NASA Langley Satellite Products and Archive Darwin 2014 Campaign

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Hampton, VA, USA

Satellite Data Product Archive, Darwin 2014

- Satellite Data: MTSAT-1R, MTSAT-2 (via BOM&Wisc)
  - Every 10min (Mtsat-1), hourly (Mtsat-2)
  - 5 channel: 0.75um, 3.75um, 6.75um, 10.8um, 12um
  - Raw McIDAS Areafiles, GIF imagery
- Pixel-level Satellite Cloud Products (extensive list)
  - NetCDF binary data and GIF imagery
- Cloud Products along flight track
  - Tool to extract data (ASCII) from satellite products
- Visualization
  - Web display tools for imagery and loops
  - Google Earth KML/KML (with embedded imagery, loops)

http://www-pm.larc.nasa.gov

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+ NASA Portal
+ Preferences

Search: Keywords + GO

– Minnis Group Home | + Cloud Products | + Satellite Imagery | + Field Experiments | + Related References

+ NASA Home
+ NASA LaRC Home
+ Science Directorate
+ Minnis Group Home

High Ice Water Content (HIWC) Darwin

+ High Ice Water Content (HIWC) Research Official Home

+ HIWC-Cayenne

Cloud Products
+ Darwin MT2
+ RapidScan MTSAT-1R

Satellite Imagery
+ G13 Costa Rica
+ Darwin MTS1

Flight Track Overlay
+ Falcon - Sat Imagery
+ Falcon - Product Imagery

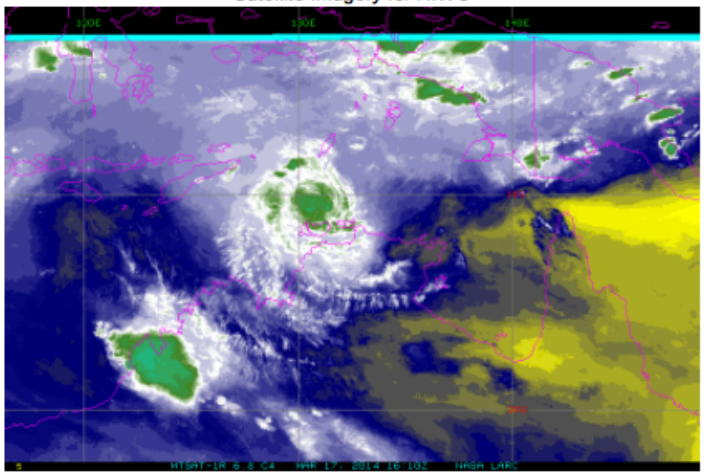
Cloud Products Along Track
+ Falcon

Downloads
+ MTSAT-2 Products
+ RapidScan MTSAT-1R
+ HIWC 2014 KML Files
+ Raw Data

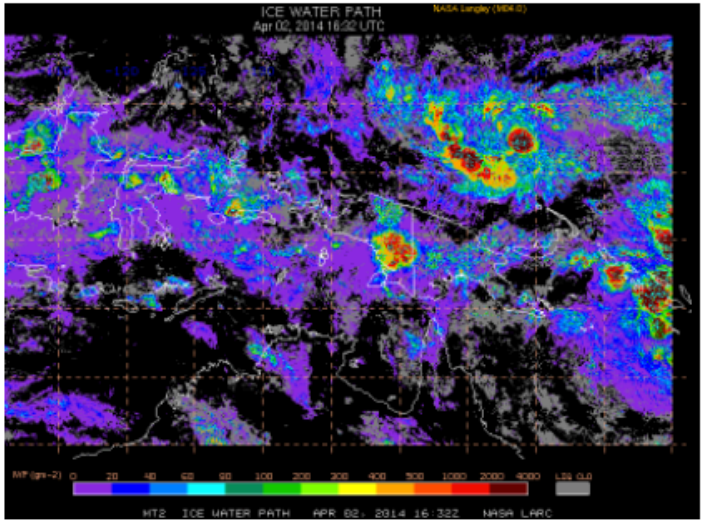
Related Datasets

Langley Satellite Support for High Ice Water Content (HIWC) - Darwin Campaign

Satellite Imagery for HIWC



MTSAT-2 Cloud Products



Quick Links

Satellite Imagery
+ C01
+ C02
+ C04
+ C2RC

Cloud Products
+ Cld Top Height
+ Cld Bot Height
+ RGB
+ ICING
+ DEFF
+ REFF
+ TAU
+ IWP
+ LWP
+ Overshoot. Top

Cloud Product Archive

+ MTSAT-2R
+ MTSAT-1R

Cloud Products Darwin 2014

+ NASA Home
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+ Minnis Group Home

High Ice Water Content (HIWC) Darwin

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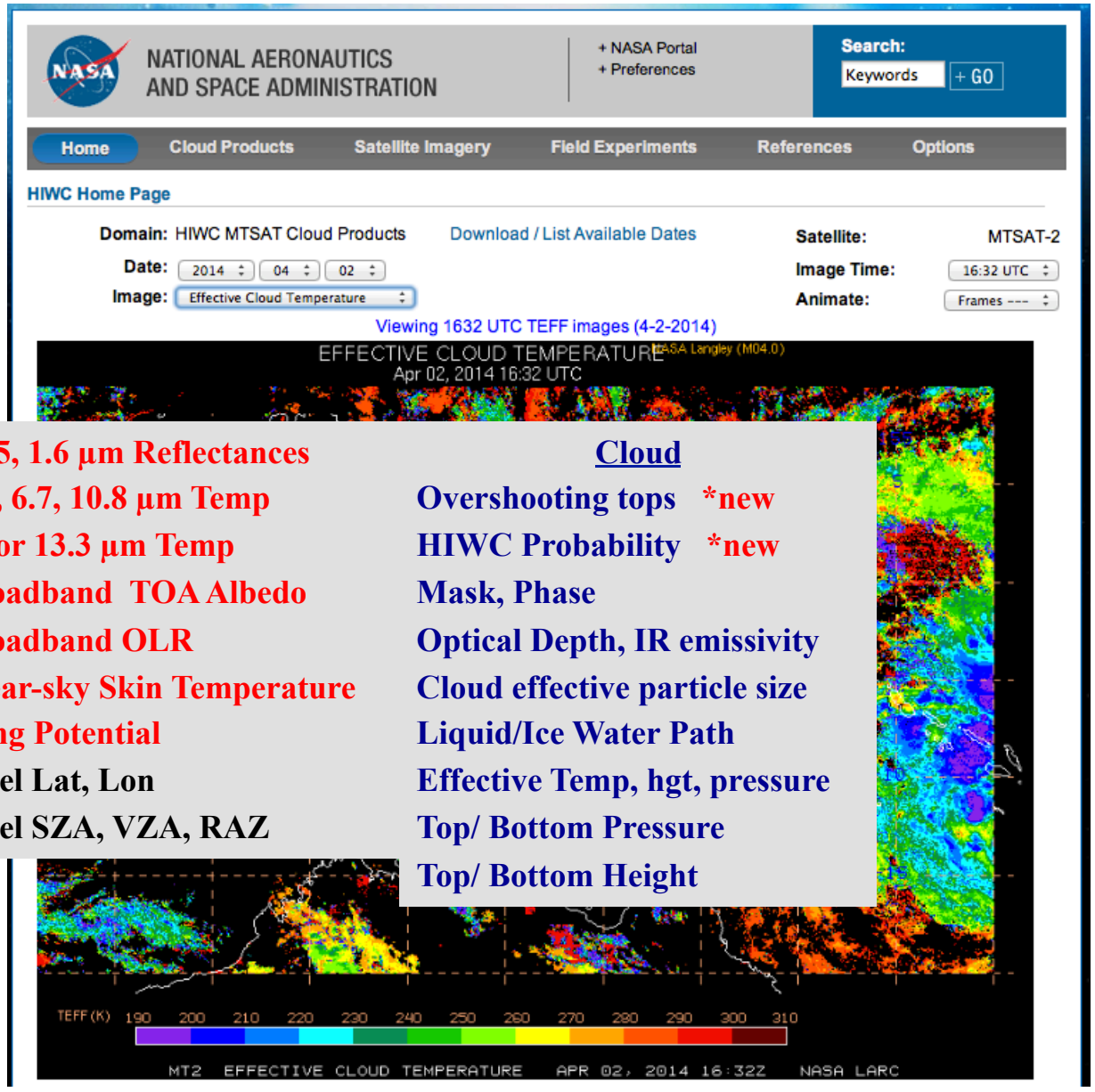
+ Falcon

Downloads
+ MTSAT-2 Products
+ RapidScan MTSAT-1R
+ HIWC 2014 KML Files
+ Raw Data

Related Datasets
+ HIWC-2015 Florida
+ HIWC-2015 Cayenne

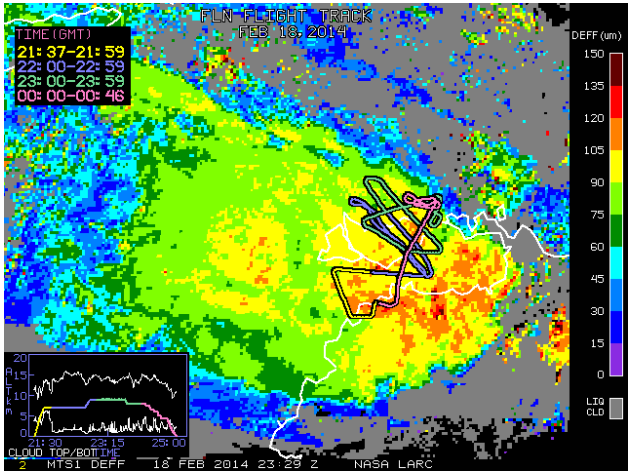


0.65, 1.6 µm Reflectances
3.7, 6.7, 10.8 µm Temp
12 or 13.3 µm Temp
Broadband TOA Albedo
Broadband OLR
Clear-sky Skin Temperature
Icing Potential
Pixel Lat, Lon
Pixel SZA, VZA, RAZ

