

AIRS Version 6 Processing Plan, Distribution Metrics, and Support at the GES DISC

Thomas Hearty (Thomas.Hearty@nasa.gov)

With contributions from

Bruce Vollmer, Mike Theobald, Andrey Savtchenko, Ed
Esfandiari, Feng Ding, Elaine Vadnais, Fan Fang, Chris
Lynnes, Guang-Dih Lei

Outline

- Version 5 and 6 Processing
- Distributions Metrics
- Status of Services

Version 5 Processing

- **Version 5 AIRS+AMSU** is now a static data set from 8/30/2002-2/28/2013.
- **Version 5 Level 2 IR-Only** is still being processed as input for the **AIRS CO₂ product** which is still Version 5
- Still processing **Version 5 Level 1B**
- **Updated Level 1B** from v5.0.0.0 to v5.0.21.0 on 1/21/2012 to account for channel properties and calibration properties files update.

Version 6 Level 2 and Level 3 Processing Schedule

- **AIRS+AMSU:** Forward stream processing and reprocessing of past data are underway:
 - Approximately 1 year/2.5 weeks
 - L3 lags L2 by a couple of data months
- **IR-Only:** Forward stream processing. Reprocessing of past data will begin when AIRS+AMSU reprocessing is complete.
- **AIRS+AMSU+HSB:** Reprocessing will begin when AIRS+AMSU and IR-Only are complete.

Version 6 Level 2 and Level 3 Processing Schedule

The status of what data are in the archive can be viewed by using the **projects** tab in Mirador (mirador.gsfc.nasa.gov):

The screenshot displays the NASA Earth Data website interface. At the top, there is a navigation bar with links for NASA Earth Data, Data Discovery, Data Centers, Community, Science Disciplines, and Search EOSDIS. Below this is the GES DISC logo and the text "Goddard Earth Sciences Data and Information Services Center". A search bar for "Search GES DISC" is visible, along with an "Advanced Search" link and a "Search" button.

The main navigation area includes tabs for "GES DISC Home", "Data Services", "Science Portals", and "Mission Portals". Below these are links for "Analyze Data with Giovanni", "Search for Data with Mirador", "Simple Subset Wizard", and "More...".

The "Mirador" section is titled "Data Access Made Simple". On the left, there is a sidebar with a menu containing: "+ OVERVIEW", "+ HELP CENTER", "+ DATA HOLDINGS", "+ VIEW CART", and "Additional Features" (with sub-items: "+ News", "+ Restricted Data", "+ Feedback", "+ FAQ").

The main content area shows the breadcrumb "You are here: [Keyword Search](#)". At the top right of this area, there are three tabs: "Keyword", "Projects" (which is circled in red), and "Science Areas". Below the tabs are search filters: "Keyword: Required", "Time Span:", "To:", "Location:", and "Update Map". A "Search GES-DISC" button is also present.

At the bottom, there is a world map with labels for "NORTH AMERICA", "SOUTH AMERICA", "EUROPE", "AFRICA", "ASIA", "AUSTRALIA", "Atlantic Ocean", "Indian Ocean", and "Pacific Ocean". A map control panel is visible on the left side of the map.

Version 6 Level 2 and Level 3 Processing Schedule

After a few clicks you can navigate to the AIRS+AMSU Version 6 Level 2 product table

Keyword Projects Science Areas

AIRX2RET.006 [info](#)
[Spatial and Temporal Search](#)

AIRS/Aqua Level 2 Standard physical retrieval (AIRS+AMSU)

Available Services:

- Download via HTTP

Note: The numbers refer to the number of files available from the archive for that month.

