



# AIRS Mission Support from GES DISC

Goddard Earth Sciences Data and Information Services  
Center (GES-DISC)

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Sounder Science Team Meeting  
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# Status Quo

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- GES DISC Web Support for AIRS (Table)
  - Status on AIRS L1C, CO<sub>2</sub>
  - Status on AIRS V5, V6.
  - Status on AIRS Near Real Time (NRT).
- Metrics for V5/V6 usage/support
- Challenges to user community
  - Multiple Versions
  - L3 temporal information
  - Multiple Browse Services
- Plans for New Services and Collaboration



# GES DISC Web Support for AIRS

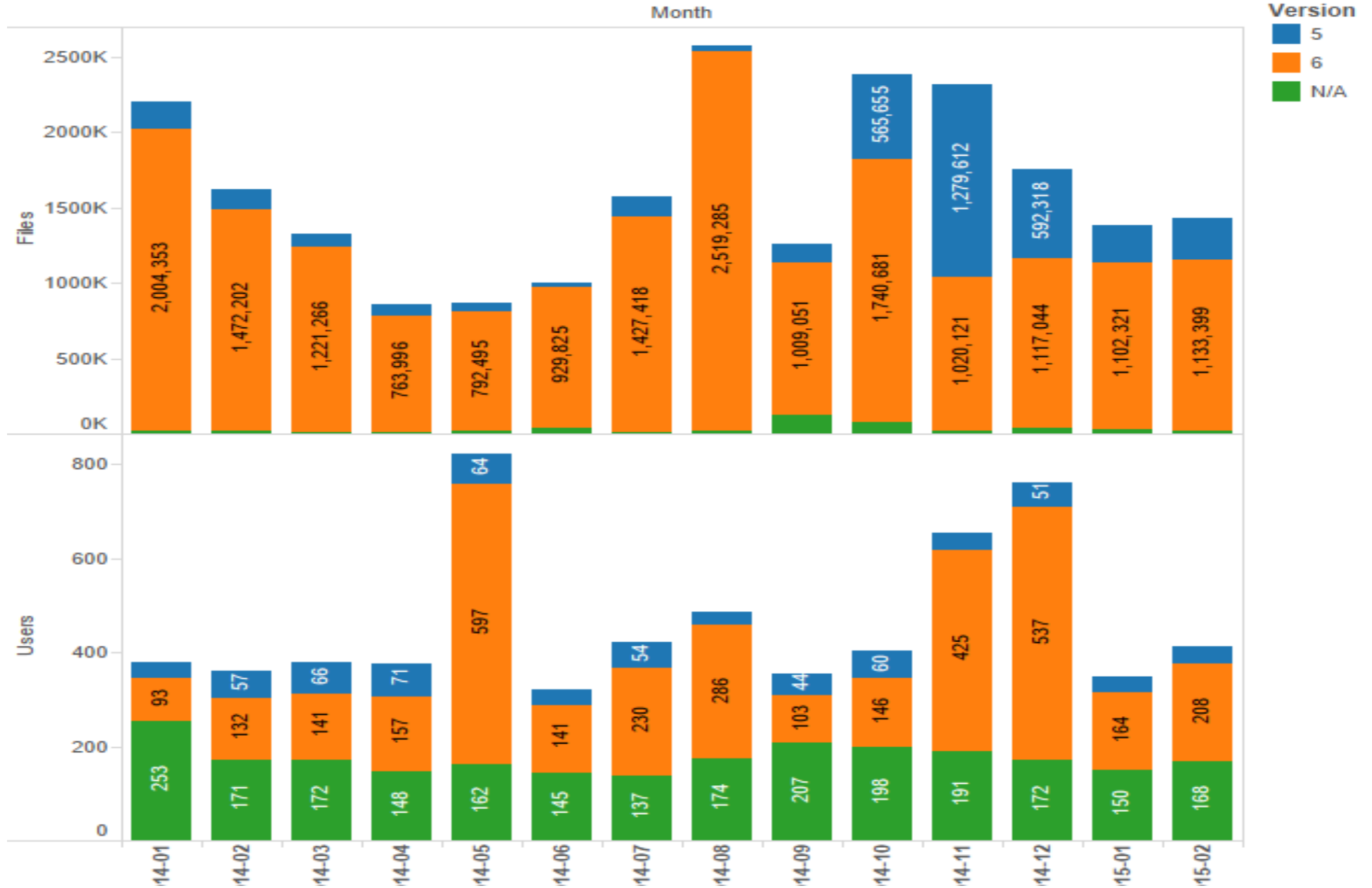
		GCMD	ECHO	GES DISC Web search	Subsetting	OPeNDAP	netCDF	G3*	G4*	WCS/WMS
V5	Level 1	✓	✓	✓	✓	✓	✓			
	Level 2	✓	✓	✓	✓	✓	✓			
	Level 3	✓	✓	✓	✓	✓	✓	✓		✓
	CO <sub>2</sub>	✓	✓	✓	✓	✓	✓	✓	✓	✓
	NRT (L1b)	✓	✓		✓	✓	✓			✓
V6	Level 1c	✓	✓	✓	✓	✓	✓			
	Level 2	✓	✓	✓	✓	✓	✓		✓	
	Level 3	✓	✓	✓	✓	✓	✓		✓	✓
	NRT (L2)	✓	✓		✓	✓	✓			✓

\*Note: G3\*: Old Giovanni 3. G4\*: Current Giovanni 4



AIRS L2 V5/V6

# Metrics for Level 2 V5/V6 Usage





# Metrics for Level 3 V5/V6 Usage





# Challenges to users

- Multiple Versions
  - V5 and V6 services
  - V6 products: STD vs IR-only
  - V6 L1C usability
  - Inconsistent V5 CO<sub>2</sub> series
- AIRS L3
  - Begin Time for Ascending/Descending Grids
  - Mean Time at a grid cell
  - L3 usability (TqJ and Regular) → GES DISC “Lite Products”
- Multiple browsing services
  - GES DISC NRT ImageViewer
  - Provides images to Global Imagery Browse Services (GIBS)



# Challenges to users

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- Multiple Versions
  - ❑ V5 and V6 services
  - ❑ V6 products: STD vs IR-only
  - ❑ Inconsistent V5 CO<sub>2</sub> series
  - ❑ V6 L1C usability



## Provides V5 and V6 services - Giovanni

<http://giovanni.gsfc.nasa.gov/giovanni/>

[#service=INTERACTIVE\\_MAP&starttime=&endtime=&bbox=-180,-90,180,90&variableFacets=ataProductPlatformInstrument%3AAIRS%3B](http://giovanni.gsfc.nasa.gov/giovanni/#service=INTERACTIVE_MAP&starttime=&endtime=&bbox=-180,-90,180,90&variableFacets=ataProductPlatformInstrument%3AAIRS%3B)