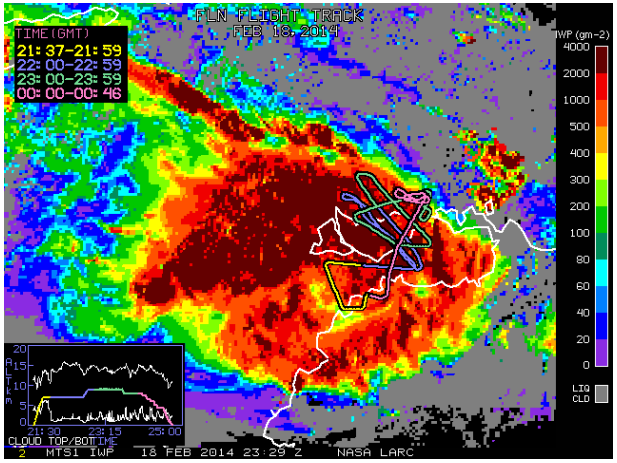
Cloud
Overshooting tops *new
HIWC Probability *new
Mask, Phase
Optical Depth, IR emissivity
Cloud effective particle size
Liquid/Ice Water Path
Effective Temp, hgt, pressure
Top/ Bottom Pressure
Top/ Bottom Height

Cloud Products Darwin 2014

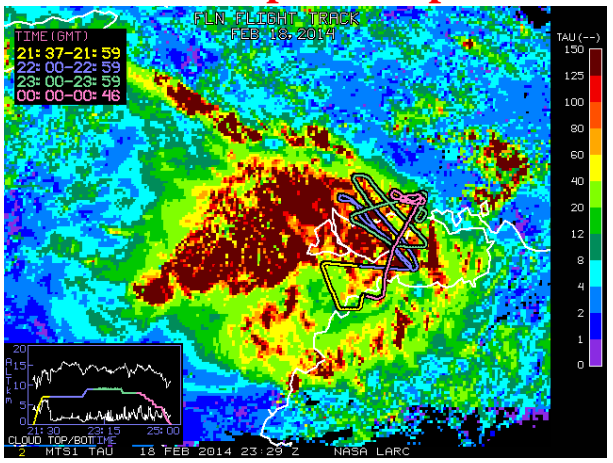
Effective Ice Diameter



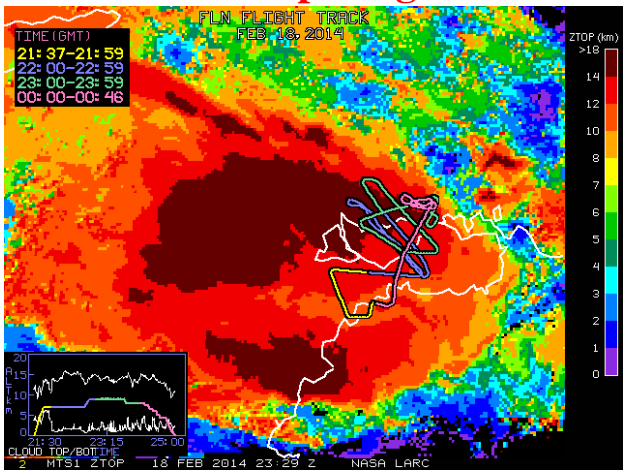
Ice Water Path



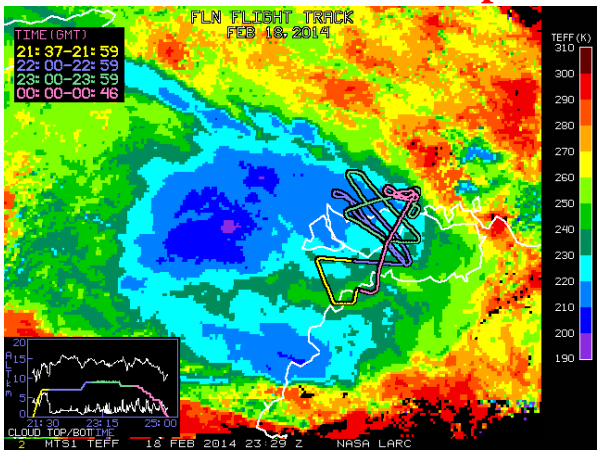
Cloud Optical Depth



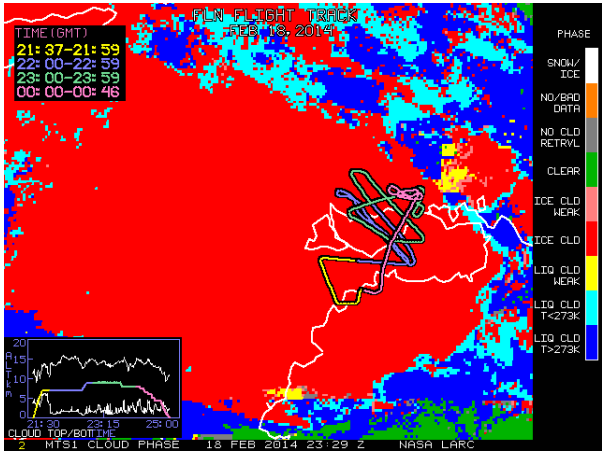
Cloud Top Height



