

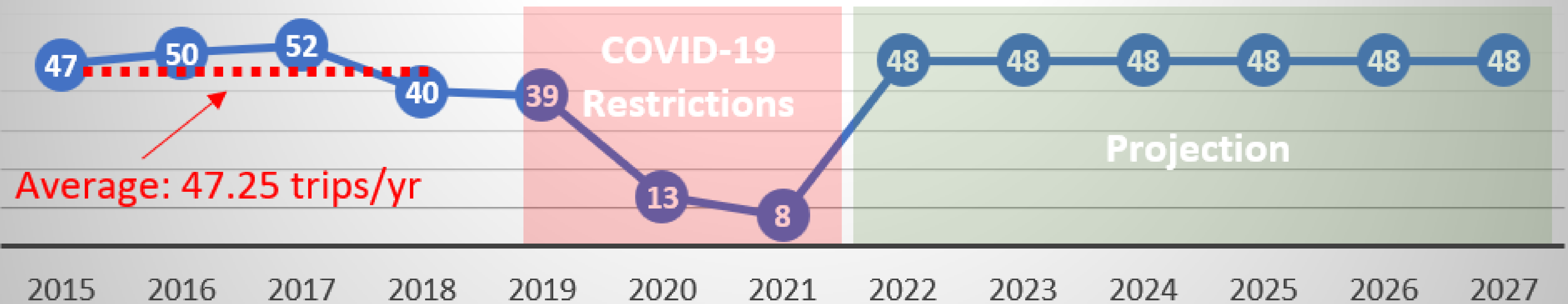
THEMIS-GBO, TREx, and AuroraX

Eric Donovan, Emma Spanswick,

*Harald Frey, Steven Mende, Jun Liang, Darren Chaddock, Brenden
Bickner, Lukas Vollmerhaus, and Bree Collins*

Also, of course, thanks to CSA for continued support.

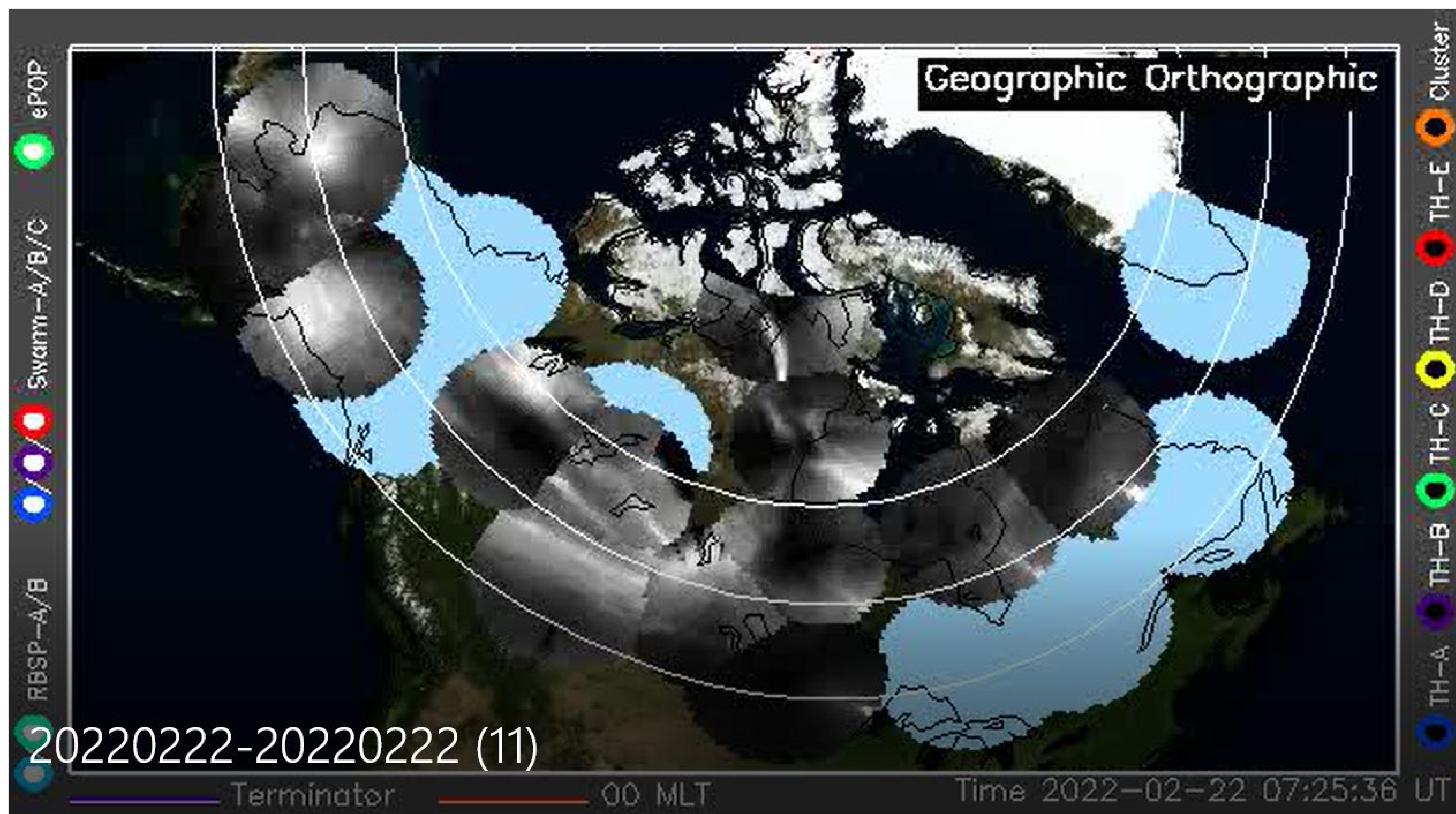
SEC Instrument Repair/Maintenance Travel: # of Person Trips / Year