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 2002 | | | | | | | | | 240 | | | |
| 2003 | | | | | | | | | | | | 239 |
| 2004 | 4810 | | | | | | | | | | | |
| 2005 | | | | | | | | | | | | 239 |
| 2006 | 7435 | 6371 | | | | | | | | | | 239 |
| 2007 | 7404 | 6715 | 7414 | 7139 | 7407 | 7190 | 7394 | 7440 | 7197 | 7440 | 7153 | 7380 |
| 2008 | 7390 | 6955 | 7410 | 7144 | 7437 | 7193 | 7412 | 7436 | 7200 | 7409 | 7197 | 7401 |
| 2009 | 7432 | 6712 | 7323 | 7051 | 7435 | 7193 | 7432 | 7414 | 7189 | 7434 | 7127 | 7435 |
| 2010 | 3224 | 6713 | 7351 | 7164 | 7437 | 7193 | 7407 | 7437 | 7145 | 7433 | 7172 | 7436 |
| 2011 | 7390 | 6673 | 7342 | 7135 | 7437 | 7110 | 7429 | 7411 | 7163 | 7410 | 7150 | 7380 |
| 2012 | 7402 | 6954 | 7405 | 7135 | 7345 | 7154 | 7440 | 7407 | 7127 | 7434 | 7124 | 7412 |
| 2013 | 7394 | 6402 | 7371 | 6844 | 3638 | | | | | | | |

Version 6 NRT Processing

Same rules as for Version5 + 1 more are used to meet the 3 hour latency requirement for NRT processing

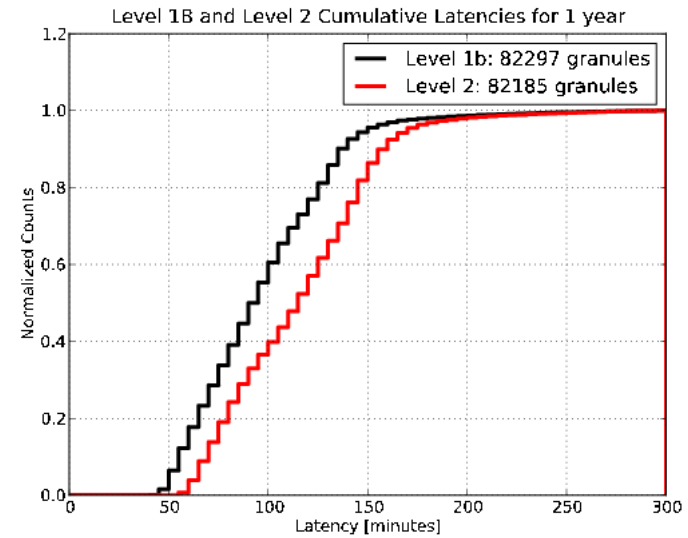
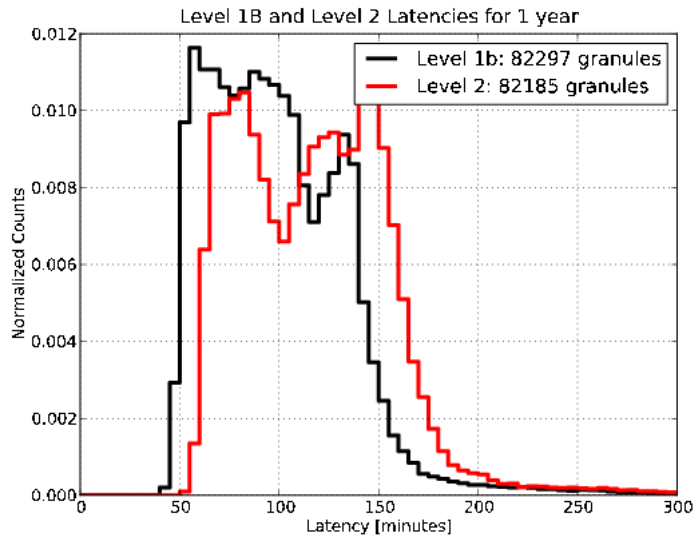
- Whether or not previous or subsequent granules are present
- Less accurate ephemeris/attitude data
- Whether or not the forecast surface pressure is present
- **Ice Cloud Properties retrievals are not performed**