### Map & Time Series Choices

- Time Series
- Seasonal

[Details...](#)

- Area-Mean
- Hovmoller

[Details...](#)

- UTM
- Hovmoller, Latitude-Averaged

[Details...](#)

- Area-Averaged
- Difference of Area Averages

[Details...](#)

- Difference
- Area-Averaged

[Details...](#)

[Details...](#)

### Vertical Choices

- Vertical Plot

[Details...](#)

### Miscellaneous Choices

- Histogram

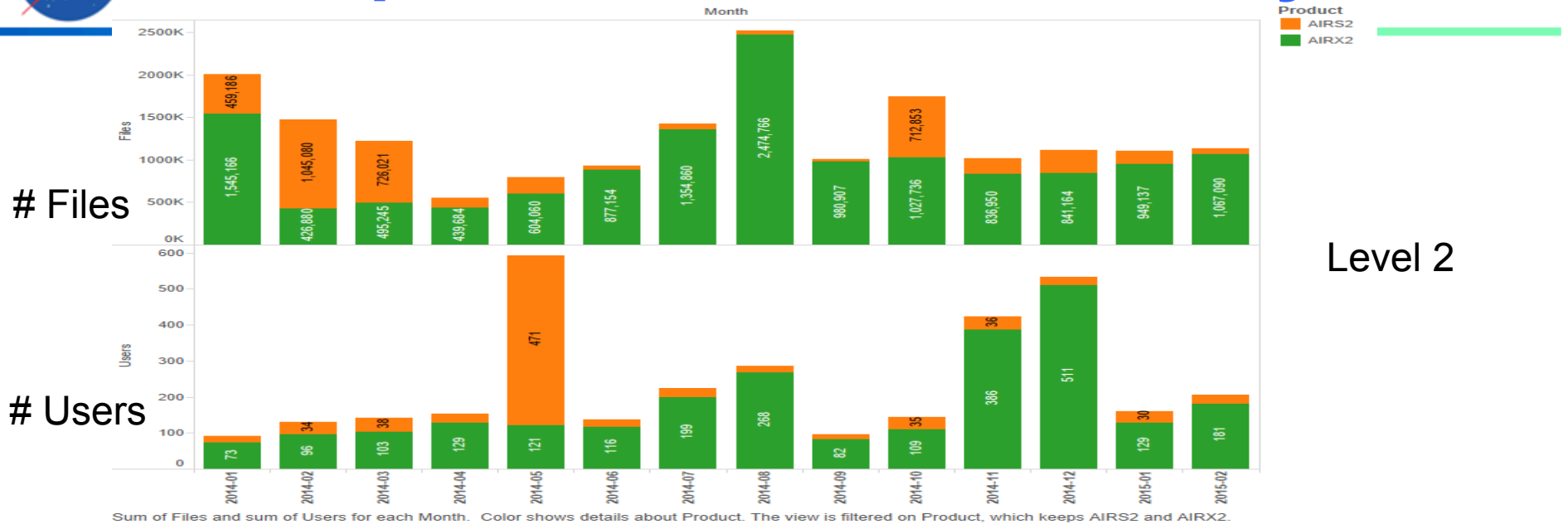
Distribution of values over time and space

[Details...](#)