Emma Spanswick

SITE ID	Location	Status	Comments
ATHA	Athabasca, AB	Online	
CHBG	Chibougamau, QC	Offline	Site has been unstable line power causing electronics to fail. AC Line conditioner to be installed. Requires travel.
FSIM	Fort Simpson, NWT	Online	
FSMI	Fort Smith, NWT	Online	
FYKN	Fort Yukon, Alaska	Offline	Potential ASI power supply and PC issue. Currently not allowed access to site and no remote support.
GAKO	Gakona, Alaska	Online	
GBAY	Goose Bay, NL	Offline	Potential CR10x issue. Custodial support a problem at current location. Requires travel.
GILL	Gillam, MB	Online	
INUV	Inuvik, NWT	Online	
KAPU	Kapuskasing, ON	Online	Starting to have issues related to temperature sensors. Requires travel.
KIAN	Kiana, Alaska	Online	
MCGR	McGrath, Alaska	Online	
NRSQ	Narsarsuaq, Greenland	Offline	Potential CR10x issue. Currently working with remote support.
PINA	Pinawa, MB	Online	
RANK	Rankin Inlet, NU	Online	
SNKQ	Sanikiluaq, NU	Online	
TALO	Taloyoak, NU	Online	
TPAS	The Pas, MB	Online	Site location to be used by public soon. Requires site move.
WHIT	Whitehorse, YT	Offline	Potential power infrastructure issues. Requires travel.

Brenden Bickner



https://data.phys.ucalgary.ca/sort_by_project/THEMIS/asi/rt-mosaic/mpeg/2022/02/20220222-20220222.mpg

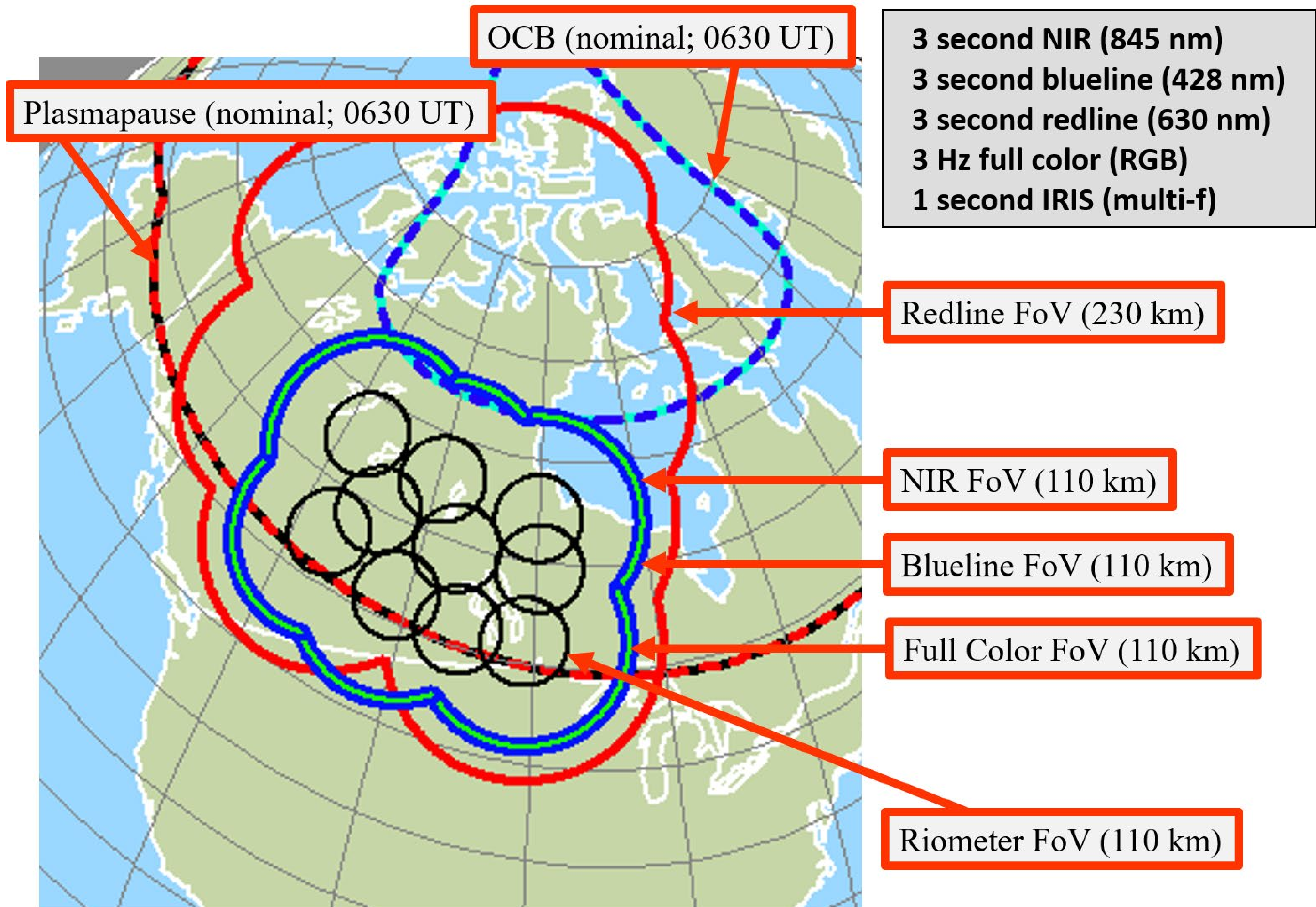
Campbell Scientific has stopped making or even servicing the CR10X, but we are currently buying working units on eBay (three years).