Version 6 NRT Processing

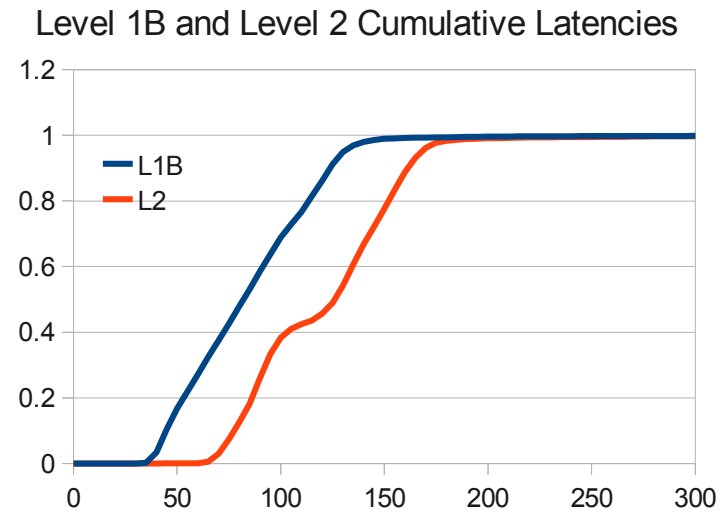
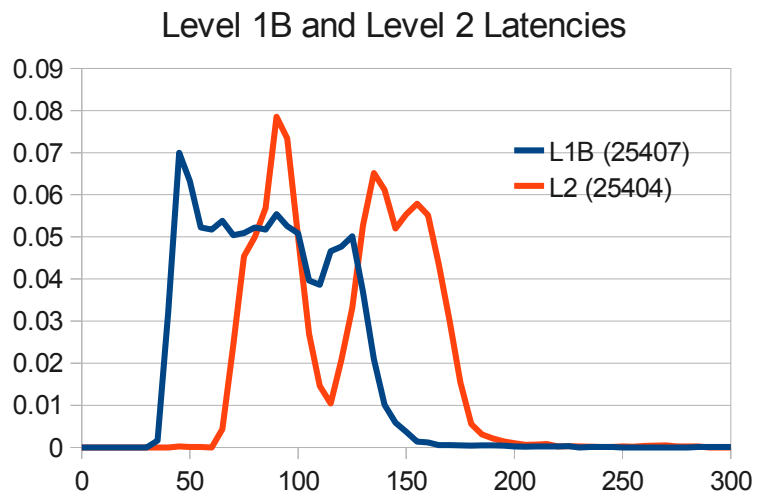
| | Version 5 | Version 6 |
|---|-------------|-------------|
| Level 2 granules available within 3 hours | 99.8% | 99.0% |
| Average Level 2 Latency | 100 minutes | 125 minutes |