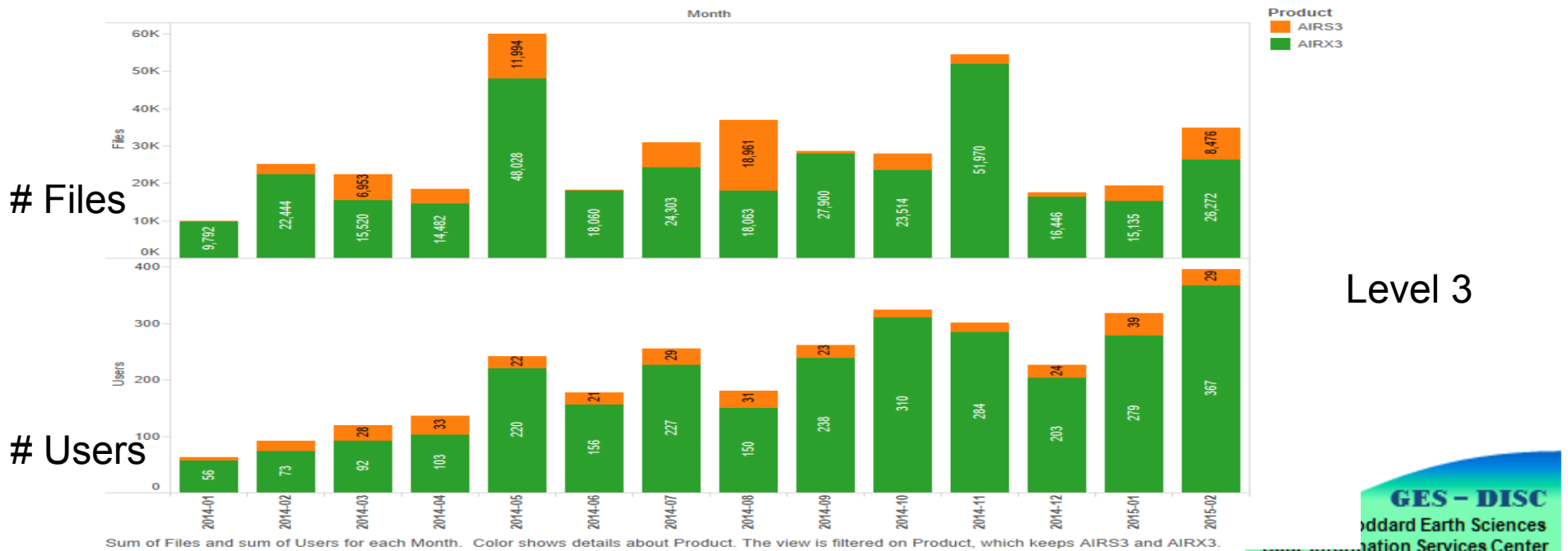




# V6 products: STD vs IR-only



Level 2

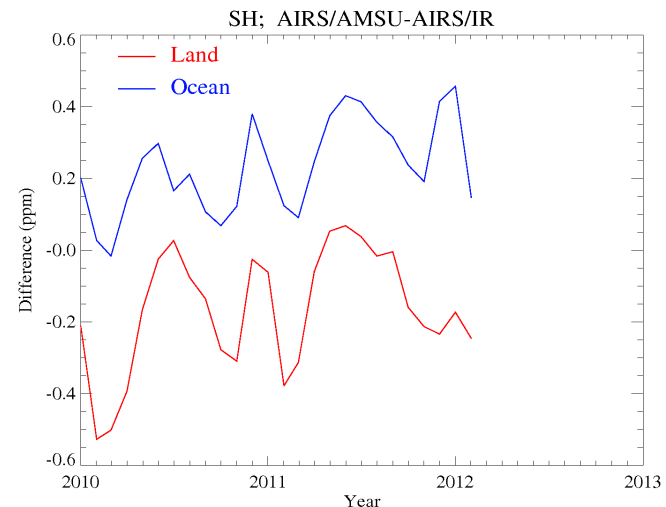
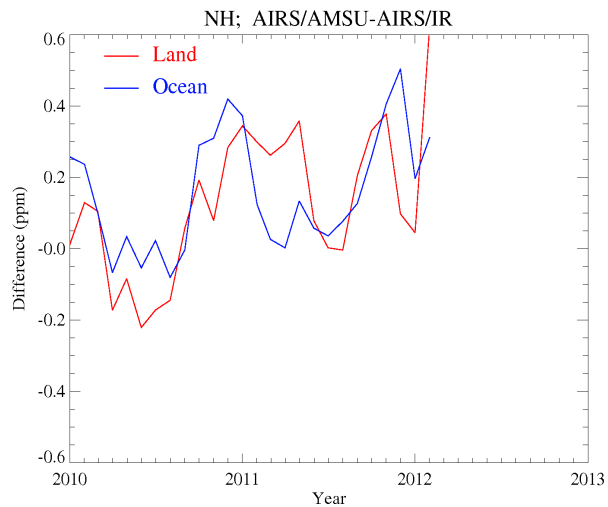
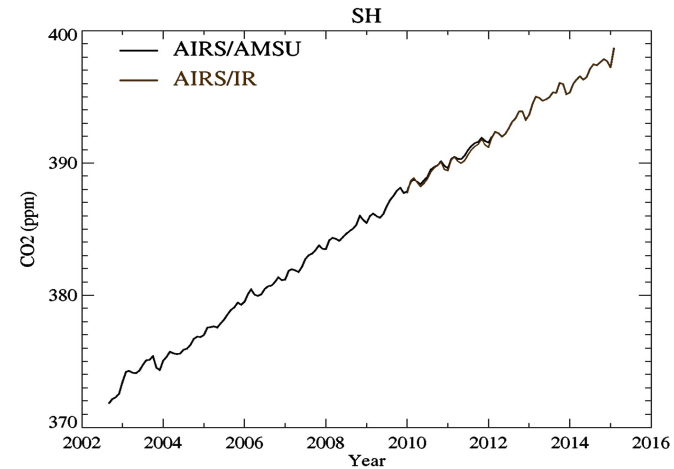
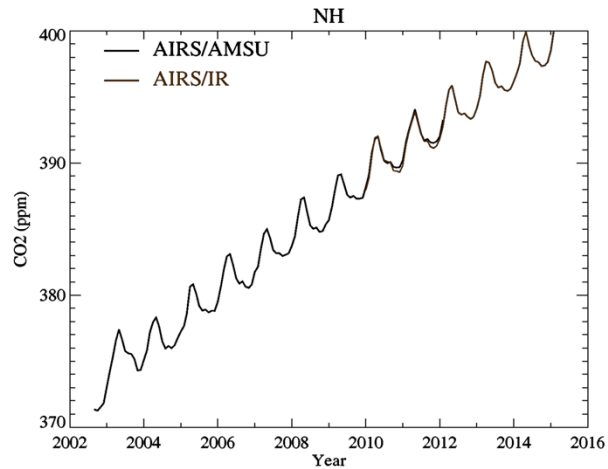


Level 3



# Inconsistent V5 CO<sub>2</sub> Collections

- Differences btn AIRS/AMSU vs AIRS/IR are very small. We should have one consistent series instead.