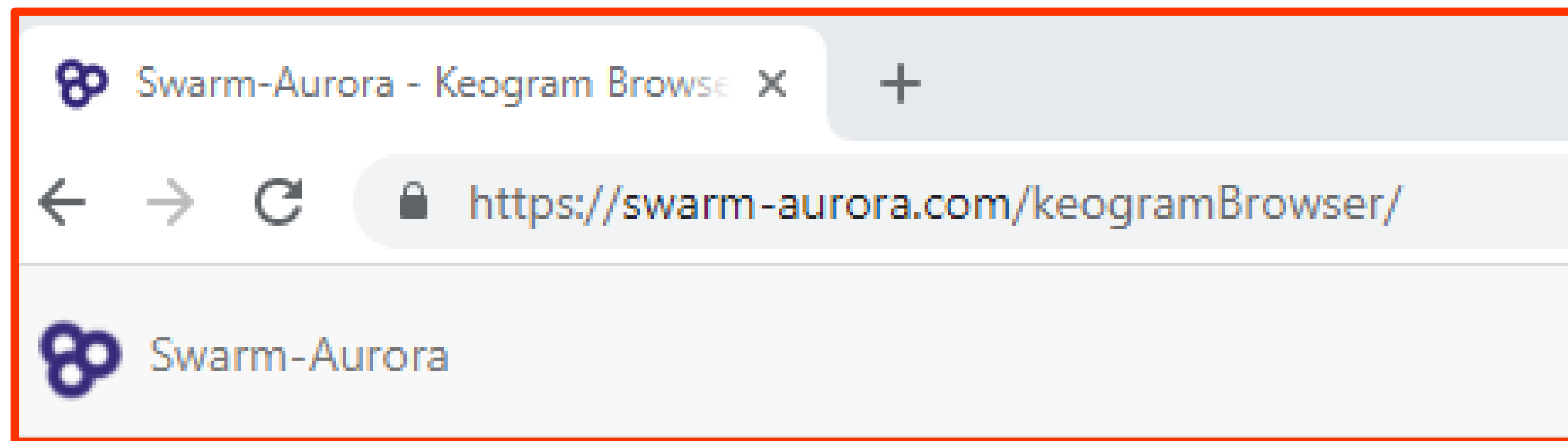
The ASIs are showing their age... the data is still very good, but not as good as it was 15 years ago (three years).

Our intention is to morph THEMIS-ASI into a 'permanent' network to support THEMIS, THEMIS-II, and all other NASA and other geospace missions, and operate it for the foreseeable future.

Emma testing four new full-color ASIs that fit in the 'cans.' Key issues are thermal balance and can we derive a data product logically and practically equivalent to that of THEMIS-ASI. The goal: a three(+) solar cycle THEMIS-ASI data set.

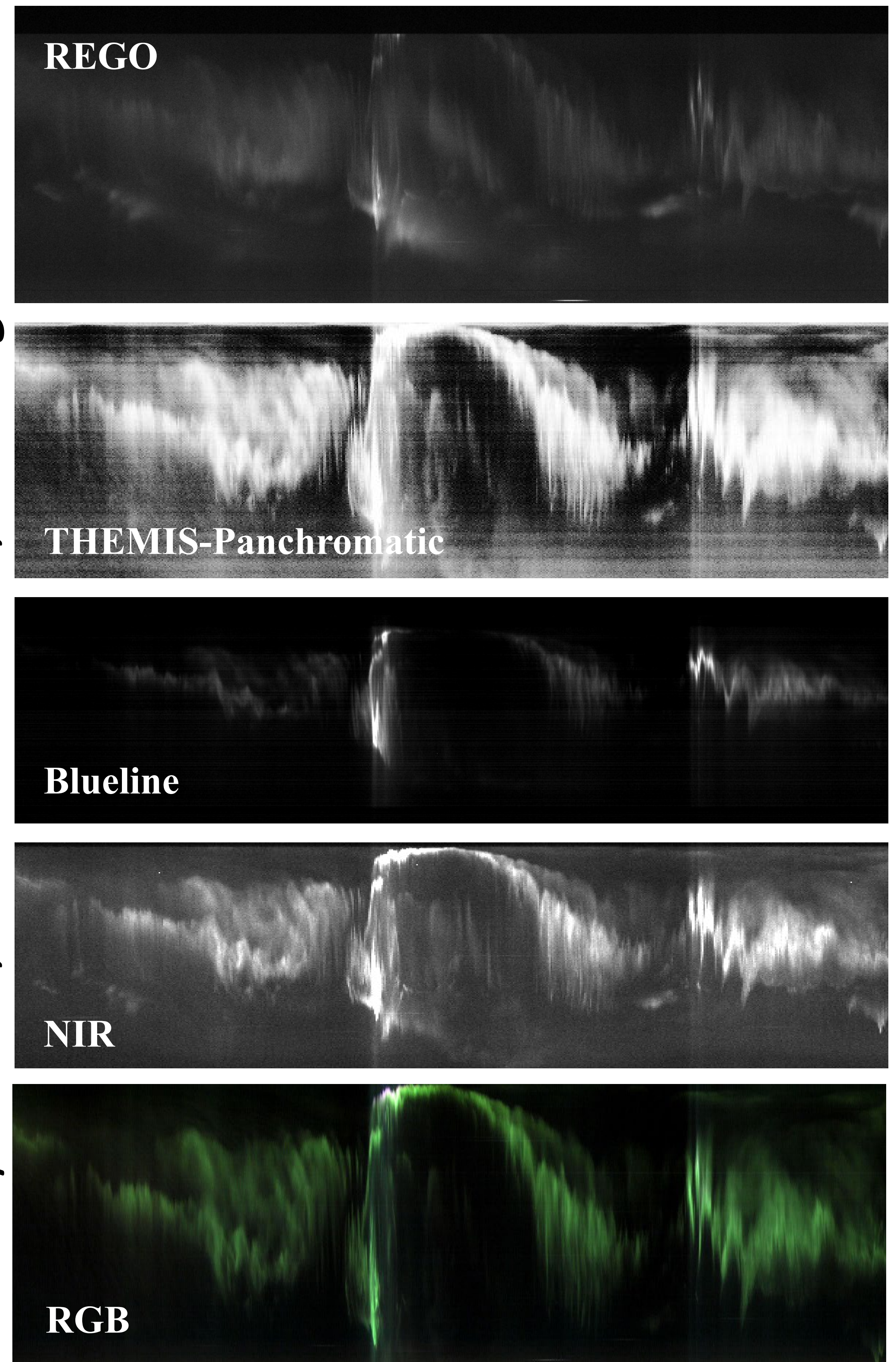
We expect to have a sustainable plan, supported by CSA, by May 2022.





