



National Aeronautics and  
Space Administration

**Jet Propulsion Laboratory**  
California Institute of Technology  
Pasadena, California

# AIRS Version 6 Update

**Steven Friedman**  
**Jet Propulsion Laboratory**

**November 13, 2012**

*This work was carried out at the Jet Propulsion Laboratory, California Institute of Technology under a contract with the National Aeronautics and Space Administration.*

*© 2012 California Institute of Technology. Government sponsorship acknowledged.*



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## Discussion Topics

- **V6 Product Development Status**
  - Level 1B
  - Level 2
  - Level 3
- **V6 Production Plans**
- **A Perspective on AIRS Data Users**



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

# AIRS Software Development Activities - Development Status

- **Version 6 development began on 2007-07-11 w/ V5.1.0.0**
  - More than 70 builds, 4 since last Science Team
  - Several test cycles
  - Current V6 development version is V6.0.7.0

**Announcing the  
V6 Level 2 Production Version!**



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## V6 Product Development Status

- **Current Status**

- Level 1B\* - no changes planned
- Level 1C - still a work in progress
- Level 2 - completed ...
  - Delivered to GES DISC...
  - Final integration testing at GES DISC...
  - Public release soon (January 2013)

\* Gain table uploaded to AIRS Instrument on January 21. Will necessitate delivery of new L1B Channel Properties to GES DISC and reprocessing of L1B since then.

- The remainder of V6 is still “Work in Progress”
  - Level 3 - nearly complete, delivery before end of year
  - Calibration Subset - early 2013 (format change)
  - Climate Subset -will be part of Calibration Subset
  - CO2 - under development, completion early 2013



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## Level 2 Development Status

- **Changes Since Spring 2012 Science Team:**
  - Final Re-leveling updates (layers-to-levels)
  - Minor improvements to methane and CO retrievals
  - Upgrades to convection parameters and cloud retrieval
  - Final QC
- **Extensive testing completed and documented**
- **Documentation:**
  - L2 User Guide (in progress)
  - L2 Test Report (completed)
  - File Specification Document



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## AIRS - V6 Level 2 Features

- **All planned key goals for V6 Level 2 PGE have been met:**
  - Improved QC and yield (supports climate studies, forecast models)
  - Better support for current/future AMSU channel degradation
  - Reduction of trends over time for many products
  - Improved retrieval quality near surface
  - Added new cloud properties retrieval
  - Added “level quantities” for many products
- **Other improvements / changes**
  - Linux upgrade - coordinated OPS environments at JPL and GSFC
  - Ozone, methane and surface retrieval



National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## Level 2 Processing - V6 Production Plans

- **Reprocessing: Two complete AIRS collections\*:**
  1. AIRS+AMSU (the “New” AIRS Classic - some spice removed)
  2. IR-Only (AIRS - hold the microwave)
    - AIRS+AMSU to be reprocessed first, before IR-Only
- **AIRS+AMSU+HSB - also reprocessed with V6 changes (through early February 2003)**
- **Forward Processing - AIRS+AMSU and IR-Only**
  - Processing will begin soon
  - Will be released with “Public Release”
- **NRT products will be derived from AIRS+AMSU**

\* Specific release details will be described in follow-up presentation by Thomas Hearty, GES DISC.