Effective Cloud Temp



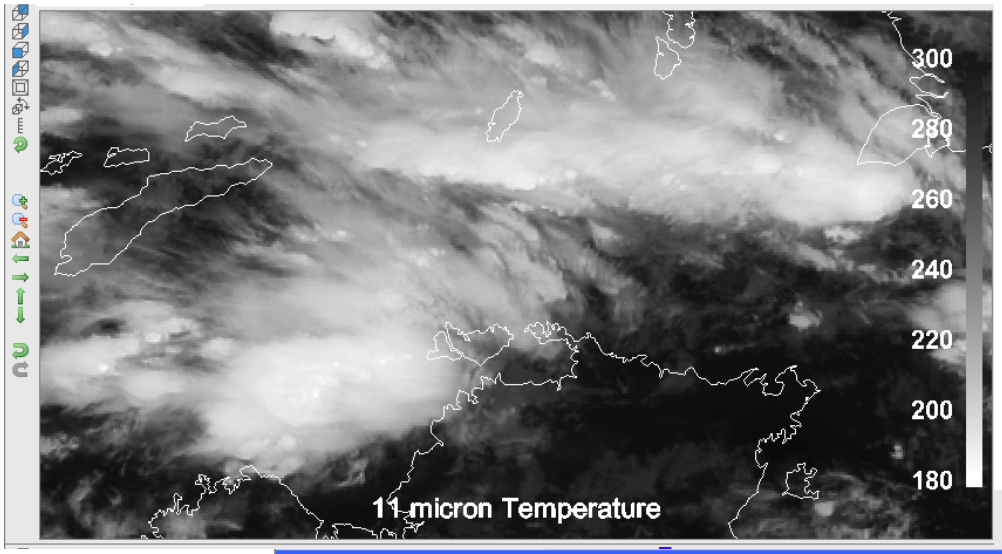
Phase

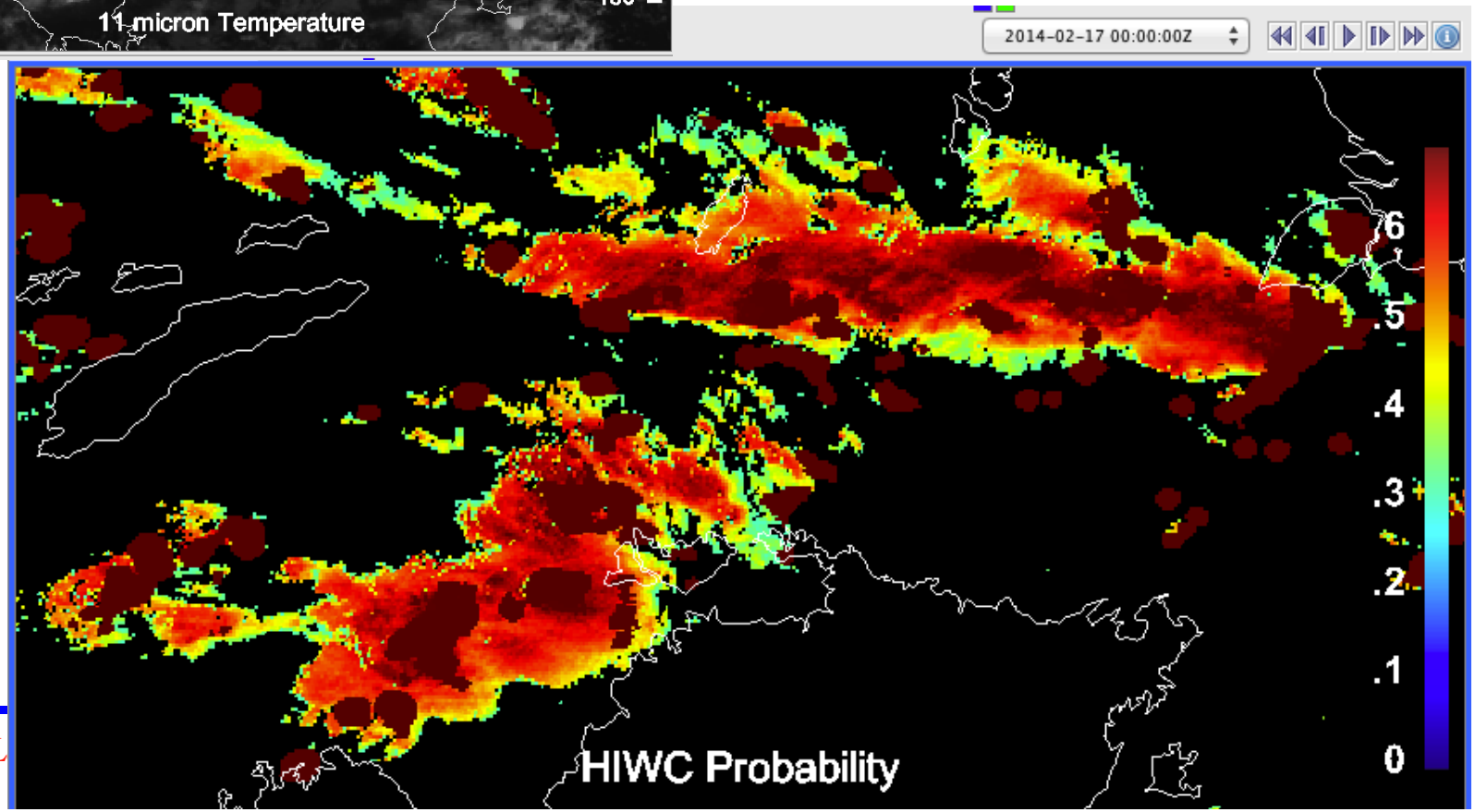


Darwin Falcon Flight FS140023 Feb 18, 2014

HIWC Probability

- MTSAT Rapid Scan
- Available for Darwin & Cayenne





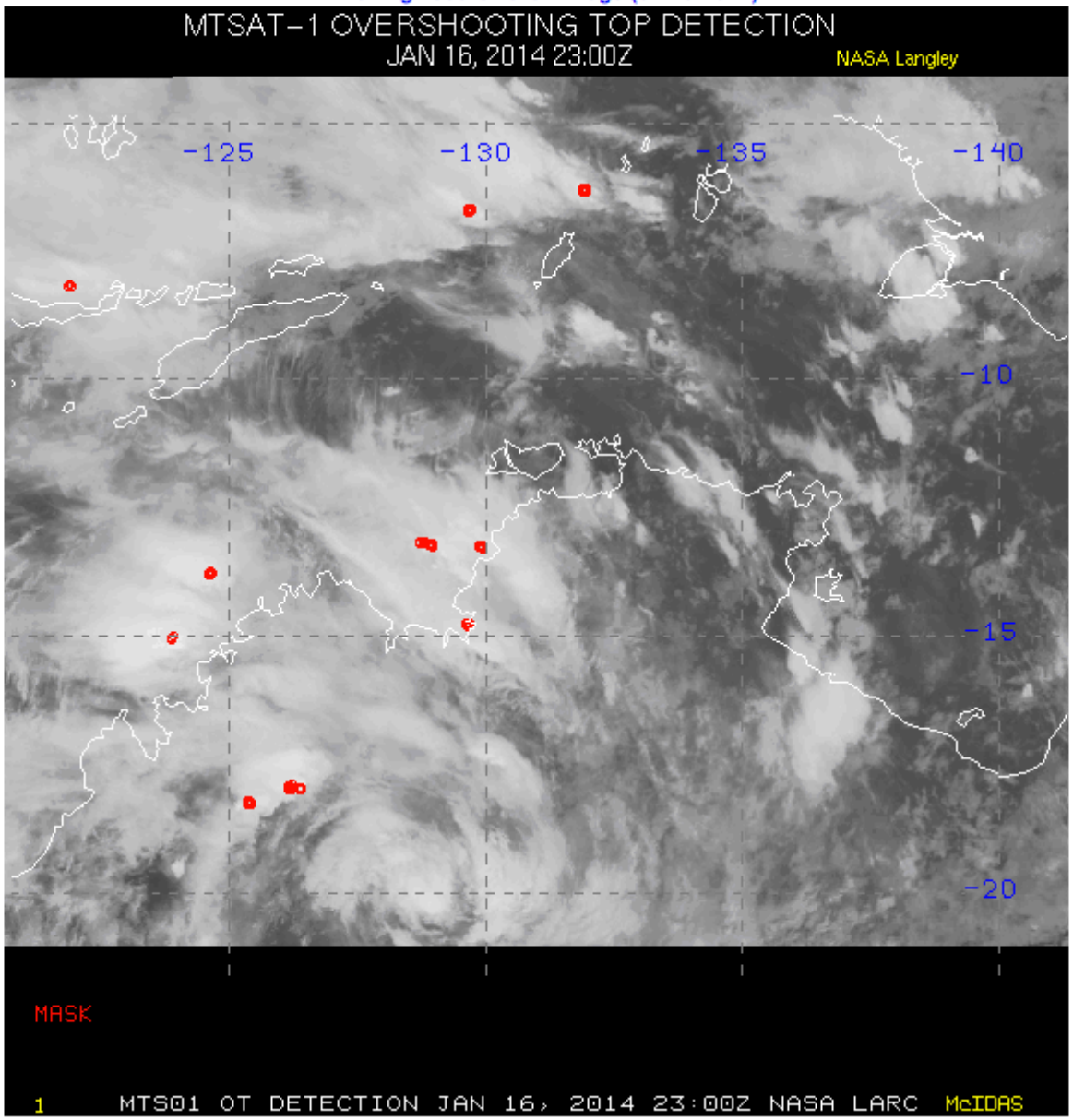
HIWC Home Page

Domain: RapidScan MTSAT-1R Download / List Available Dates Satellite: MTSAT-1

Date: 2014 01 16 Image Time: 23:00 UTC

Image: overshooting tops Animate: Frames ---

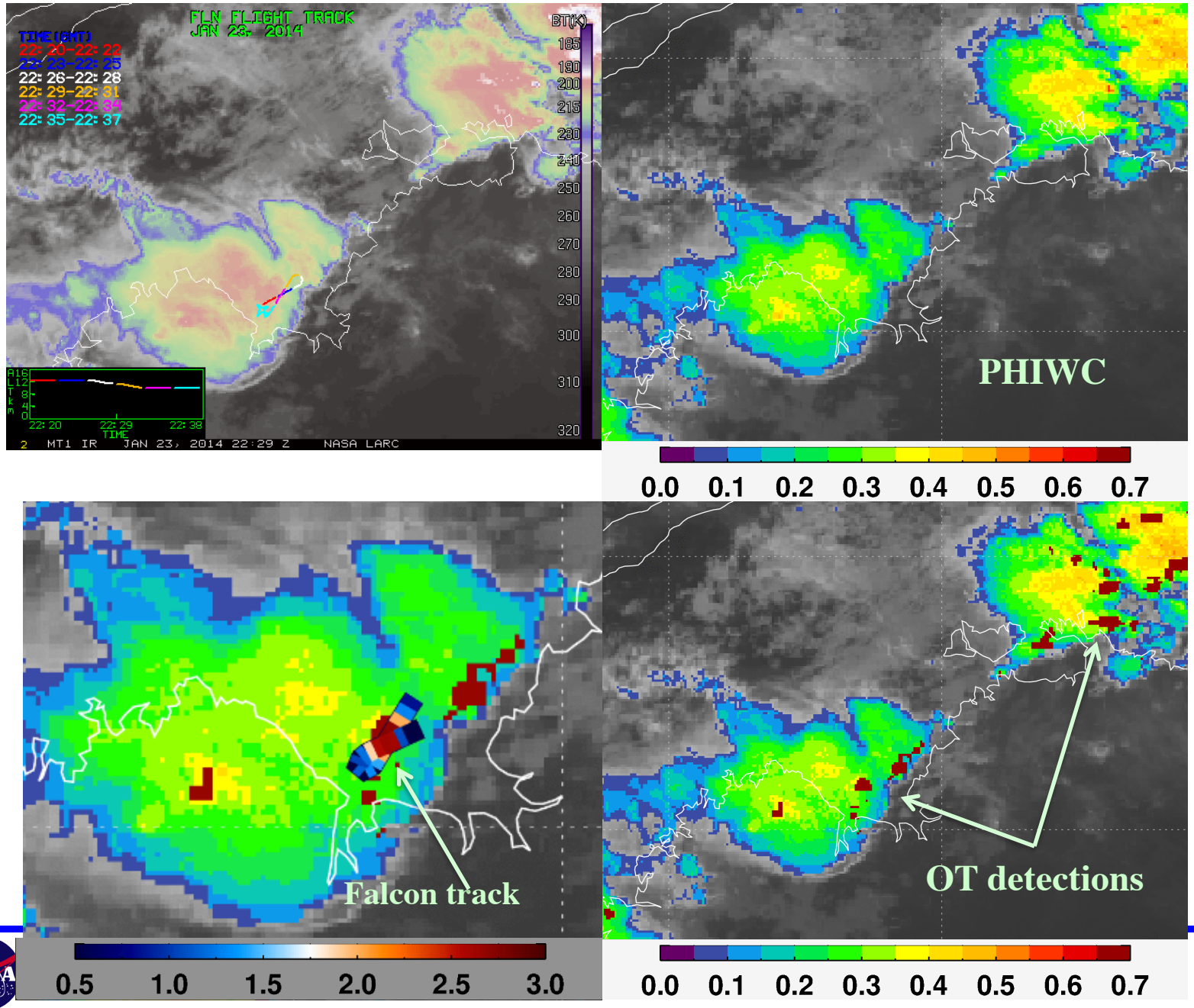
Viewing 2300 UTC OT image (01-16-2014).