Hyperlink

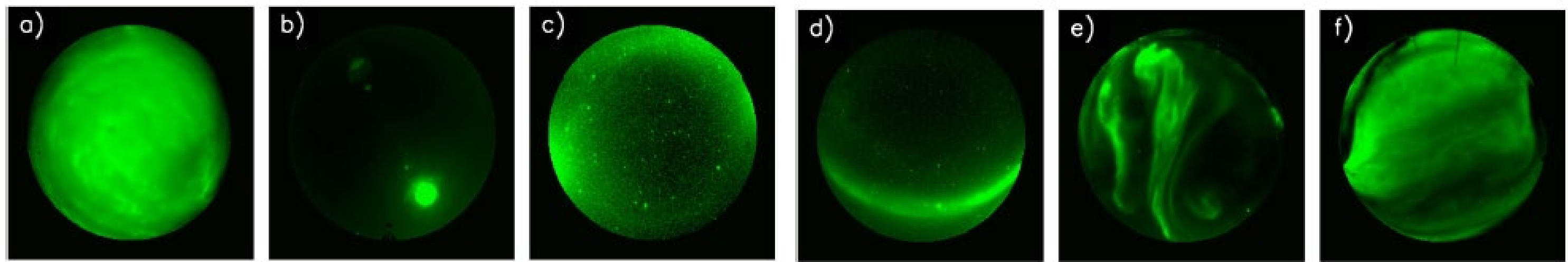
Emma Spanswick, Darren Chaddock, and Megan Gillies



Clausen & Nickish [2018]

Classified Set: 5824 images Accuracy: 82%

y	Label	Explanation
0	arc	This label is used for images that show one or multiple bands of aurora that stretch across the field-of-view; typically, the arcs have well-defined, sharp edges.
1	diffuse	Images that show large patches of aurora, typically with fuzzy edges, are placed in this category. The auroral brightness is of the order of that of stars.
2	discrete	The images show auroral forms with well-defined, sharp edges, that are, however, not arc like. The auroral brightness is high compared to that of stars.
3	cloudy	The sky in these images is dominated by clouds or the dome of the imager is covered with snow.
4	moon	The image is dominated by light from the Moon.
5	clear/noaurora	This label is attached to images which show a clear sky (stars and planets are clearly visible) without the appearance of aurora.