National Aeronautics and  
Space Administration

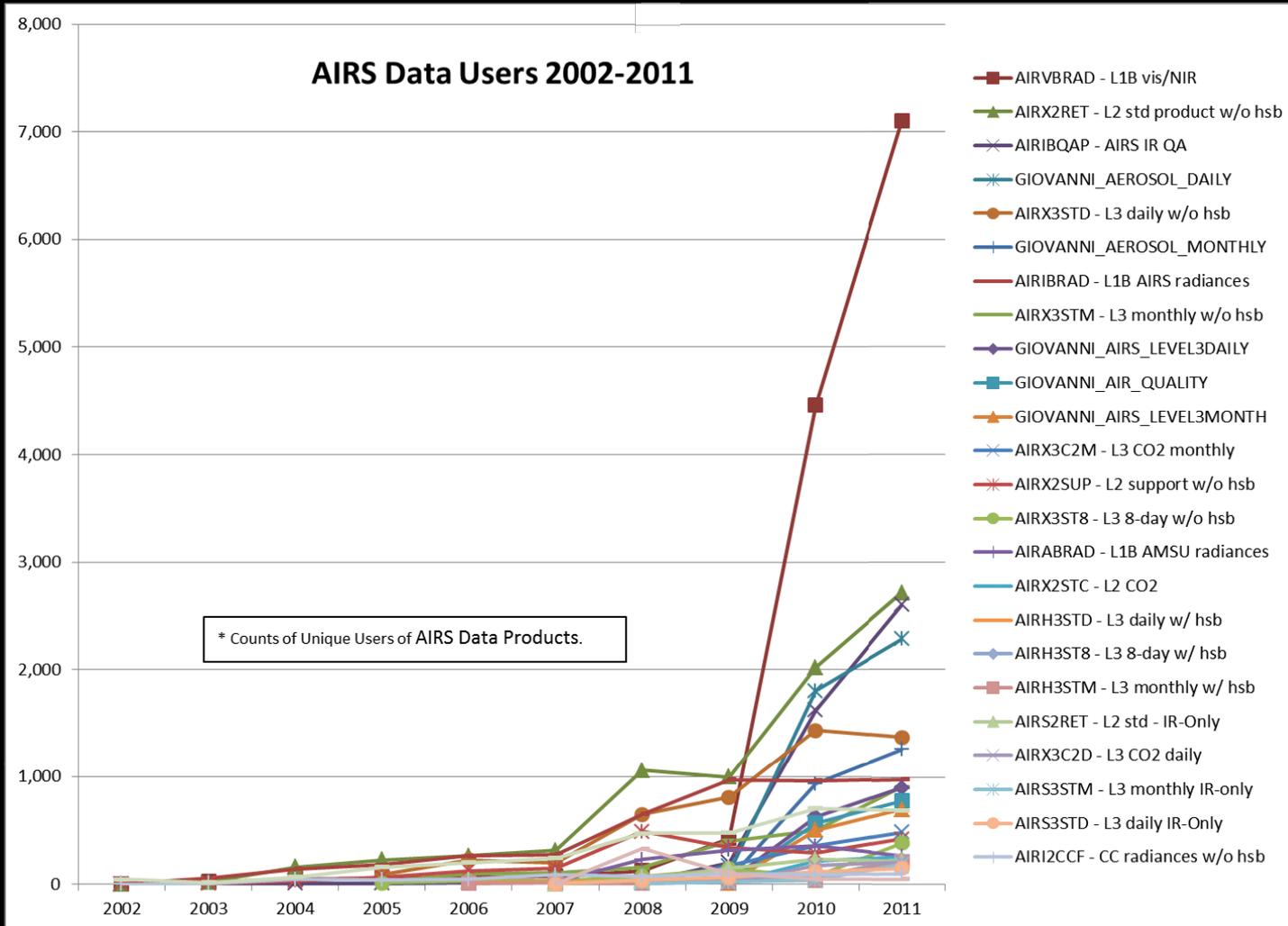
Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## Who Orders AIRS Data?

- **GES DISC maintains statistics on data accesses and orders.**
- **Specific users cannot be culled out or identified.**
- **The records is not fully revealing of who orders our data.**
- **But, we can learn something about who our customers are.**
  