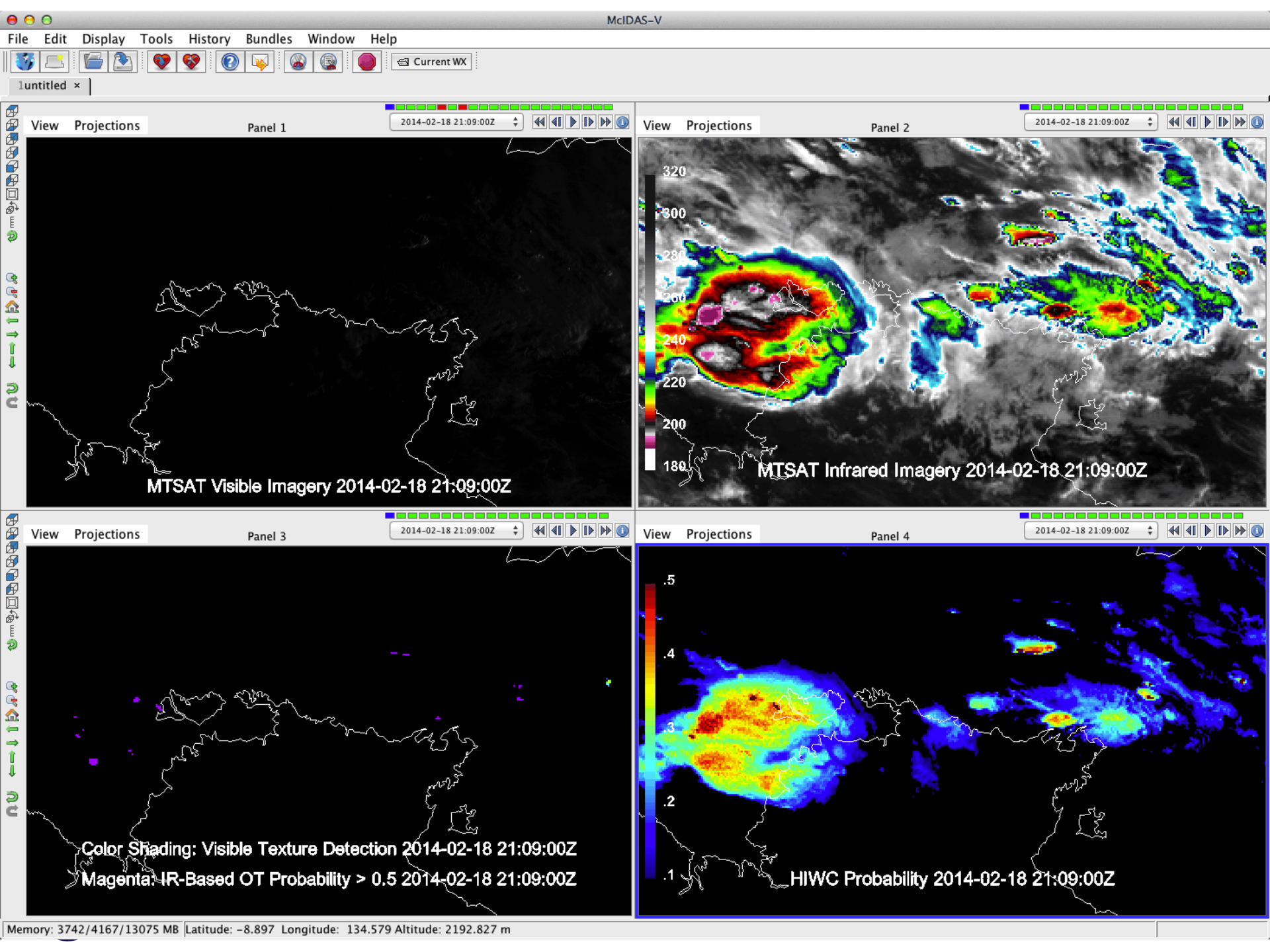


OT was available during Darwin and Cayenne campaigns

Can run on any satellite in near real-time with minimal latency

HIWC Probability Product Enhanced by OT Product




McIDAS-V
File Edit Display Tools History Bundles Window Help
Current WX
1untitled
View Projections
Panel 1
2014-02-18 21:09:00Z
MTSAT Visible Imagery 2014-02-18 21:09:00Z
View Projections
Panel 2
2014-02-18 21:09:00Z
320
300
280
260
240
220
200
180
MTSAT Infrared Imagery 2014-02-18 21:09:00Z
View Projections
Panel 3
2014-02-18 21:09:00Z
Color Shading: Visible Texture Detection 2014-02-18 21:09:00Z
Magenta: IR-Based OT Probability > 0.5 2014-02-18 21:09:00Z
View Projections
Panel 4
2014-02-18 21:09:00Z
.5
.4
.3
.2
.1
HIWC Probability 2014-02-18 21:09:00Z
Memory: 3742/4167/13075 MB
Latitude: -8.897 Longitude: 134.579 Altitude: 2192.827 m

Satellite Imagery

- 0.73um VIS
- 10.8um IR gray
- 10.8um IR color
- 6.8um WV

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Search: Keywords + GO

Home | Cloud Products | Satellite Imagery | Field Experiments | References | Options