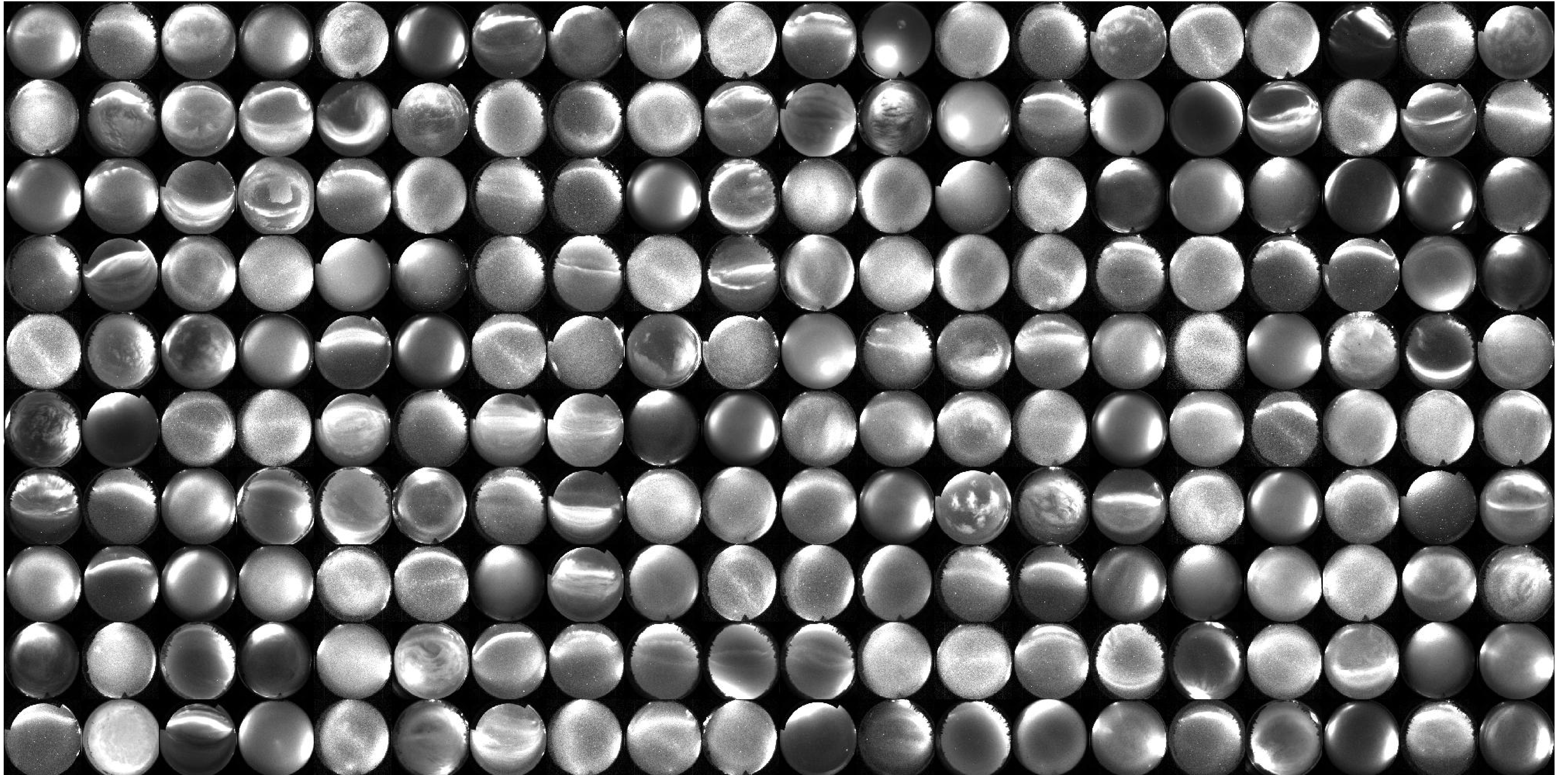


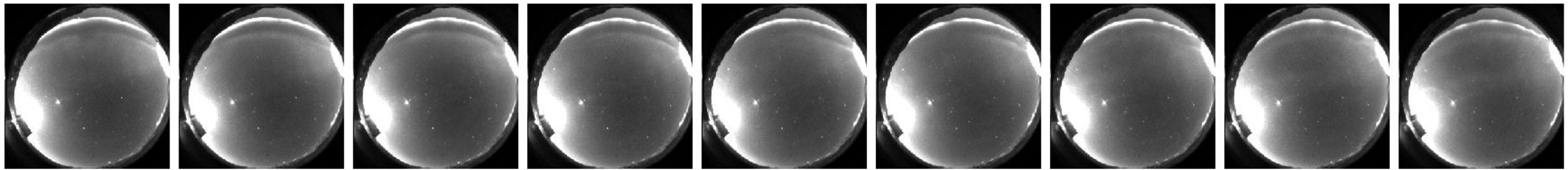
Clausen & Nickish [2018]

Accuracy: 25% at best

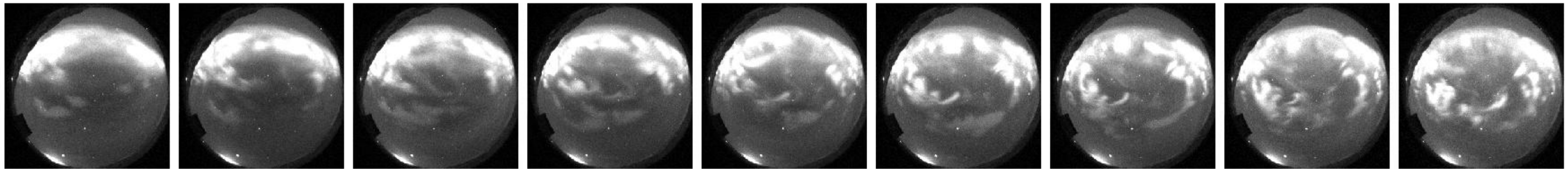
Classified Set: 5824 images

~~*Accuracy: 82%*~~

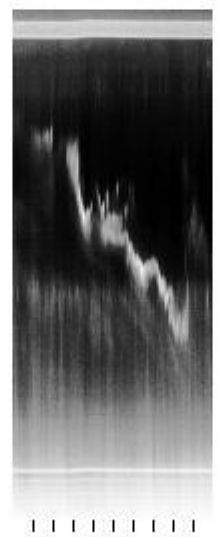
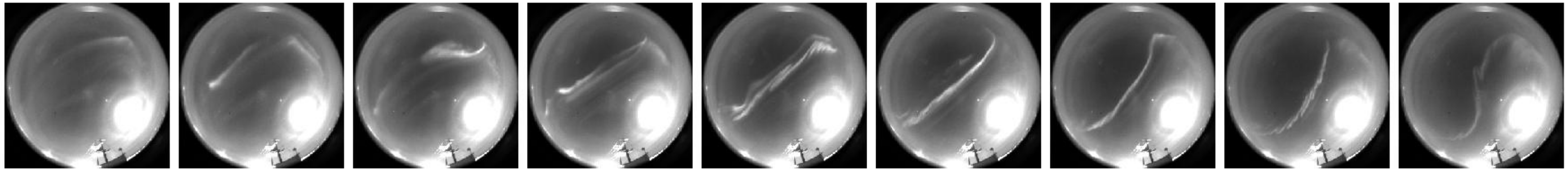