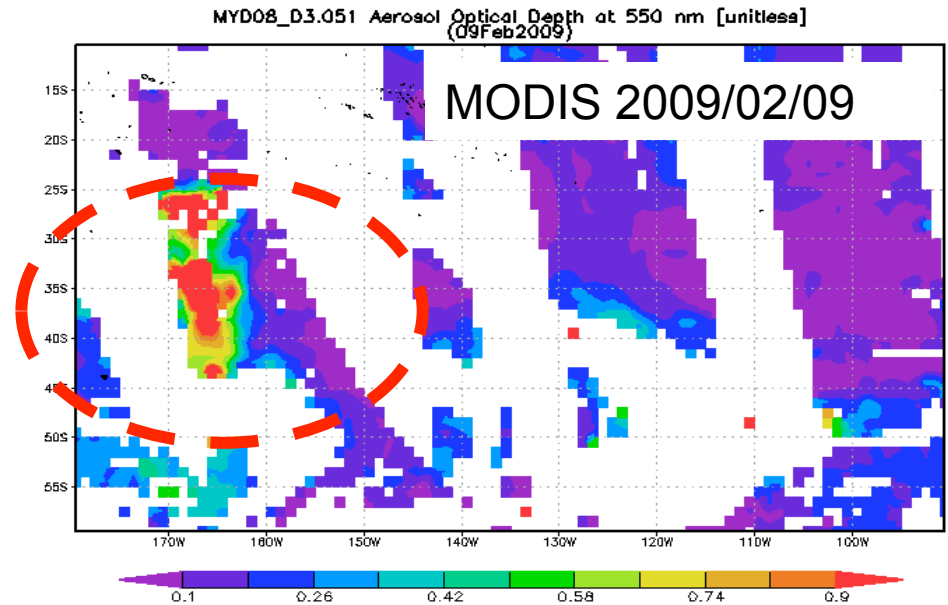
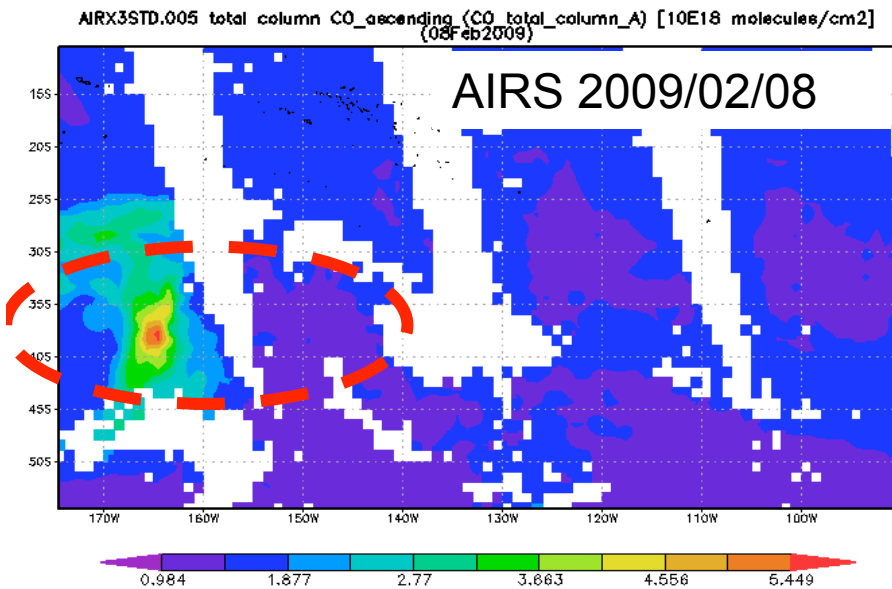
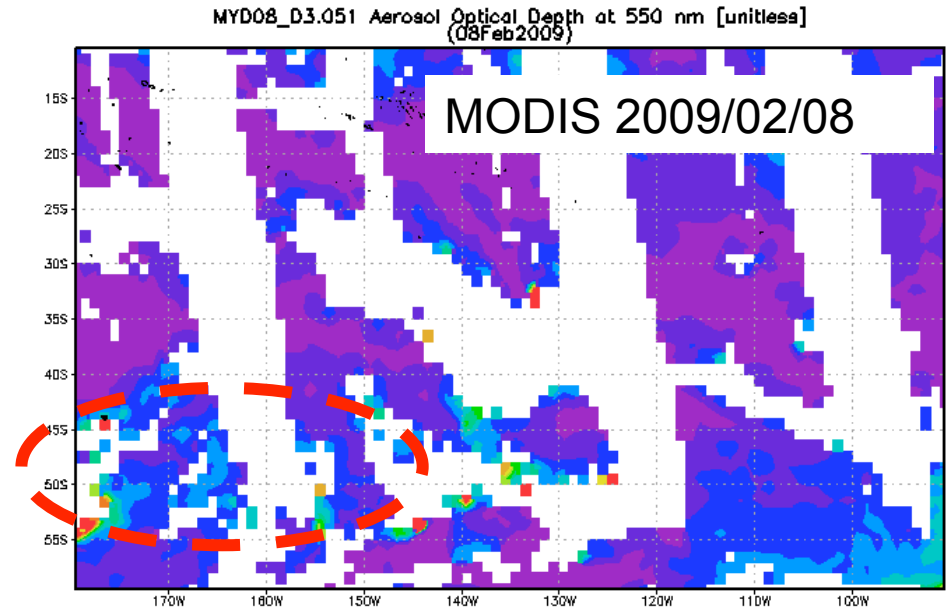
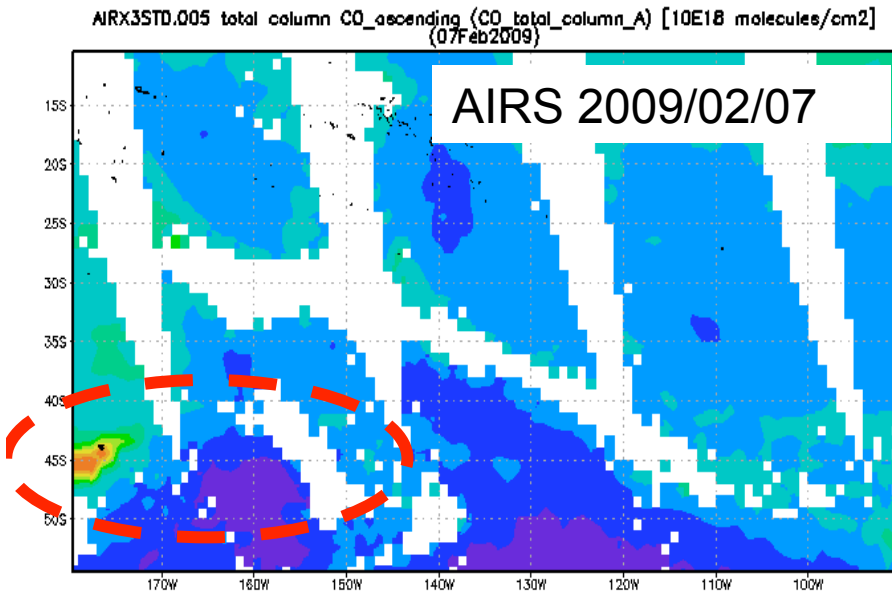
# Challenges to users

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- AIRS L3
  - ❑ Begin Time for Ascending/  
Descending Grids
  - ❑ Mean Time at a grid cell
  - ❑ TqJoint vs. STD usability



# AIRS L3 Begin Time for Ascending/Descending Grids



L1B Availability  
 AMSU Granules: 240  
 HSB Granules: 0  
 AIRS Granules: 240

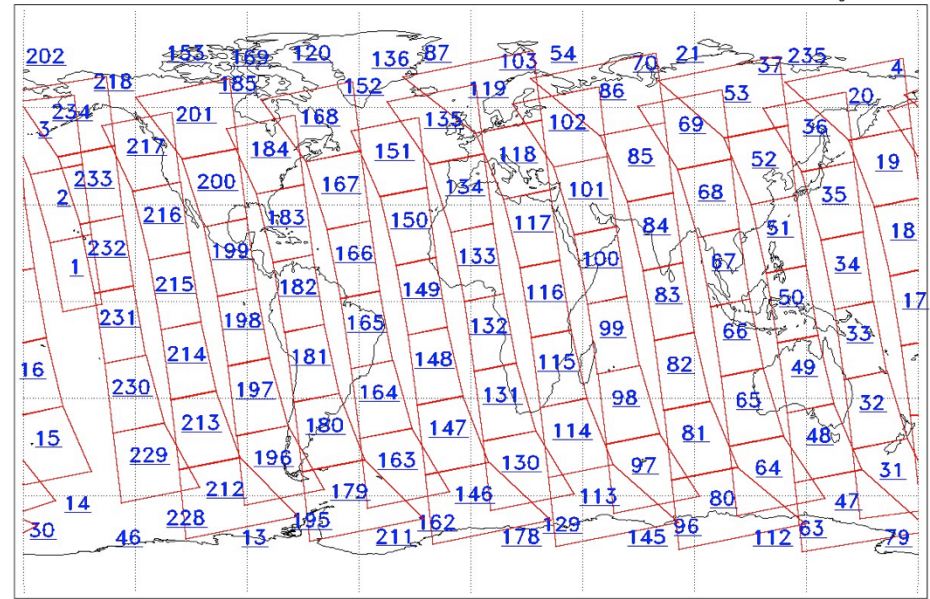
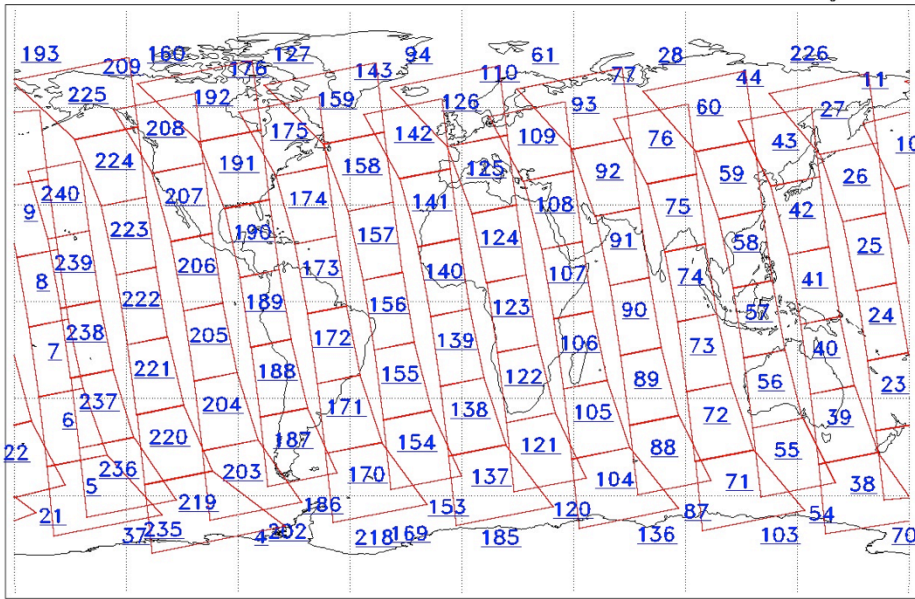
2009/02/08

