AMSRE SIPS Processing Status

Aqua AMSR-E - 89H Brightness Temperature Descending passes

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Image provided by Matt Smith
Outline

• What’s New at the SIPS
• Data Flow Review
• Processing Status
• New System Configuration Update
• Recertification and Reprocessing
What’s New

• Several ESDT Version Collection 2 (Validated and Transitional) Algorithms are in production at the SIPS
  - The full Level-2A brightness temperatures dataset has been transferred
    • to the GHCC in preparation for reprocessing the Level-2B and Level-3 products
    • to the DAAC for distribution to the public
  - Forward processing
    • Level-2A since August 2, 2006,
    • Level-2B Rain since November 13, 2006,
    • Level-2B Land since April 20, 2007, and
    • Level-2B Ocean since May 9, 2007
  - Expecting Level-3 Ocean soon
Forward Processing

- Routine forward processing is running very smoothly
  - *automated to run 24 x 7, unattended*
- Nominal near real time ingest of the L2A files at GHCC ranges typically from 10-12 hours after observation
- Routinely dealing with the occasional straggler or replacement Level-2A files, which requires
  - *regeneration of the composite products*,
  - *replacement files being sent to the DAAC for archive*
Algorithm Versions and Product Maturity Codes

<table>
<thead>
<tr>
<th>Algorithm Short Name</th>
<th>Current Versions (August 2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2A Tb</td>
<td>V08</td>
</tr>
<tr>
<td>L2B Land</td>
<td>T06</td>
</tr>
<tr>
<td>L2B Ocean</td>
<td>V05</td>
</tr>
<tr>
<td>L2B Rain</td>
<td>V09</td>
</tr>
<tr>
<td>L3 Land</td>
<td>B03</td>
</tr>
<tr>
<td>L3 Ocean</td>
<td>B02</td>
</tr>
<tr>
<td>L3 Rain</td>
<td>B05</td>
</tr>
<tr>
<td>L3 Sea Ice</td>
<td>B06</td>
</tr>
<tr>
<td>L3 Snow</td>
<td>B06</td>
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</tbody>
</table>

Product Maturity Codes
B=beta   T=transitional   V=validated
SIPS-GHCC Hardware Operational Configuration

**SGI Origin 2100**
- 4 x 350Mhz Processors
- 2GB RAM

**Melody**
- Used for:
  - Reprocessing
  - Special Processing
  - Development
  - Integration & test

**SGI Origin 2100**
- 4 x 250Mhz Processors
- 2GB RAM

**Ariel**
- Used for:
  - Routine processing
  - Late L2A processing

**2 TB RAID file system**

- On line storage of most recent six weeks of Level-2 and Level-3 daily products for
  - transfer to DAAC
  - science team quality control

**Restricted FTP Server**

**Network File System Interface**

**Fibre Channel Interface**

*AMSRR-E Joint Science Team Meeting*
SIPS-GHCC Hardware Planned Configuration

Forward Processing

Dell PowerEdge 2850
2 x 3.4 GHz Processors
4 GB RAM, RHEL 4

Reprocessing 1

Reprocessing 2

Development, Integration & Test

NASA Network (100 Mb/sec)

Dell EMC CX300 Storage Area Network Array

8 TB

2 GB/sec Fibre Channel Switch

Near line storage of all Level-2A and most recent Level-2B & Level-3

Restricted FTP Server

NASA Network (100 Mb/sec)
New System Status

- Hardware configuration is complete
  - added disks to the Storage Attached Network (SAN) to hold Level-2A through 2010

- Software configuration
  - evaluating upgrade to Red Hat Enterprise Linux 5; preliminary tests show no difference in product generation
  - processing automation scripts are being ported to Linux as Linux science algorithms are received from the SCF
## Software Architecture (Routine Processing)

<table>
<thead>
<tr>
<th>Level-2A Brightness Temperatures</th>
<th>Near Real Time Ingest from RSS</th>
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<tbody>
<tr>
<td><img src="image" alt="Schema Diagram" /></td>
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</tbody>
</table>

### Level-2A Brightness Temperatures (with Metadata and QA files)

- L2B Ocean (1/2-orbit)
- L2B Rain (1/2-orbit)
- L2B Land (1/2-orbit)

### Product Generation Scheduling

- Once per day
- Once every five days
- Once per week
- Once per month
New System Certification

• SIPS Internal
  - *SIPS-generated science products are verified against SCF-generated products*
  - *subsets and browse are verified by SIPS*

• External interface testing
  - *fastcopy software verifies Level-2A file transfers from RSS to GHCC*
  - *ECS and SIPS PAN-handler software verifies transfers from GHCC to NSIDC*
## Expected Recertification Timeline

<table>
<thead>
<tr>
<th>Activity</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
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</thead>
<tbody>
<tr>
<td>Systems upgraded to RHEL 5 AND All Level-2 delivered algorithm packages at SIPS</td>
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<tr>
<td>Port and test automation scripts</td>
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<tr>
<td>Verify products (science, metadata, qa, browse, subsets, production history)</td>
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<tr>
<td>Configuration Management, propagation to all processing environments and testing</td>
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<tr>
<td>External Interface Testing (RSS and NSIDC)</td>
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<tr>
<td>Level-2B Reprocessing</td>
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</tbody>
</table>

*Level-3 algorithms can be integrated and certified as they become available, following a similar process.*
First Reprocessing

• Plan to begin reprocessing the standard products this fall, from the beginning of the mission
  - using validated (V08) Level-2A files generated at RSS
  - using updated versions of Level-2B algorithms and the Level-3 algorithms as soon as they are available.
  - product maturity will be either validated or transitional

• The reprocessed data will be available to the science and validation teams on Ariel and for public distribution at the NSIDC DAAC.
Backup Charts

- Products Retention Plan
- Production Hardware Status
SIPS-GHCC
Products Retention Plan

• Current:
  - All Level-2 and Level-3 daily science files are kept on line for approximately 60 days, for science team QC and to facilitate product regeneration due to late arriving L2A files
  - The 5-day, weekly and monthly science files are kept on line for approximately 6 months

• Future: Same as above, plus all latest version Level-2A files will be kept on the SAN to facilitate reprocessing.
• SIPS-GHCC processing servers were procured in 1999 (Ariel) and 2000 (Melody)
  - *SGI stopped manufacturing the Origin 2000 class of server* on June 30, 2002
  - *SGI will continue to support these systems through June 30, 2007* (also known as “end of life”)

• SIPS production systems must be under hardware maintenance plan
  - *implementing a plan to replace this hardware without impact to ongoing operations.*