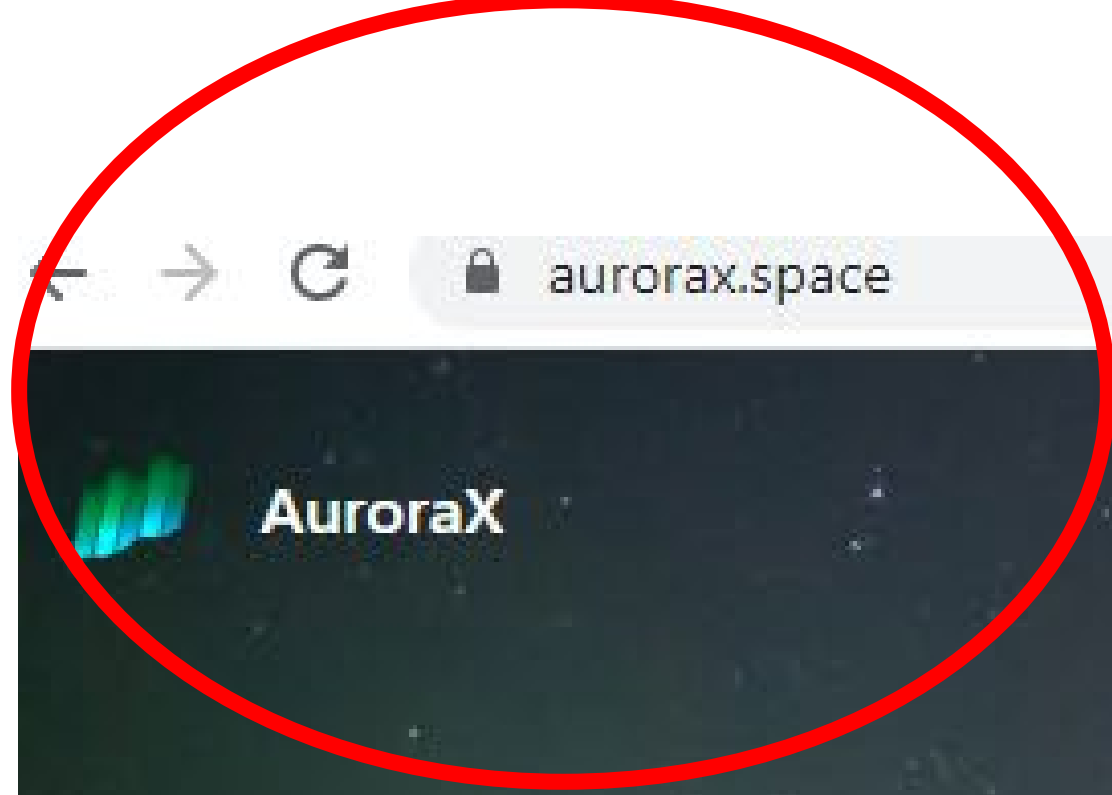
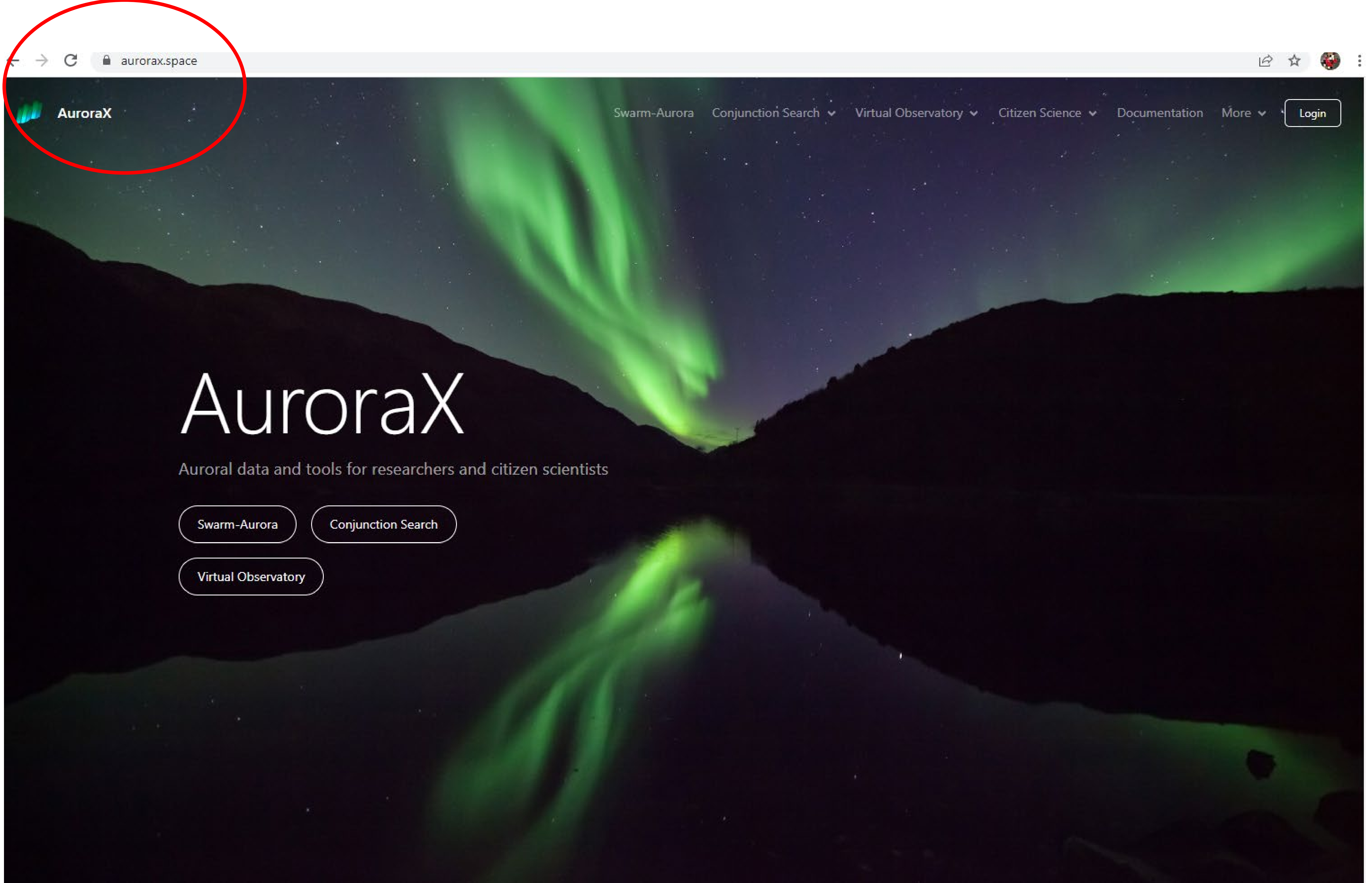
20060216 0800 WHIT