8 Feb 2009  
 DoY 39  
 Aqua Day 2472  
 Ascending Granules

L1B Availability  
 AMSU Granules: 240  
 HSB Granules: 0  
 AIRS Granules: 240

2009/02/07

7 Feb 2009  
 DoY 38  
 Aqua Day 2471  
 Ascending Granules

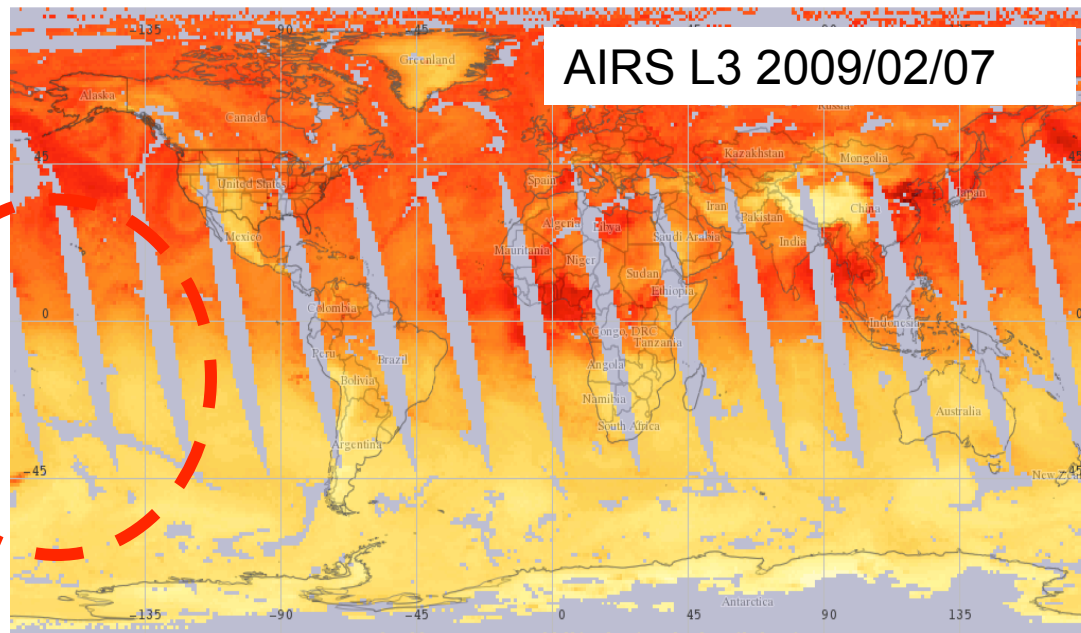


Legend: AMSU Available, HSB Available, AIRS Available

Legend: AMSU Available, HSB Available, AIRS Available

Time Averaged Map of Carbon Monoxide Total Column (Daytime/Ascending) daily 1 deg. [AIRS AIRX3STD V006] mol/cm2 over 2009-02-07 - 2009-02-07, Region 180W, 90S, 180E, 90N

Begin Time for Ascending/Descending Grids



- Selected date range was 2009-02-07 05:00Z - 2009-02-07 05:00Z. Title reflects the date range of the granules that went into making this result.



# Image browse service

1. VIS radiances (false color map)
2. CO, Bt\_diff\_SO2, Prata\_SO2
3. Dust score
3. Precipitation
4. Temperature and Relative Humidity at 850hPa, 700hPa, 600hPa, 500hPa, and 400hPa

## AIRS Near Real-Time Data Portal

**Description**

This is AIRS Near-Real-Time 3-component (RGB) composite image. The source data type is AIRVBRAD\_NRT, where three bands are taken from the variable "radiances": band3=0.8, band2=0.6, and band1=0.4 microns. Correspondingly, they form the red, green, and blue colors. Thus, since band3 is near-infrared, the vegetation appears in red colors, and the image is categorized as "false-color". The global map is produced at 3-km resolution. The map is refreshed every 45 minutes, and the span is 15 days.

**Map Layers**

- Basic Layers
  - Coastline
- False Color Map
  - False Color Map
- Total Column CO
  - Total column CO ascend
  - Total column CO descen
- BT\_diff\_SO2
  - BT\_diff\_SO2 ascending
  - BT\_diff\_SO2 descending
- Prata SO2
  - Prata SO2 ascending no
  - Prata SO2 descending n
- Relative Humidity
  - Level 400 ascending noc
  - Level 400 descending nc
  - Level 500 ascending noc

