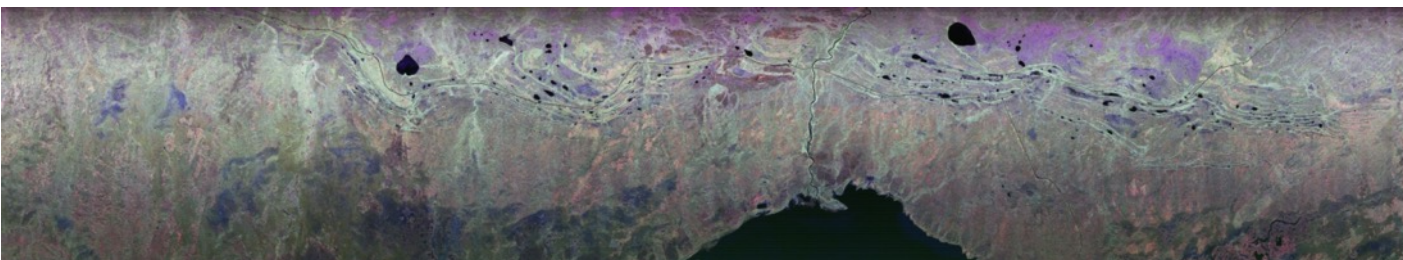
16 August 2022
Yellowknife Local



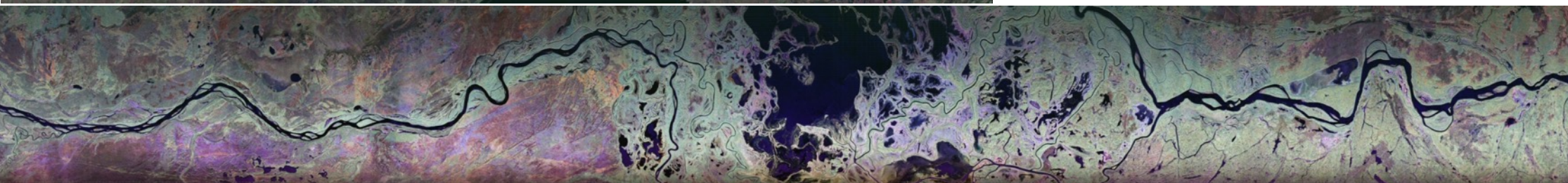
Quicklook SAR images



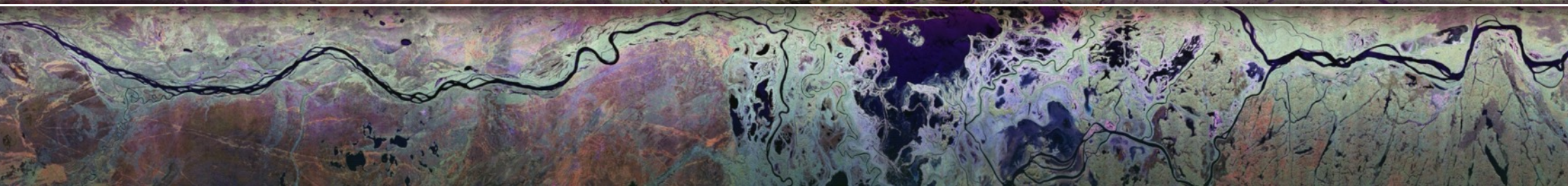
Scotty Creek



Kakisa Lake



Peace
Athabasca
Delta





16 August 2022 Yellowknife Local



Guest Flyers sponsored by the Government of Northwest Territories



GNWT Geomatics intern Ryan Walsh (on right)

North Slave Metis Alliance intern Jacki Tsetta (on right)



David Austerberry, Peter Griffith, Ryan Walsh, Jacki Tsetta



16 August 2022
Yellowknife Local



Open House with German Space Agency (DLR) CoMet-Arctic project and their HALO aircraft







Backup