20060222 1320 WHIT



20060310 0740 EKAT



Swarm-Aurora Conjunction Search Virtual Observatory Citizen Science Documentation More Login

AuroraX

Auroral data and tools for researchers and citizen scientists

Swarm-Aurora

Conjunction Search

Virtual Observatory

Distance (

500

Platforms

Citizen

X

Each row of metadata can be evaluated as a logical "AND" or "OR" statement. You may select which is used with the dropdown below. If a row has a dropdown with multiple values selected, these are evaluated as logical "OR" statements.

AND ▼

☒ classified as APA

☐ classified as not APA

☐ not classified

Select values

OK

Date Range (UTC)

2019/01/01 00:00 - 2019/01/31 23:59

Distance (km) ⓘ

500 ⚙️

Conjunction Types ⓘ

North B-Trace ▾

Add Criteria Block ▾

Load Examples:

[1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [Tutorial](#)

Tools:

[Reset All](#) [Share](#) [More](#)

Swarm-Aurora:

[Open All Results](#) [Custom Import File](#)

Name	Programs	Platforms	Footprint Of	Hemisphere ⓘ	Metadata Filters
Ground 1	themis-asi × ▾	Select values ▾	panchromatic ASI ▾	–	1 added ✎ ↺ –
Space 1	swarm × ▾	Select values ▾	Spacecraft ▾	Select values ▾	None + ↺ –

[Search](#) 🔍

Search taking long? [Learn more:](#) ⓘ

100%

Found 76 conjunctions in 58.38s (59.17s total)

Show [10](#) ▴ ▾ entries

Search:

Start Time (UTC)	End Time (UTC)	Duration (min)	Min (km)	Max (km)	Conjunction Type	Conjunction Between	Swarm-Aurora
2019-01-01 06:49	2019-01-01 06:49	1	388	388	nbtrace	THEMIS-ASI KUJ and Swarm A	Open
2019-01-01 06:49	2019-01-01 06:49	1	442	442	nbtrace	THEMIS-ASI KUJ and Swarm C	Open
2019-01-01 06:59	2019-01-01 07:00	2	247	304	nbtrace	THEMIS-ASI TPAS and Swarm B	Open
2019-01-01 08:23	2019-01-01 08:24	2	410	489	nbtrace	THEMIS-ASI SNKQ and Swarm A	Open
2019-01-01 08:23	2019-01-01 08:24	2	313	454	nbtrace	THEMIS-ASI SNKQ and Swarm C	Open
2019-01-01 08:58	2019-01-01 08:59	2	231	280	nbtrace	THEMIS-ASI SNKQ and Swarm A	Open
2019-01-01 08:58	2019-01-01 08:58	1	490	490	nbtrace	THEMIS-ASI KUJ and Swarm C	Open
2019-01-01 08:58	2019-01-01 08:59	2	239	321	nbtrace	THEMIS-ASI SNKQ and Swarm C	Open
2019-01-01 09:57	2019-01-01 09:57	1	406	406	nbtrace	THEMIS-ASI TPAS and Swarm C	Open
2019-01-01 10:31	2019-01-01 10:32	2	306	309	nbtrace	THEMIS-ASI SNKQ and Swarm A	Open

Showing 1 to 10 of 76 entries

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Select a Date and Time (UTC)