2015-04-14

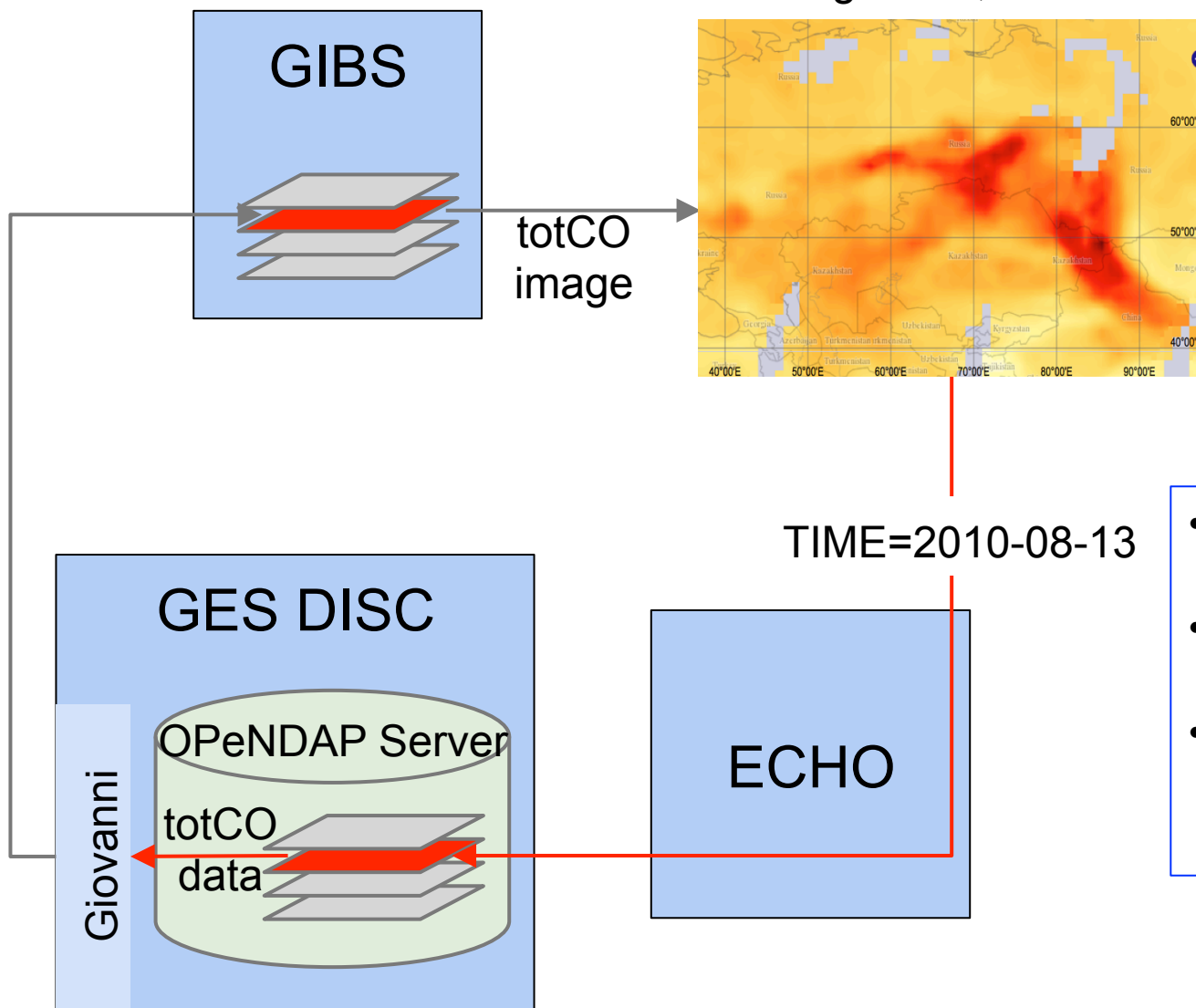
Data Information Services Center



# GES DISC Big Earth Data Initiative (BEDI)

GIBS = EOSDIS' Global Imagery Browse Services

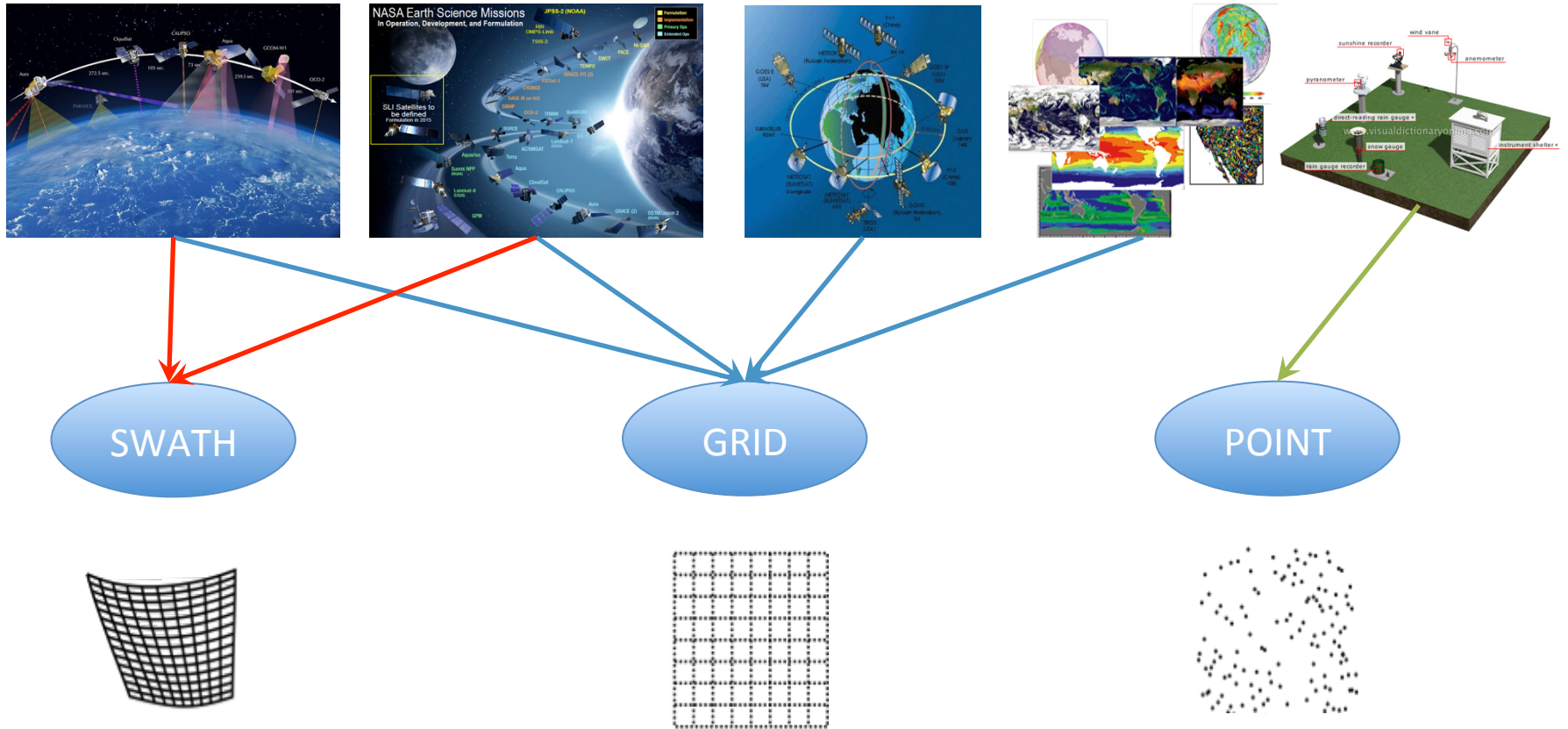
August 13, 2010



- Societal Benefit Areas
- AIRS Level 3 variables
- Maybe one variable from Level 2