- **The following charts describe AIRS orders at GES DISC from 2002 - 2011.**

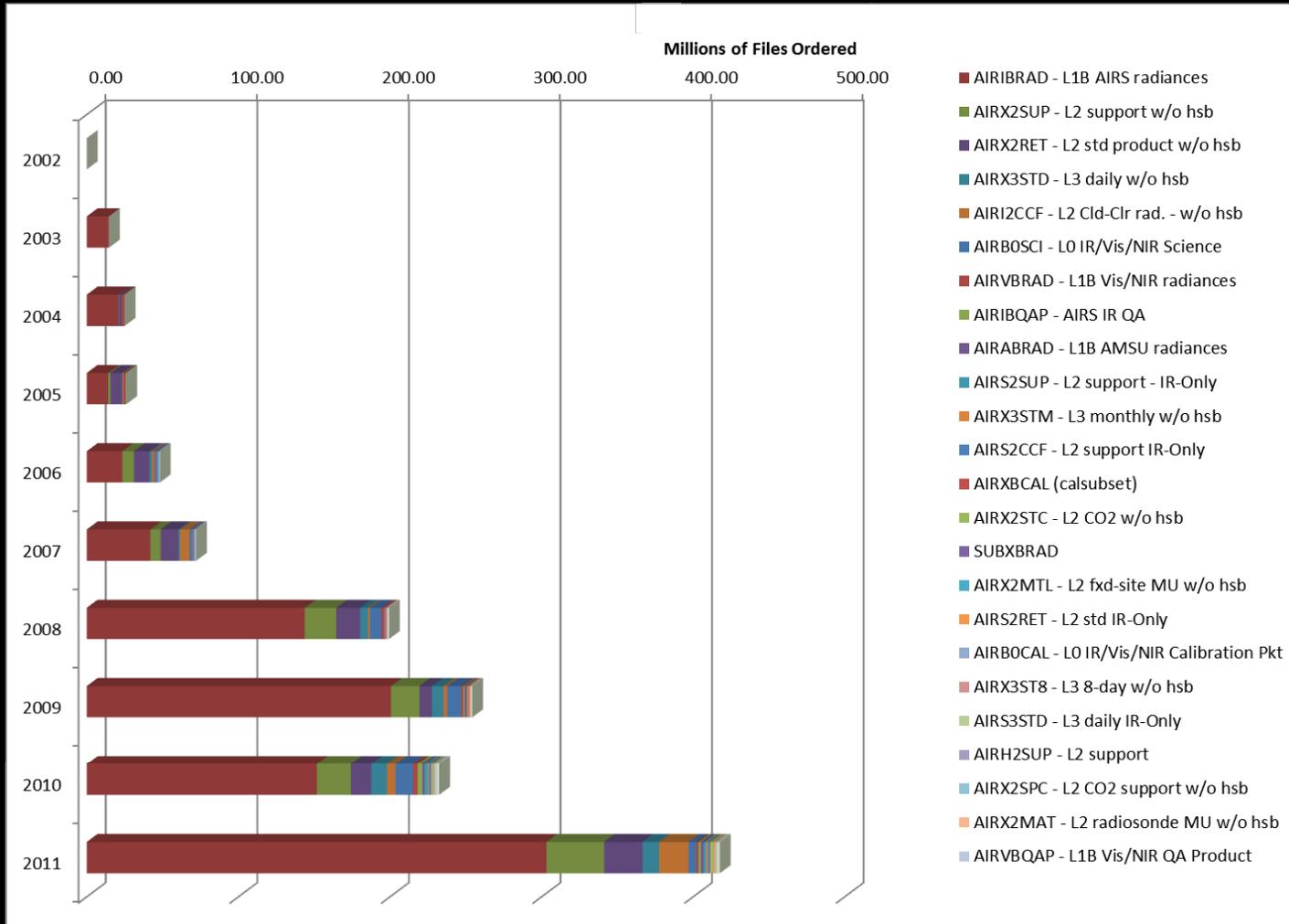


# Number of Unique Data Users



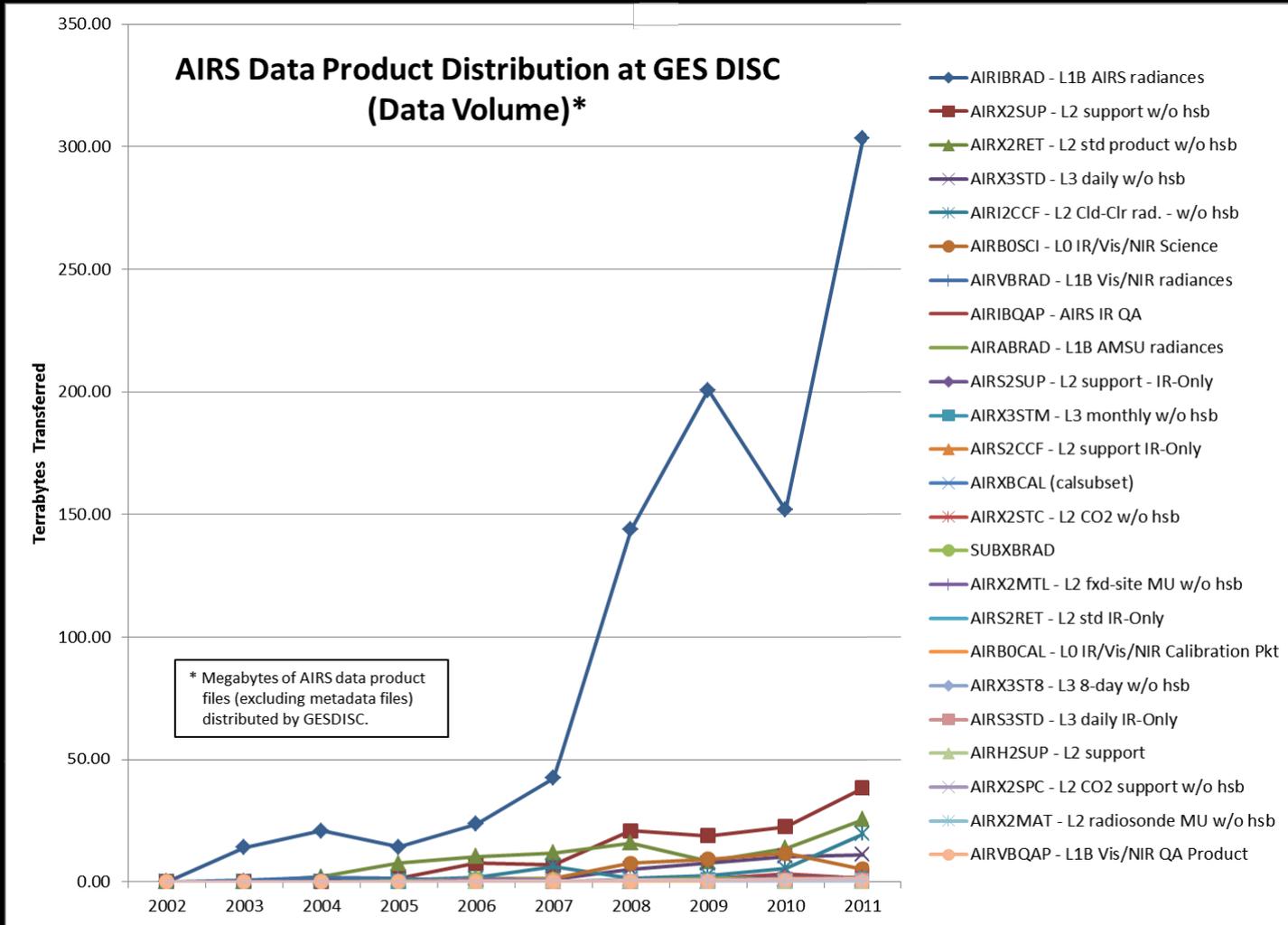


# AIRS Files Ordered at GES DISC (Millions of Files Ordered)