Last Night

2019/01/01 06:49

📅

+ Load All

- Clear All

Ground-Based Instruments

THEMIS

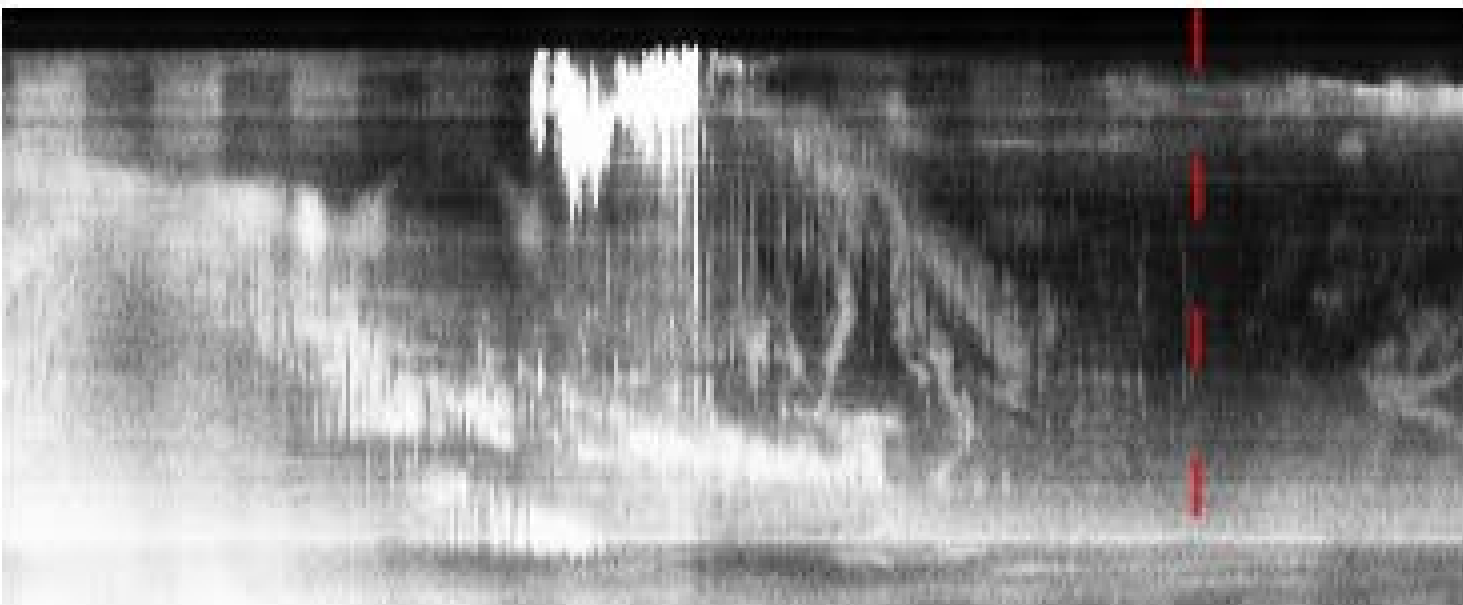
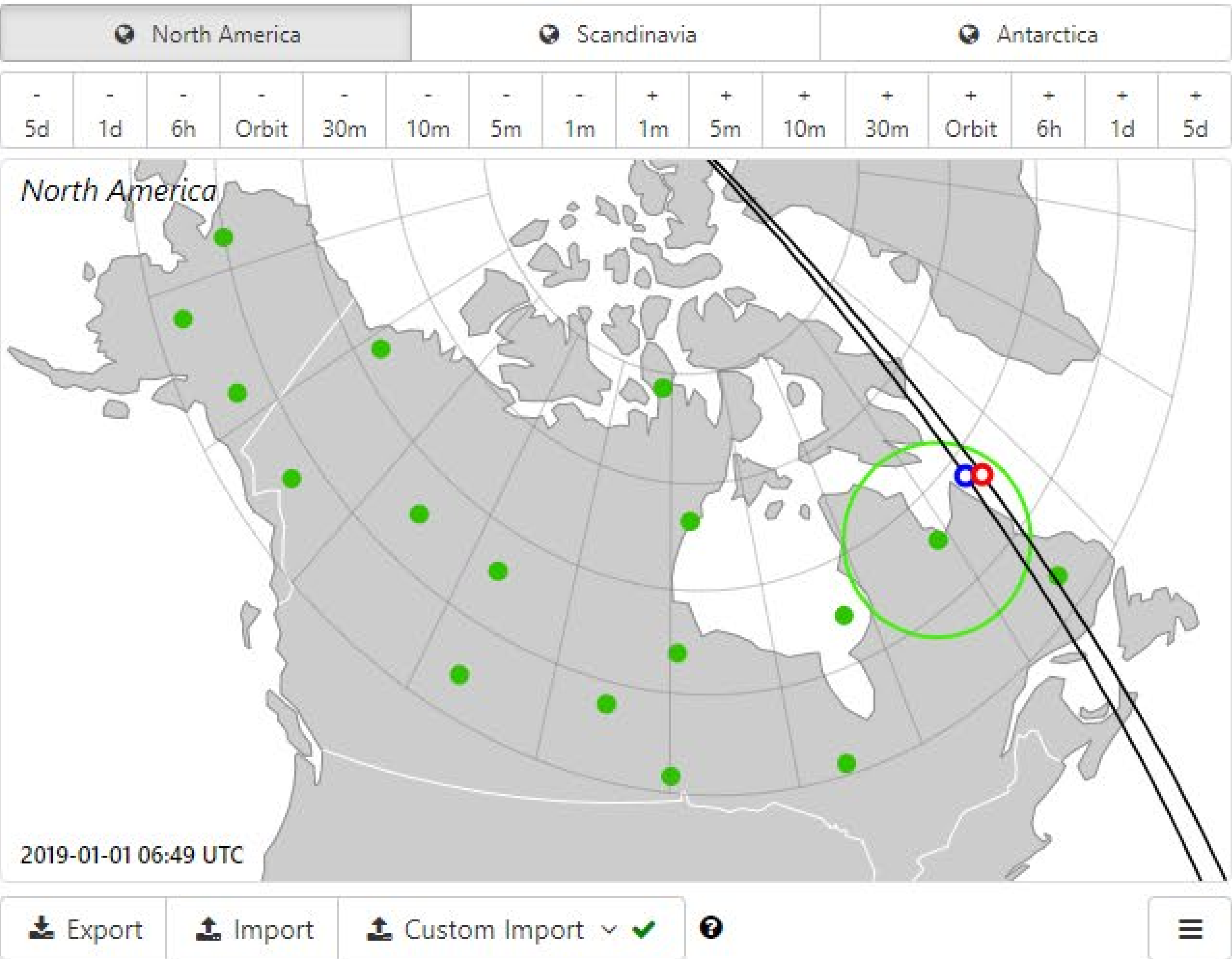
LEO Satellites

Swarm A, Swarm C

HEO Satellites

None selected

- Swarm A
- Swarm C



2019-01-01 06:49

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☒ Disable keogram preloading

Note: Keograms with an orange border mean that raw data is not available yet