HIWC MTS1 Satellite Imagery

Domain: HIWC MTS1 Satellite Imagery Download / List Available Dates

Date: 2014 02 18

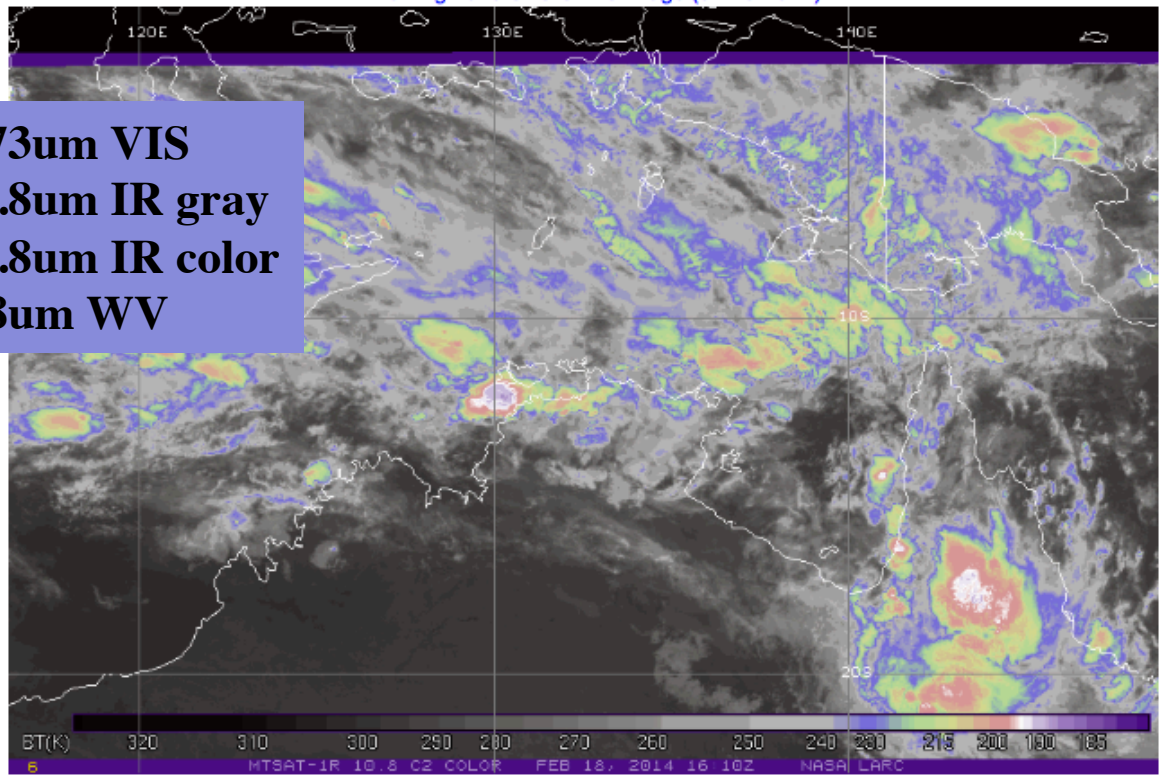
Image: C2RC

Satellite: MTSAT-1

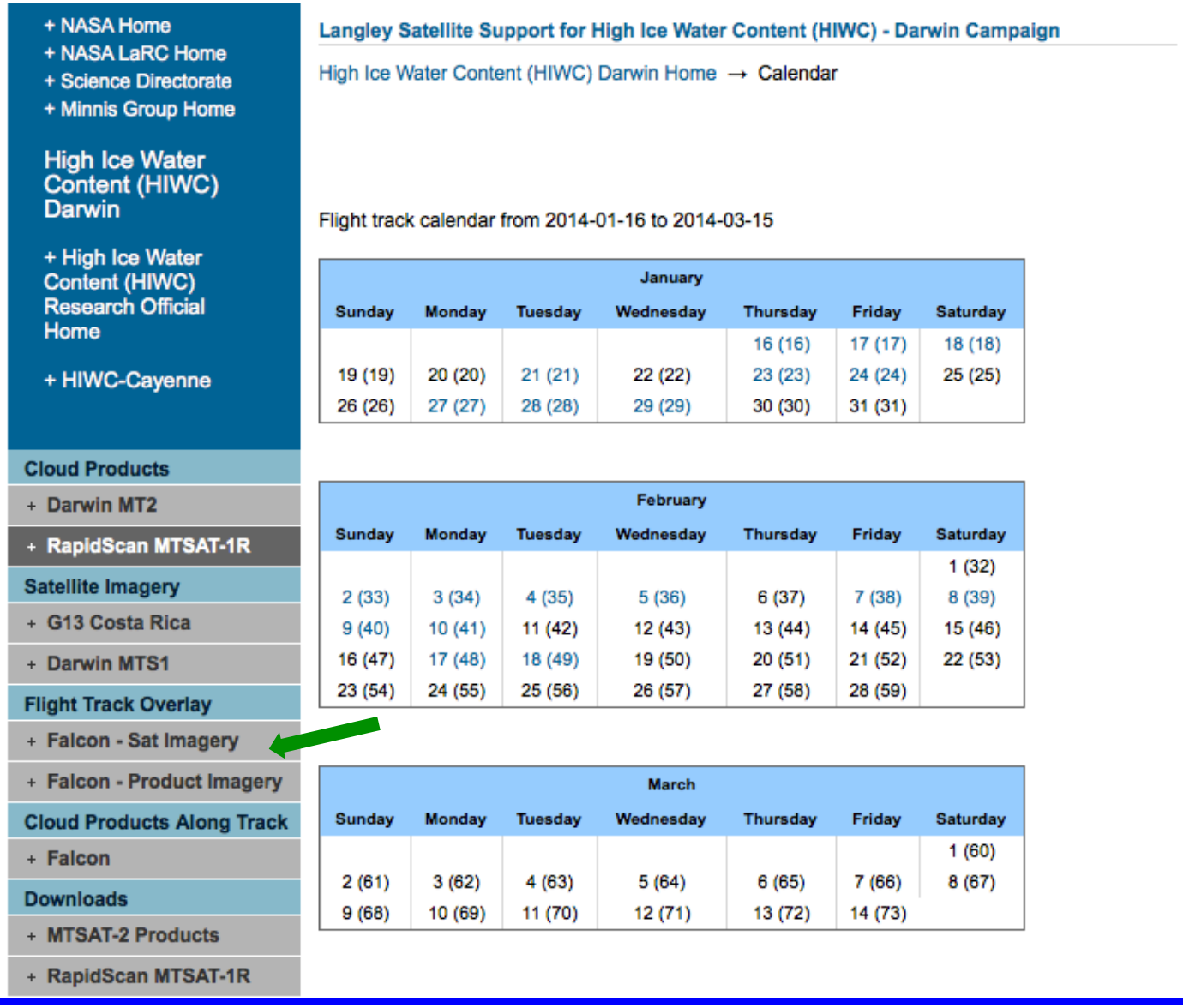
Image Time: 16:10 UTC

Animate: Frames ---

Viewing 1610 UTC C2RC image (02-18-2014).



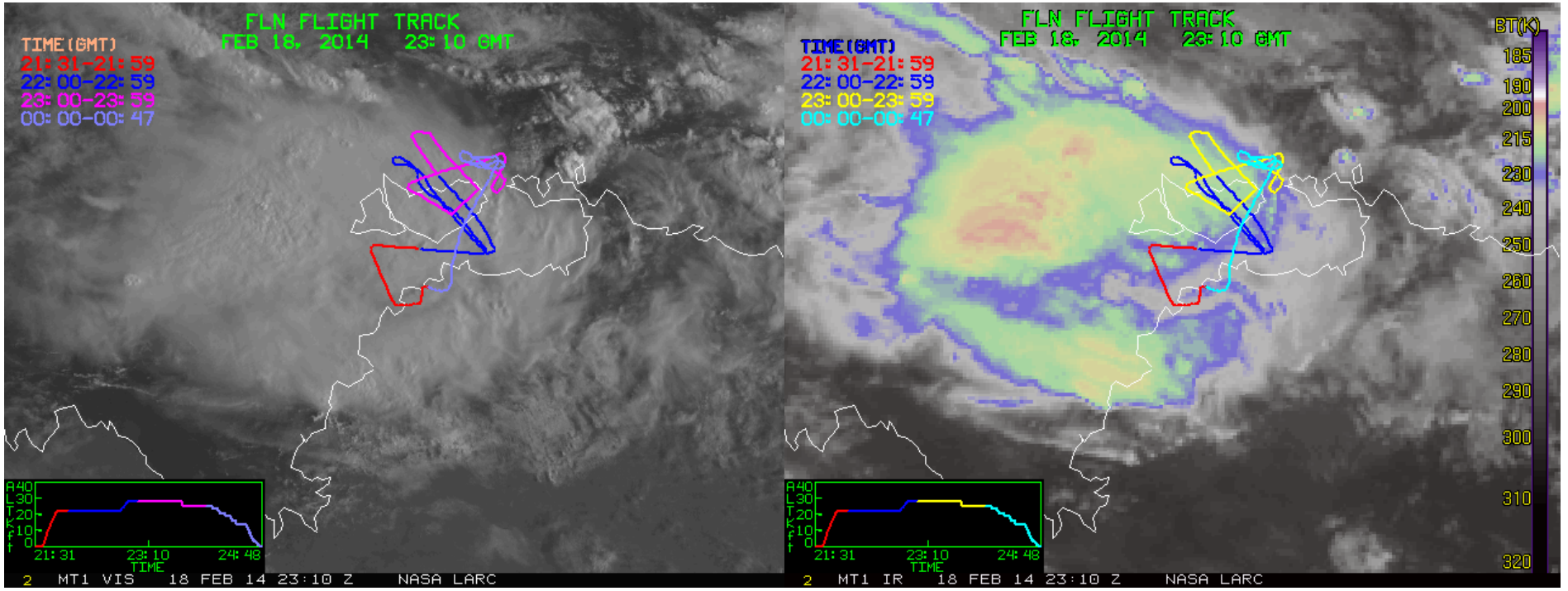
Flight Track Overlay Satellite Imagery and Products



Flight Track Overlay Satellite Imagery

January						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				16 (16)	17 (17)	18 (18)
19 (19)	20 (20)	21 (21)	22 (22)	23 (23)	24 (24)	25 (25)
26 (26)	27 (27)	28 (28)	29 (29)	30 (30)	31 (31)	

February						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 (32)
2 (33)	3 (34)	4 (35)	5 (36)	6 (37)	7 (38)	8 (39)
9 (40)	10 (41)	11 (42)	12 (43)	13 (44)	14 (45)	15 (46)
16 (47)	17 (48)	18 (49)	19 (50)	20 (51)	21 (52)	22 (53)
23 (54)	24 (55)	25 (56)	26 (57)	27 (58)	28 (59)	