NRT Latency

Version 5

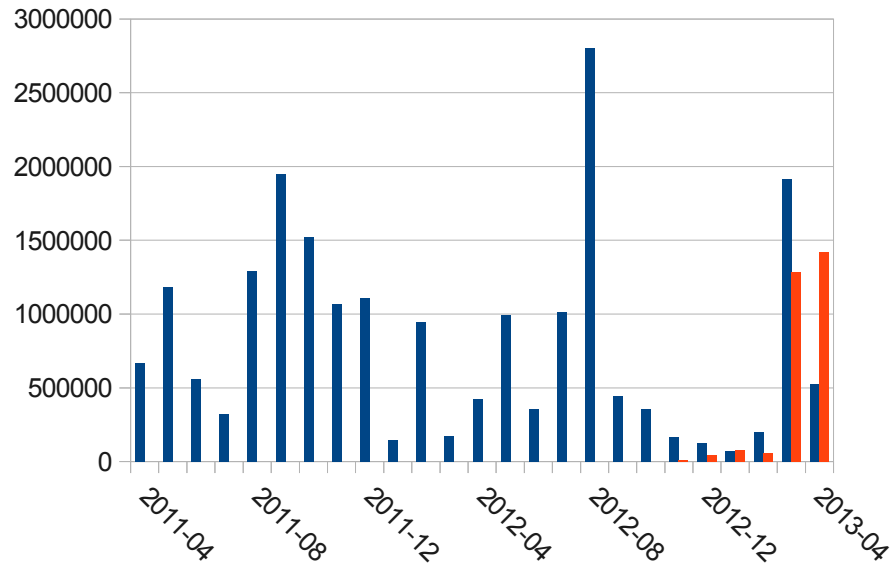


Version 6

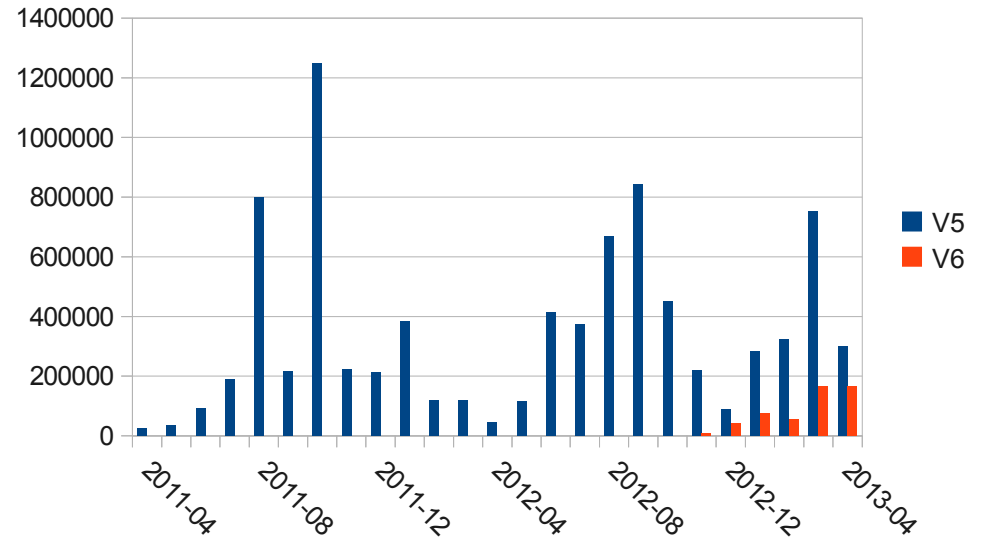


Version 6 Level 2 Distribution: Granules

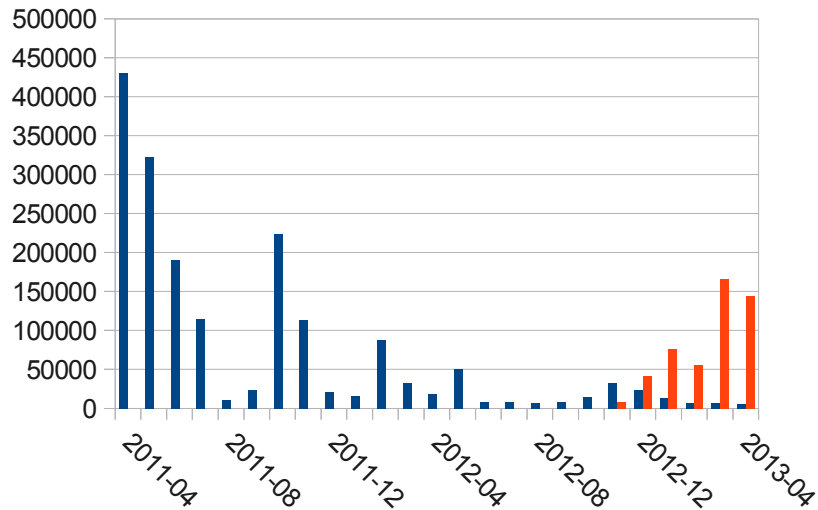
Number of Granules AIRX2RET



Number of Granules AIRX2SUP

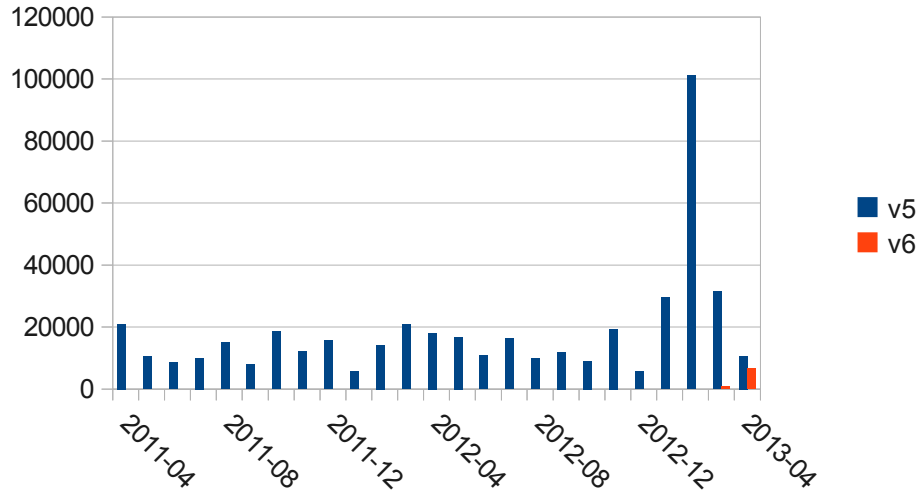


Number of Granules AIR2CCF

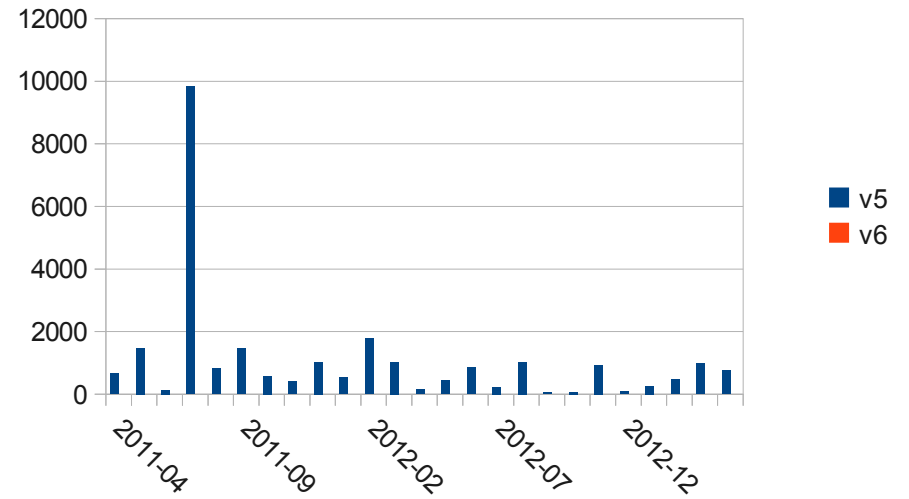


Version 6 Level 3 Distribution: Granules

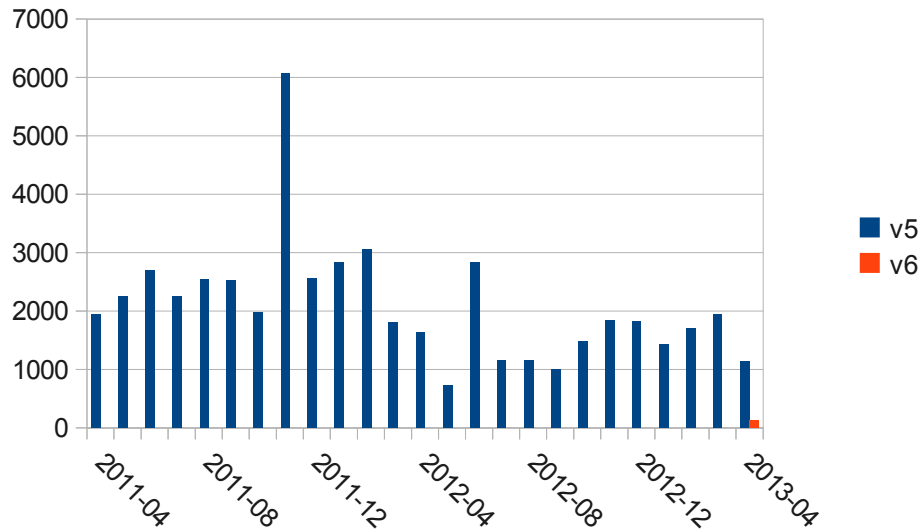
Granules AIRX3STD



Granules AIRX3ST8



Granules AIRX3STM



Data Services for AIRS Version 6

- **Mirador** spatial and time search, data discovery, and OpeNDAP
- **EOS Clearing House (ECHO)** V6 data is discoverable ECHO
- **Web Map Service (WMS)**
 - Version 6 NRT data.
 - Temperature and Relative humidity layers will be added.
 - Version 6 Level 3 WMS is still in development.
- **Granule Maps** are still built based on Level 1B data.

Data Services for AIRS Version 6

- **OPeNDAP** is working for Version 6
 - Need recommended longnames
 - Plans for Version 7 could include attributes for more CF compliance