# GES DISC Developing Capability

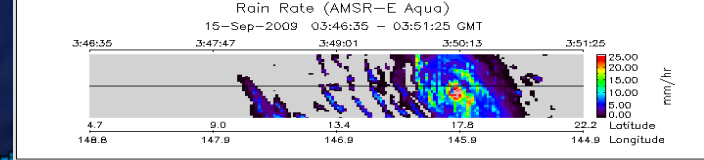
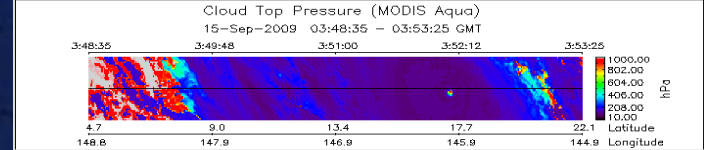
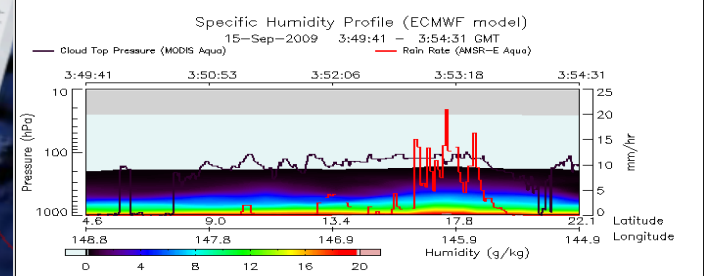
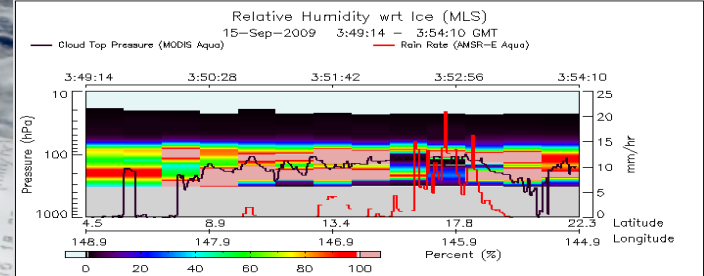
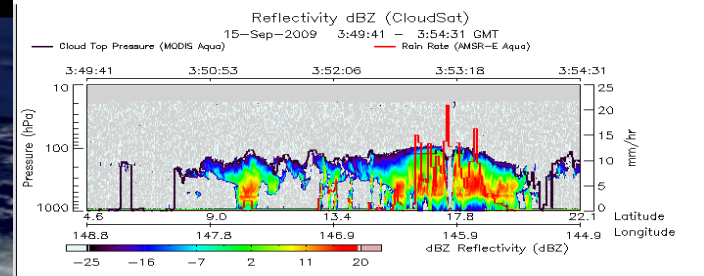
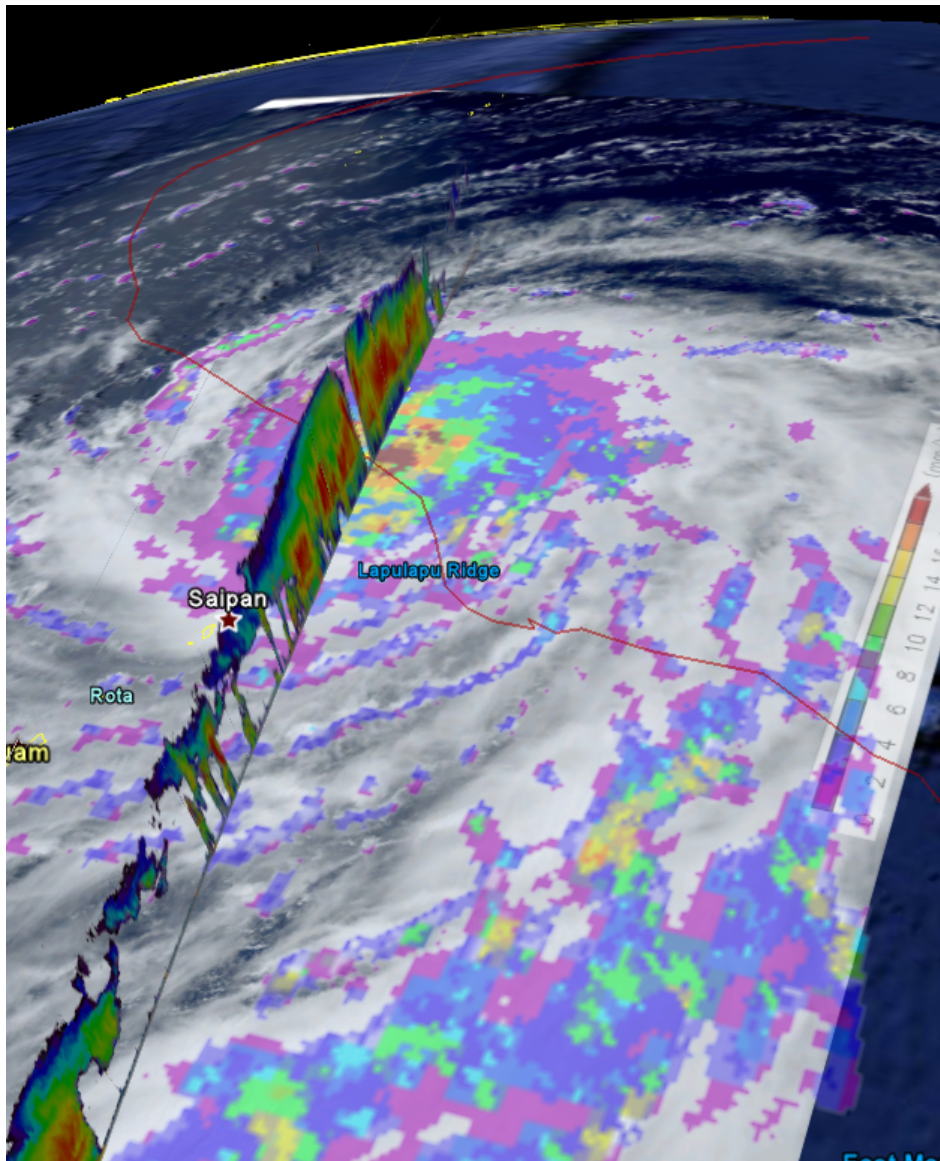


- Multiple measurements
- Different shapes
- Tools developed for the user community