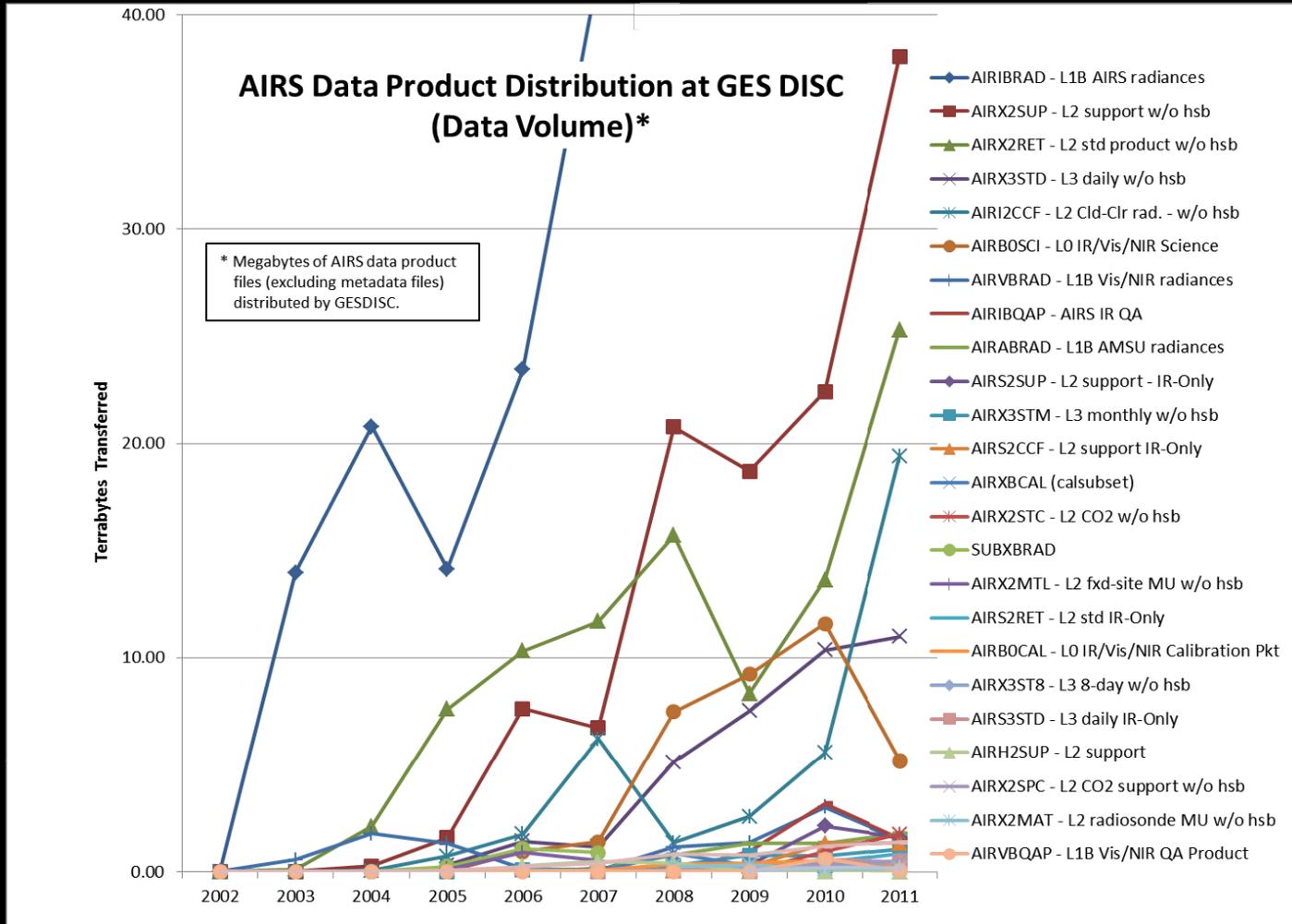


# Volume of Data Ordered





# Looking Beyond Radiance Files

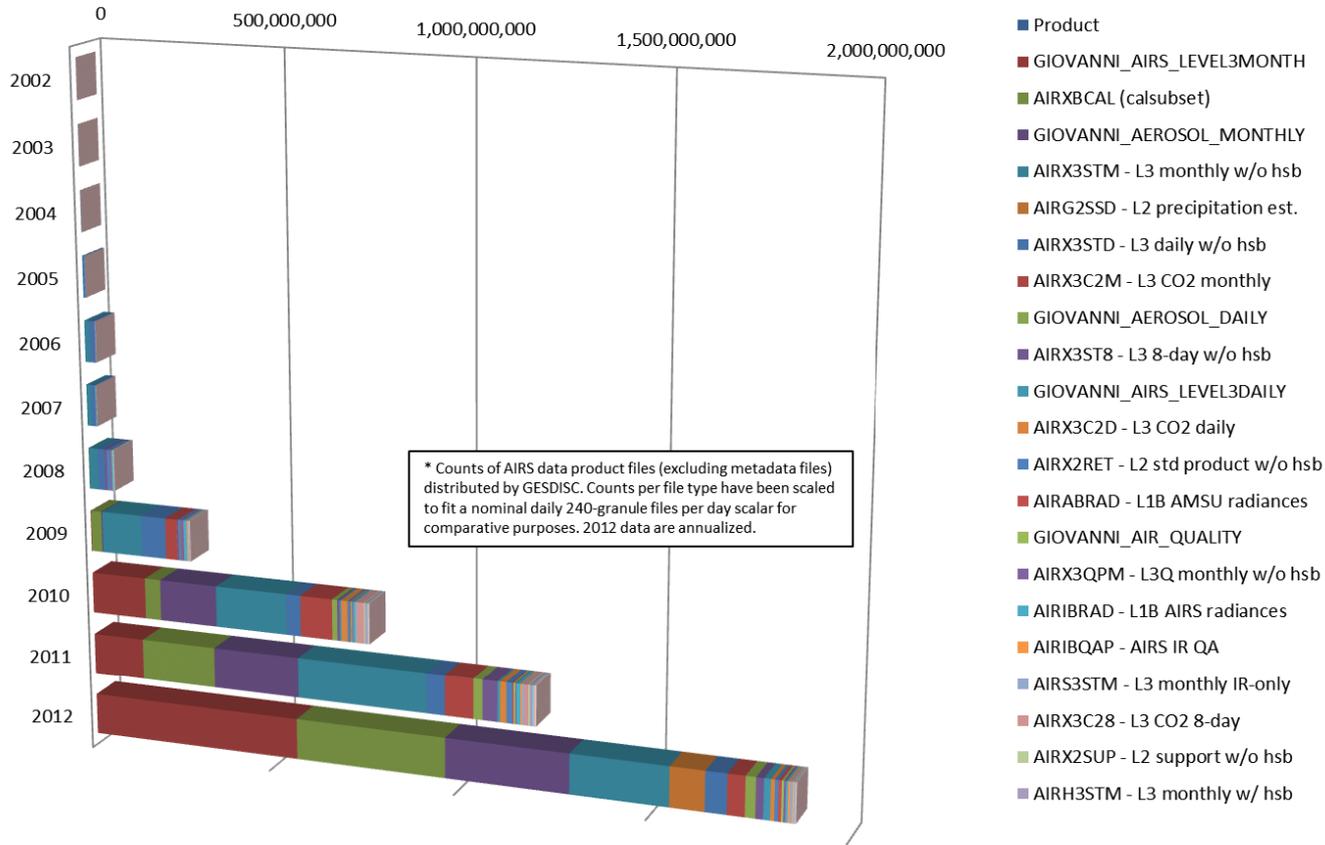




# AIRS Product Distribution

## \*Scale Normalized

**AIRS Data Product Distribution at GES DISC  
 (File Counts)\***





National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

## Who are AIRS Users

- **AIRS users order AIRS L1B files more than any other**
- **Beginning in 2008**
  - The amount of data being ordered increased substantially
  - The number of unique AIRS customers also increased
- **The use of AIRS Level 3 products is also increasing, both by:**
  - Direct file orders
  - Via Giovanni
- **Perhaps AIRS Level 3 products are increasingly being looked at for climate-related studies?**