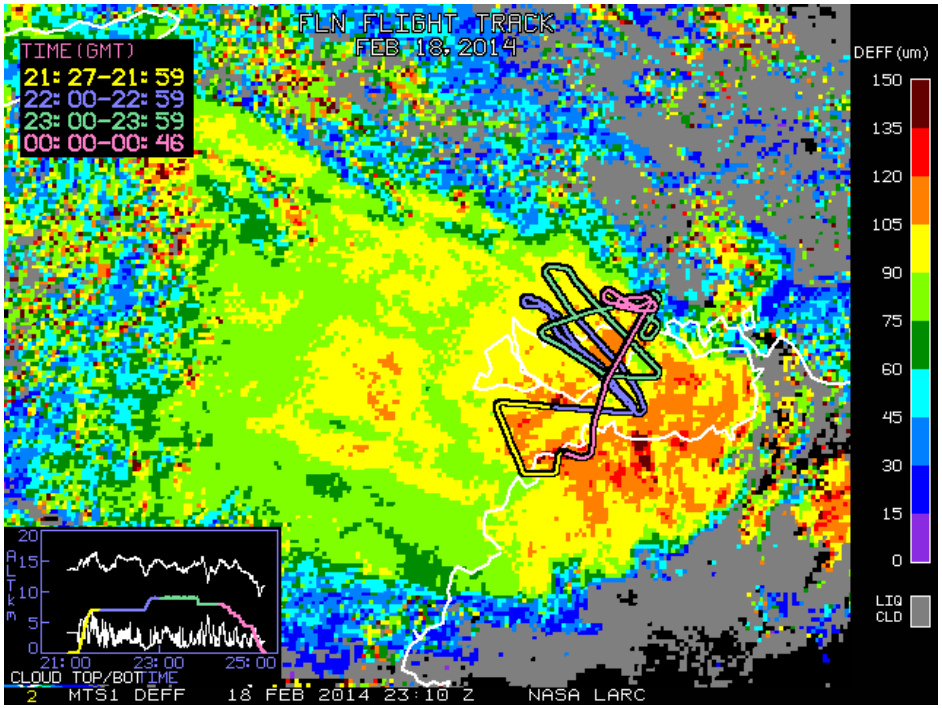


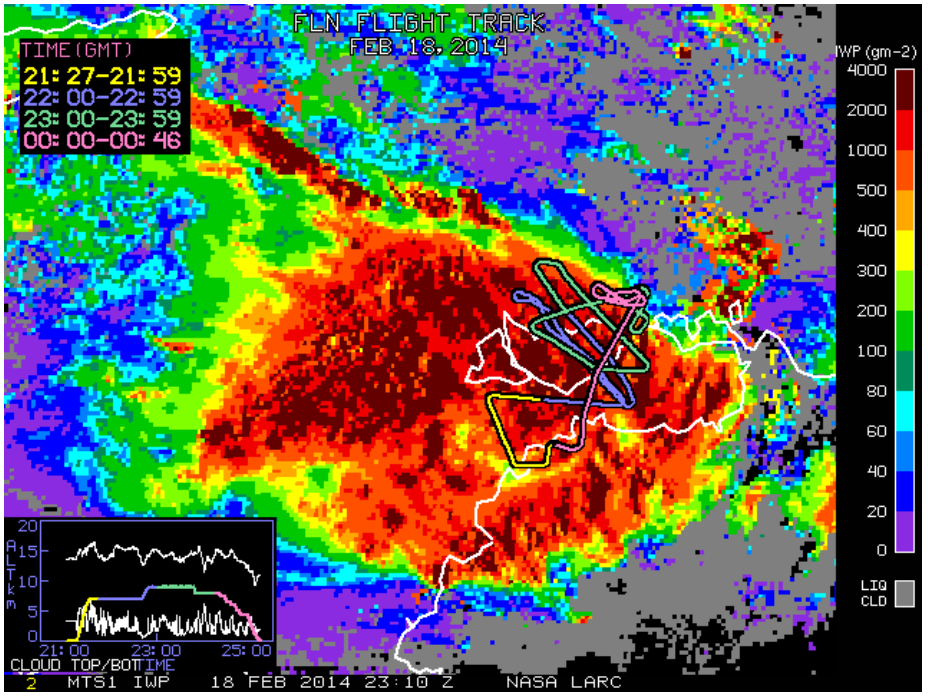
Flight FS140023 Feb 18, 2014 Visible and IR Loop

Flight Track Overlay Cloud Products

January						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				16 (16)	17 (17)	18 (18)
19 (19)	20 (20)	21 (21)	22 (22)	23 (23)	24 (24)	25 (25)
26 (26)	27 (27)	28 (28)	29 (29)	30 (30)	31 (31)	

February						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 (32)
2 (33)	3 (34)	4 (35)	5 (36)	6 (37)	7 (38)	8 (39)
9 (40)	10 (41)	11 (42)	12 (43)	13 (44)	14 (45)	15 (46)
16 (47)	17 (48)	18 (49)	19 (50)	20 (51)	21 (52)	22 (53)
23 (54)	24 (55)	25 (56)	26 (57)	27 (58)	28 (59)	

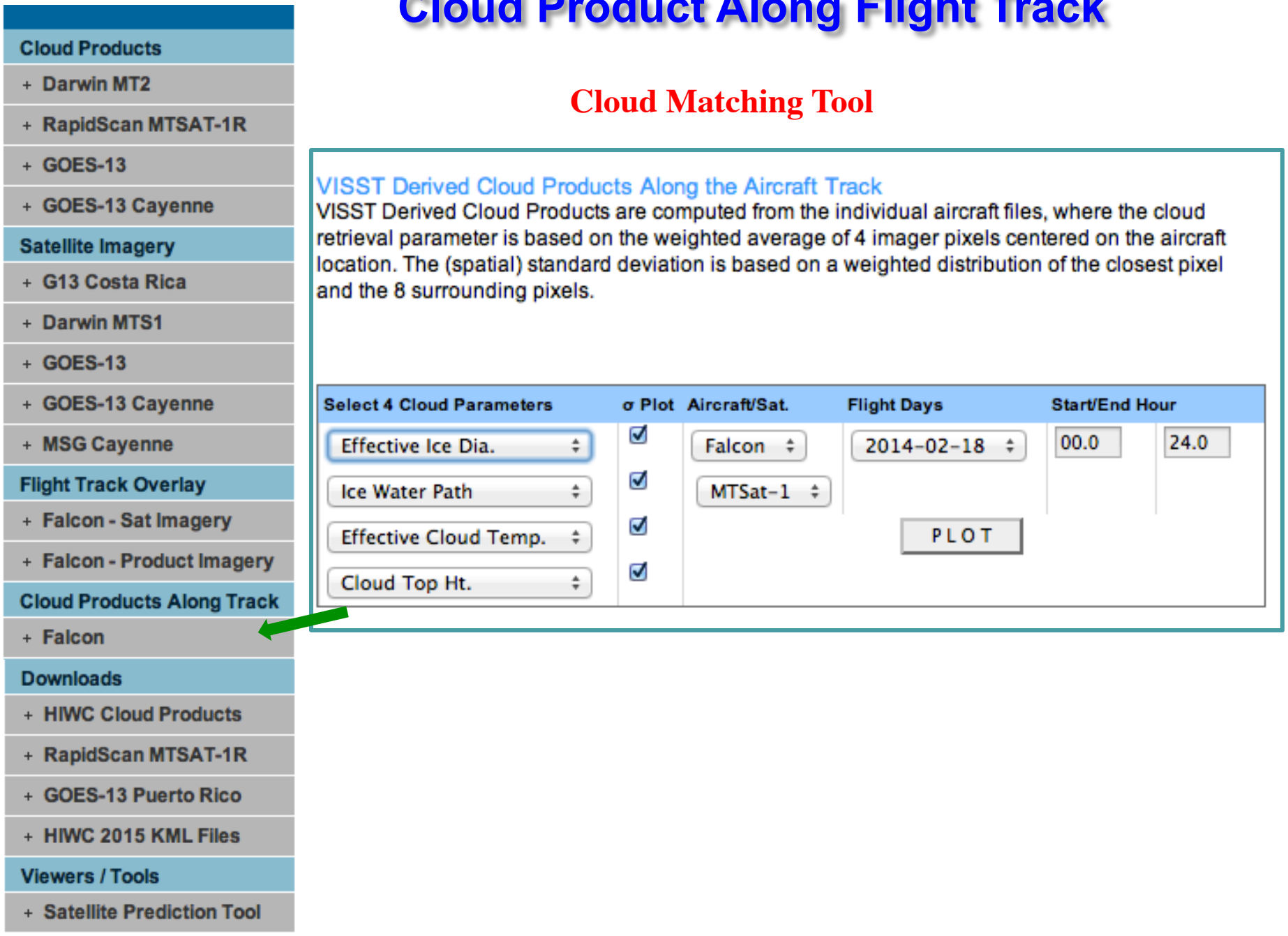




Flight FS140023 Feb 18, 2014, Effective Ice Diameter (left) and Ice Water Path (Rt)