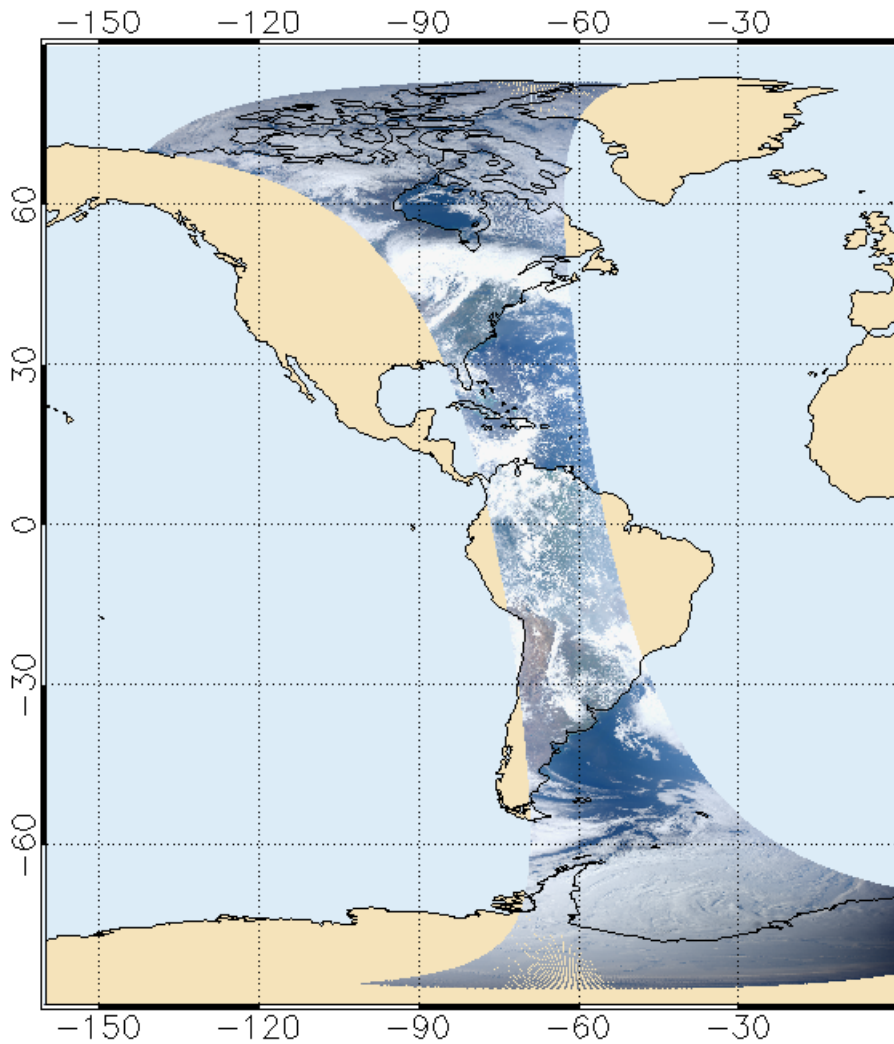


# GES DISC A-Train Data Depot

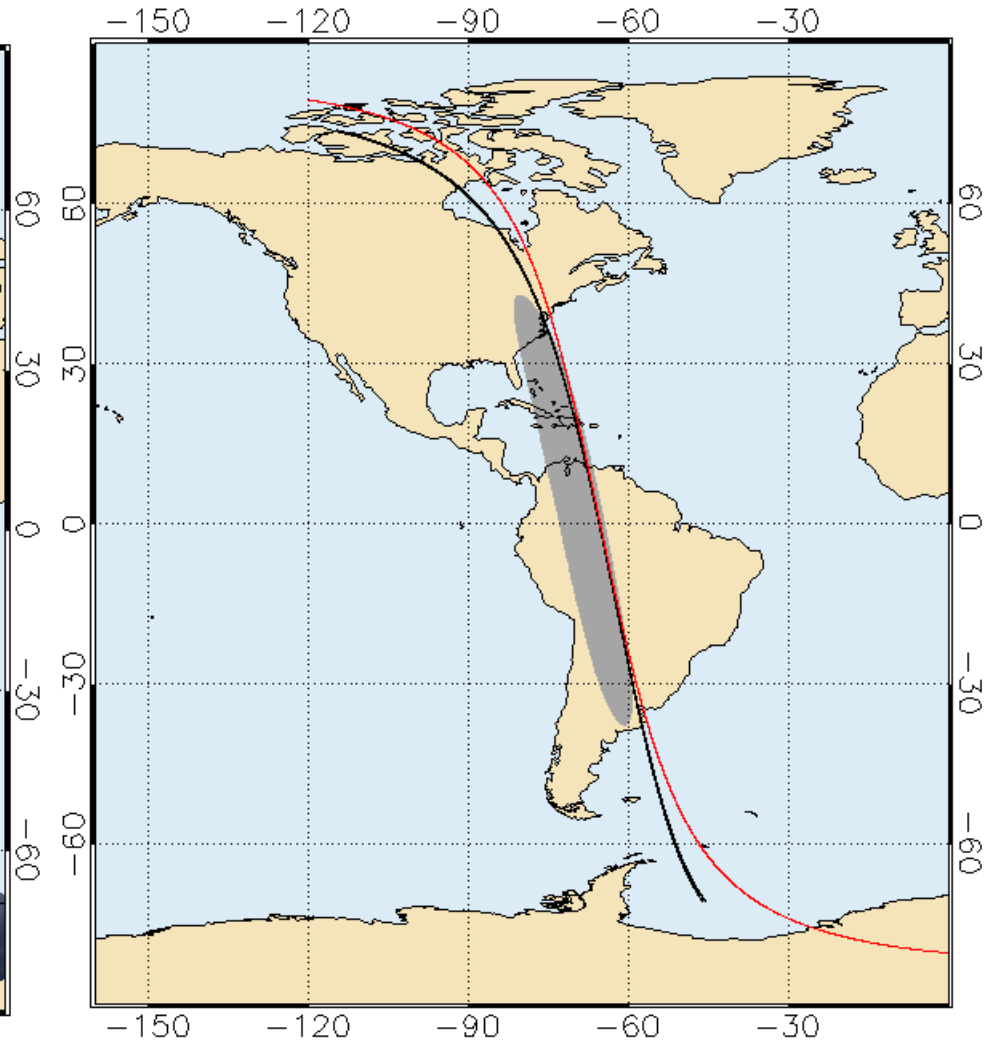




# Example: Co-locate MODIS/OCO-2



MODIS/Aqua,  
2010-09-24



MODIS/Aqua glint (grey ellipse), OCO  
glint swath (black thick line), MODIS/  
Aqua nadir (red line), 2010-09-24



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# Thank you.

Question? [Jennifer.C.Weil@nasa.gov](mailto:Jennifer.C.Weil@nasa.gov)