For example:

```
short sea_surface_temperature(time, nj, ni);
    sea_surface_temperature:long_name = "sea surface skin temperature";
    sea_surface_temperature:standard_name = "sea_surface_skin_temperature";
    sea_surface_temperature:units = "kelvin";
    sea_surface_temperature:add_offset = 290.0;
    sea_surface_temperature:scale_factor = 1.0e-3;
    sea_surface_temperature:valid_min = -32767s;
    sea_surface_temperature:valid_max = 32767s;
    sea_surface_temperature:_FillValue = -32768s;
    sea_surface_temperature:coordinates = "lon lat";
    sea_surface_temperature:comment = "Skin temperature of the ocean";
```

Data Services for AIRS Version 6

- **Giovanni** Team is rolling out Version 4 of Giovanni aka “G4” or “Agile Giovanni”
 - AIRS Version 5 data will continue to be available in G3.
 - AIRS Version 6 data is being integrated now and will be added to G4 this summer in phases. The first phase includes the following variables:
 - **TotH2OVap_A & _D**
 - **SurfAirTemp_A & _D**
 - **OLR_A & _D**
 - **ClrOLR_A & _D**
 - **H2O_MMR_A & _D**
 - **Temperature_A & _D**
 - **RelHum_A & _D**
 - We plan to include a Version 6 climatology generated using AIRS Level 3 code to be used for calculating anomalies.

Data Services for AIRS Version 6

- **Data Quality Screening Service (DQSS)** is being tested for Version 6 and should be available soon.
- **Simple Subset Wizard (SSW)** is being tested for Version 6 and should be available soon.
- **Earth System Grid (ESG)** Plan is to have Version 6 data updated “live” (automated each month) into the ESG. Currently following the same methodology as described by Baijun Tian's Obs4MIPs work.

Summary

- Version 6 Reprocessing is underway (except for CO₂)
- Version 5 is now a static data set (except for IR-Only)
- People are using Version 6 data (except for the 8 day Level 3)
- The following services are available now
 - **Mirador, ECHO, WMS, Granule Maps, OpeNDAP**
- The following services will be available soon
 - **DQSS, Giovanni, SSW, ESG**
- Questions: Thomas.Hearty@nasa.gov