Data Systems Working Group Report

Paul Wagner
September 15, 2011
Aura Science Meeting - Data System Working Group
Helsinki, Finland
Jet Propulsion Laboratory
California Institute of Technology
Topics

• Instrument Team Ground Data System Reports
  – TES (Doug Shepherd)
  – HIRDLS (Vince Dean)
  – MLS (Paul Wagner)
  – OMI (Jacques Claas)

• Aura HDF-EOS Guidelines

• GES DISC Report (James Johnson)

• ESDIS Report (Jeff Walter)

• Toolkit, HDF-EOS

• Archiving Issues with Aura Data (John Moses)
TES

- Software is at Release 12.1 Version 5
  - Started reprocessing in August
  - Added Instantaneous Radiative Kernel (IRK) product for ozone
  - All Band Retrieval (BAR)
  - Added nitrous oxide
  - Data supporting a planned joint TES-MLS CO product being written to TES database
- Prototype developed and being exercised for joint TES-MLS CO product
- Release 12.2 will read GEOS-5.7.2 data in netcdf4/hdf5 format
- Release 13 will
  - Create joint TES-MLS CO and TES-OMI products
  - New methanol and formic acid products
  - New “Lite” products for HDO, methanol, ammonia
HIRDLS

• Software at version 6
  – 5 product files, including 2 zonal averages and 2 grids
  – New joint HIRDLS/MLS IWC level 3 product
  – Continued improvements in correcting for obstruction

• Implementing Scientific Linux 6

• Hardware upgrade switching from SGI to 64-core AMD Opteron for main production
  – More power at less expense
  – Savings on cooling, electrical usage

• Installed and tested 1402 different software configurations since launch, mainly to test algorithms for correcting obstruction

• Will be arranging to deliver final versions of documentation, algorithms, records, for smooth handoff and preservation
MLS

• Near-real time products delivered in under 3 hours
  – L1/2 products delivered to SCF and GES-DISC
• Standard processing continues with 2 versions
  – V2.24, upgraded to for compatibility with “B”-side scan table
  – V3.33, the newer algorithm, also upgraded for “B”-side compatibility
• V3.40 should replace V3.33 before GMAO 5.20 ends; it will use GMAO 5.7.2 netcdf4/hdf5
• THz level 1 radiances and standard OH level 2 products resumed production for temporary period August 15 – September 15, 2011
• V4.00 will be next major release, more than a year away
  – Eliminate problems with V3 products
• Near-real time improvements planned
  – Improve quality, add new products, but no added delay
OMI

- Standard products currently at Data Collection 3
- Some data also available on the OMI very fast delivery (VFD)
  - Less than 15 minute delay
  - Including level 2 volcanic and ozone
- Near-real time also available on LANCE, TEMIS
- Row anomaly not currently corrected during processing
  - Affected ground pixels identified using flags
  - If requested daily correction parameters will be supplied
  - Changes to affected ground pixels will be noted—the dates processed with outdated flags will be post-processed in level 1, and reprocessed in level 2 and above
- No plans currently to implement correction parameters
Aura HDF-EOS Guidelines

- Result of careful consensus reached among all 4 Aura teams
- Cheryl Craig achieved this by hard work and exceptional skill
- The document will be subject to continued revision by its named authors, but the only copy will be hosted on an ESDIS server
- Links on teams’ own web pages should point to the unique copy
- Main point is to avoid multiple, conflicting versions
- After Aura mission ends responsibility for document will be transferred like final documentation, algorithms
GES DISC Report

- Added 4 new HIRDLS v6 products
- Added new joint HIRDLS-MES IWC product
- Arranged to deliver subsetted GEOS 5.7.2 products to MLS and TES
- Replacing outmoded WIST distribution service with faster and easier-to-use Reverb
- Continuing to offer ftp, Giovanni, Mirador, SSW, OpenDAP, OpenGIS WMS, OpenGIS WCS
- ACP in beta between NASA and DLR
ESDIS report

- Delivers 274 Aura products to 5606 users at an average daily rate of 213.5 GB
- Maintains LANCE for near-real time availability of products from MODIS, OMI, AIRS, MLS, and AMSR-E
- Rolling out Reverb to replace WIST with better features
- Moving to support the metadata format ISO 19115 in ECHO and its Reverb client
- Consolidating ESDIS-supported sites into a single website powered by a Content Management System and a uniform menu appearing as a “Top Hat” at all Data Centers
Toolkit and HDF-EOS

- SDP Toolkit: Complete Science Processing Data Tools for SIPS, DAAC
- MTD Toolkit: a minimal subset of SDP Toolkit
- HDF-EOS 2 and HDF-EOS 5: higher data types based on hdf and hdf5
- HDFView plugin for HDF-EOS
- Supported on
  - Solaris 10, 32-bit and 64-bit Linux, PowerPC and Intel MacOS, Cygwin, and newer Windows
  - Fortran 77, 9x, g77, pgf90, Intel ifc, gfortran, c, c++, gcc,g++
- Current version is 5.2.17
  - Improves on writing XML-formatted metadata writing by fixing bugs and enabling browsers to display the metadata
Archiving Aura Data

- ESDIS Data Centers will hold and distribute data while it is in active use or production
- Problem is how to ensure data remains useable and understandable afterwards—what critical information would be needed
- Identify that information and knowledge early, but too early, and arrange for its smooth handoff at end of mission
- Checklist approach: show items delivered, still due
- ISO Metadata Standard 19115 provides guidance for interoperability
- Long-Term Data Preservation Documents
- Persistent Data Identifiers and Digital Object Identifiers cope with Relocating data archives