Cloud Product Along Flight Track

Cloud Matching Tool

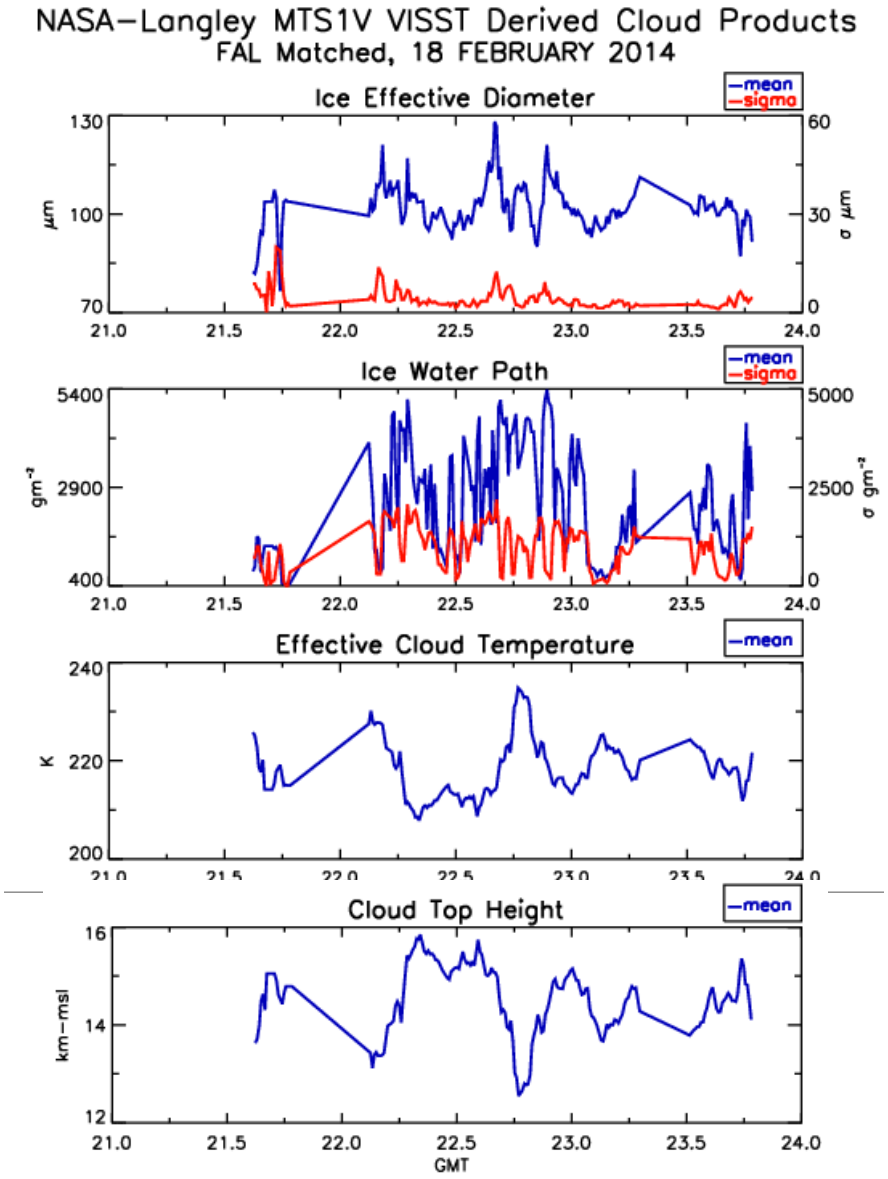


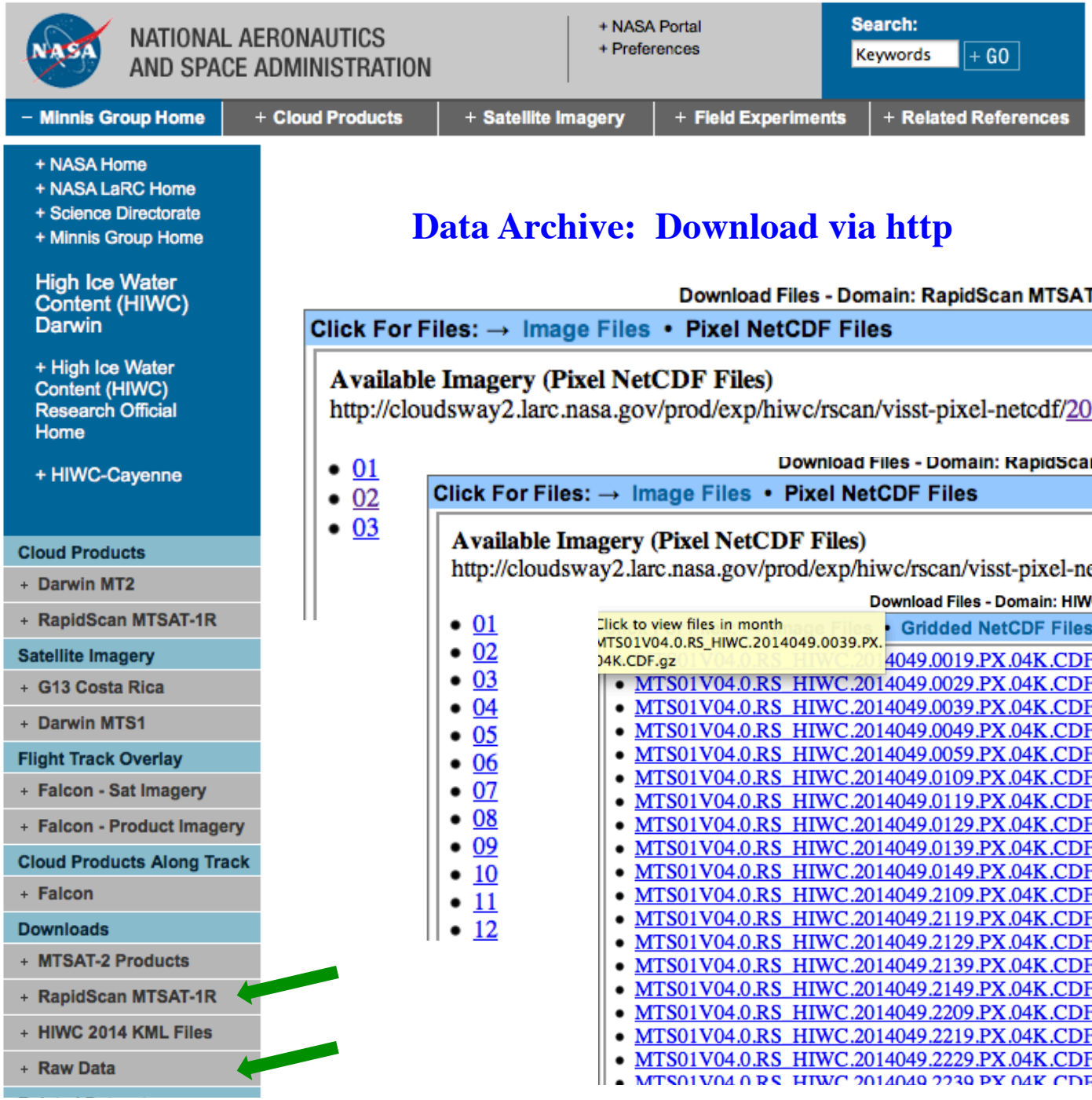
Cloud Product Along Flight Track

- Cloud Products
  - + Darwin MT2
  - + RapidScan MTSAT-1R
  - + GOES-13
  - + GOES-13 Cayenne
- Satellite Imagery
  - + G13 Costa Rica
  - + Darwin MTS1
  - + GOES-13
  - + GOES-13 Cayenne
  - + MSG Cayenne
- Flight Track Overlay
  - + Falcon - Sat Imagery
  - + Falcon - Product Imagery
- Cloud Products Along Track
  - + Falcon
- Downloads
  - + HIWC Cloud Products
  - + RapidScan MTSAT-1R
  - + GOES-13 Puerto Rico
  - + HIWC 2015 KML Files
- Viewers / Tools
  - + Satellite Prediction Tool

ASCII File • Plot • Full Data File

Results:

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+ Raw Data
Data Archive: Download via http
Download Files - Domain: RapidScan MTSAT-1R
Click For Files: → Image Files • Pixel NetCDF Files
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http://cloudsway2.larc.nasa.gov/prod/exp/hiwc/rscan/visst-pixel-netcdf/2014
01
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03
Download Files - Domain: RapidScan MTSAT-1R
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http://cloudsway2.larc.nasa.gov/prod/exp/hiwc/rscan/visst-pixel-netcdf/2014/02
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MTS01V04.0.RS_HIWC.2014049.0039.PX.04K.CDF.gz
Gridded NetCDF Files • Pixel NetCDF
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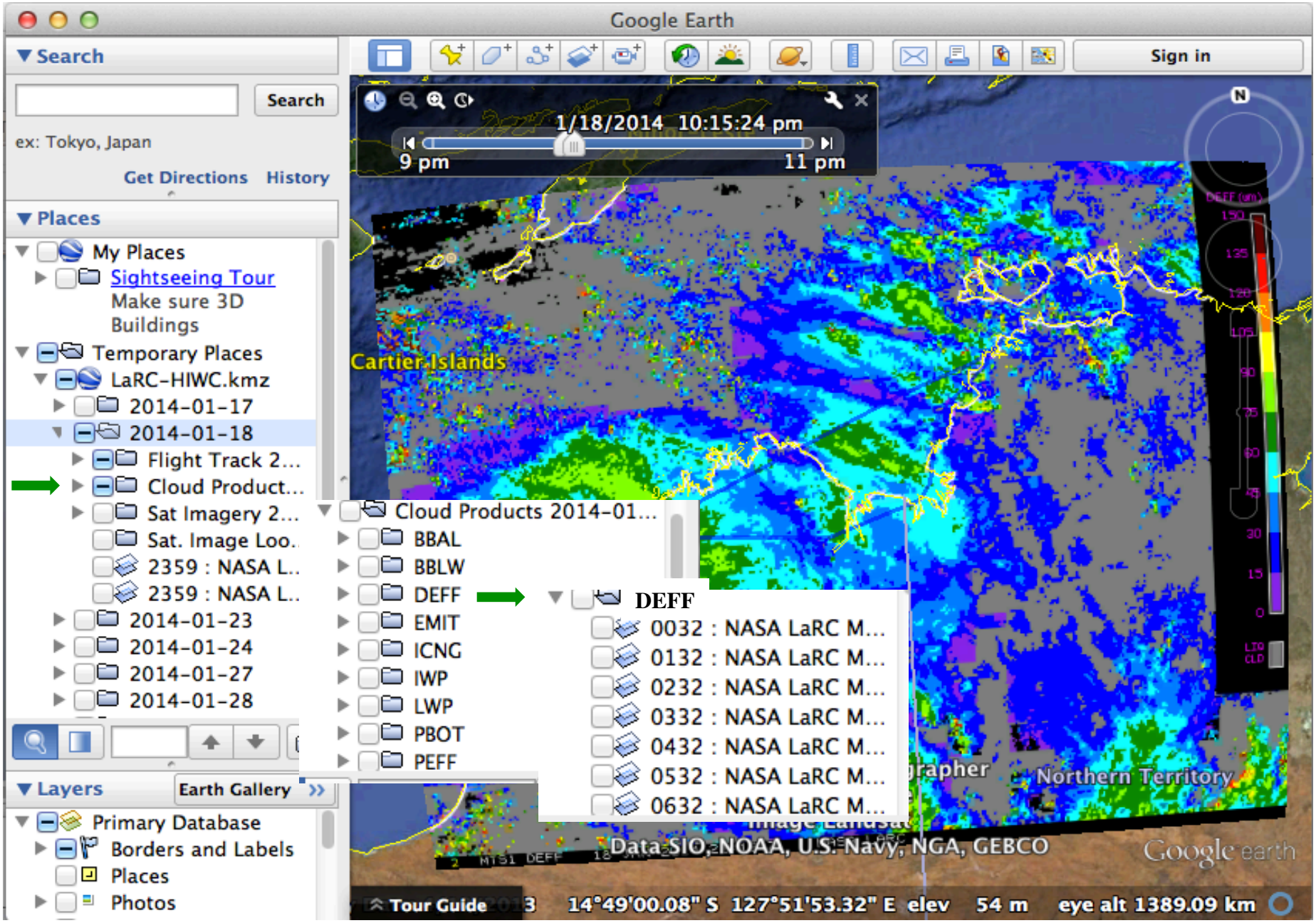
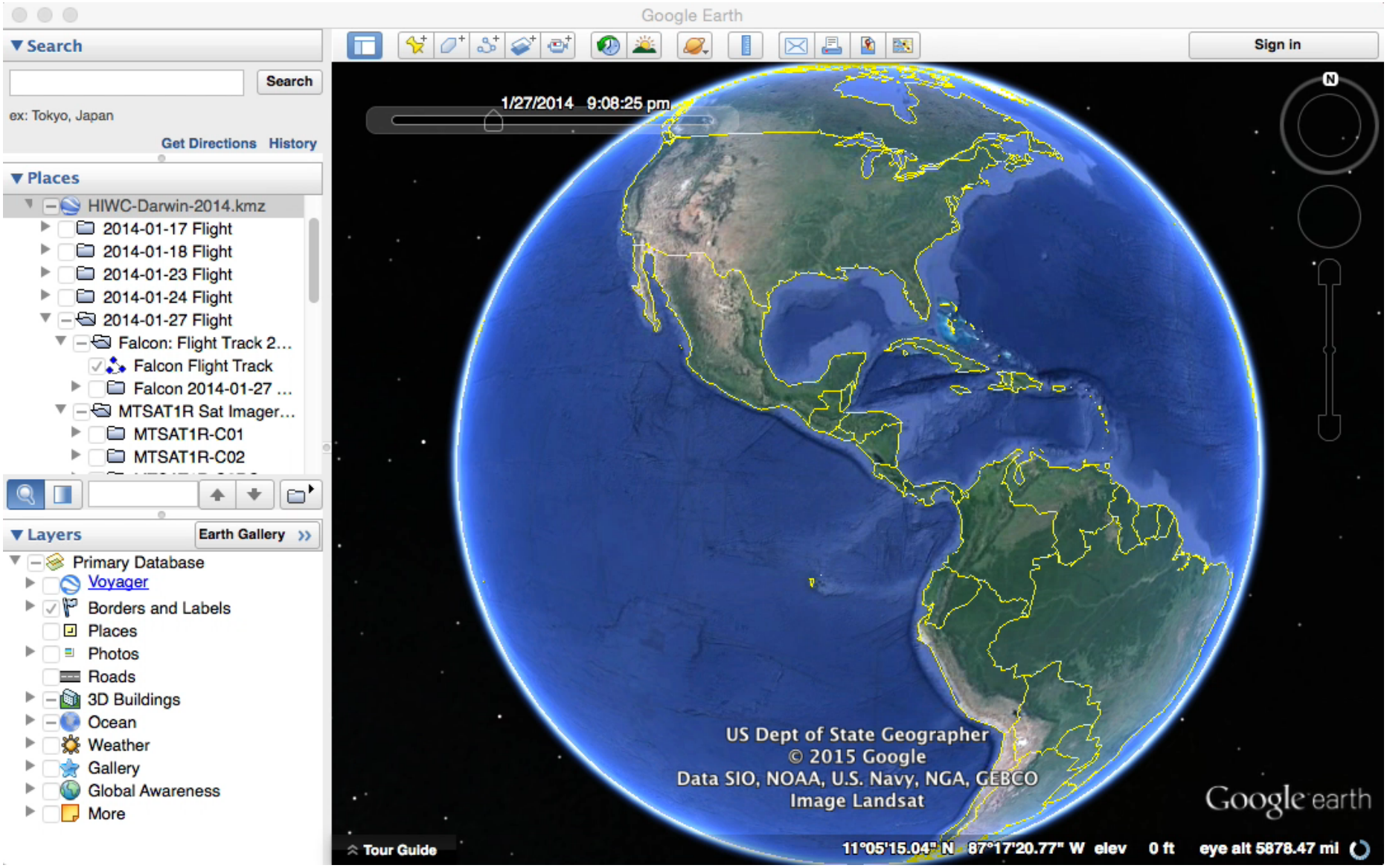
Satellite Products on Google Earth



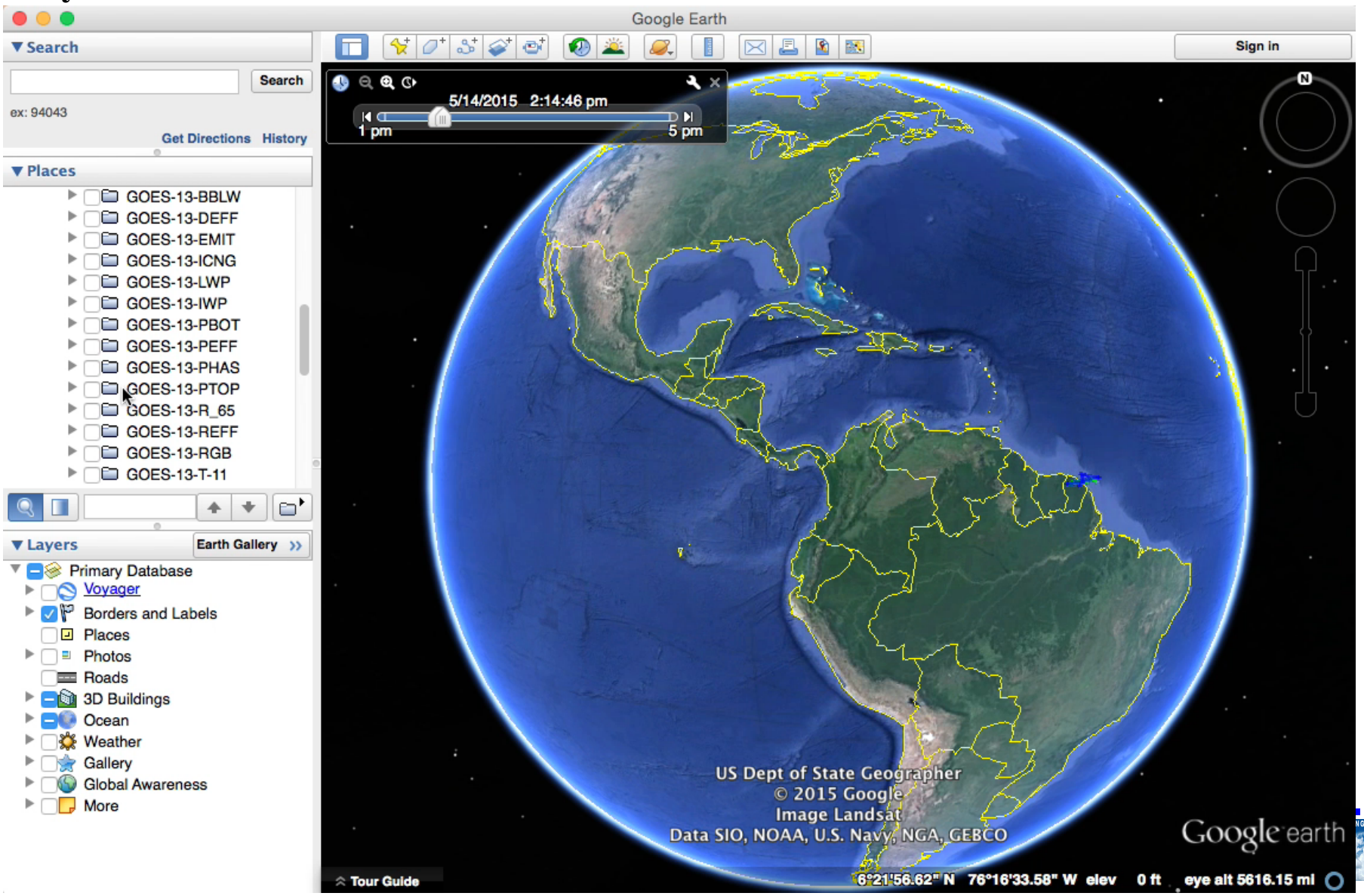
Satellite Products on Google KML/KMZ

Darwin 2014



Satellite Products on Google KML/KMZ

Cayenne 2015



Summary

- Website: www-pm.larc.nasa.gov
  - Contains complete data archive
- New dataset: OT and HIWC probability products
  - Analyze, evaluate, and improve
- NCAR Catalog has most recent Darwin dataset
  - MTSAT1 rapidscan and MTSAT2 hourly
- Google Earth kml/kmz with embedded images

Contact: L.Nguyen@nasa.gov