The Aura Validation Data Center (AVDC)

C. Retscher (UMBC/GEST, NASA/GSFC)

Outline

- Overview
- Cal/Val support
- Validation data centers

Overview

AVDC Mission

The Aura Validation Data Center (AVDC) was established in 2004 to support the platform-wide validation activities (airborne missions, ground-based, balloons, other satellites) of the four Aura instruments (HIRDLS, MLS, OMI, TES)

AVDC supports the Aura instrument teams, NRA PIs (Aura and other), NASA campaigns, ESA PIs, NDACC PIs, and independent validation contributors, in the validation and improvement of Aura data products

AVDC Status

- Access AVDC at: http://avdc.gsfc.nasa.gov
- Operational since February 2005
- AVE campaign support and L2 sub-setting began in the Fall 2004
- Currently 350+ registered users
- ~9 TB downloads in last year
- Total correlative data volume:
  - *~500 GB*
  - *correlative satellite datasets: ~6 TB*

AVDC Datasets

- Mirror all Aura L2 data from DISC
- Host preliminary, experimental and complimentary satellite datasets:
  - *Aura preliminary and test datasets*
    - Tropospheric ozone residual
    - L3 datasets (OMNO2 0.25 x 0.25 and 0.05 x 0.05 deg)
  - *AIRS, Scisat ACE*
  - *NOAA 16-18 SBUV v8 profiles*
  - *Envisat GOMOS, MIPAS, SCIAMACHY (+CO2)*
  - *MetOp GOME2 (O3, NO2, SO2)*
- Maintain campaign archives (many related to Aura)
  - *SAUNA (1&2), WAVES, TMF NO2 campaign, ARCTAS*
  - *Mirror aircraft/large balloon missions*

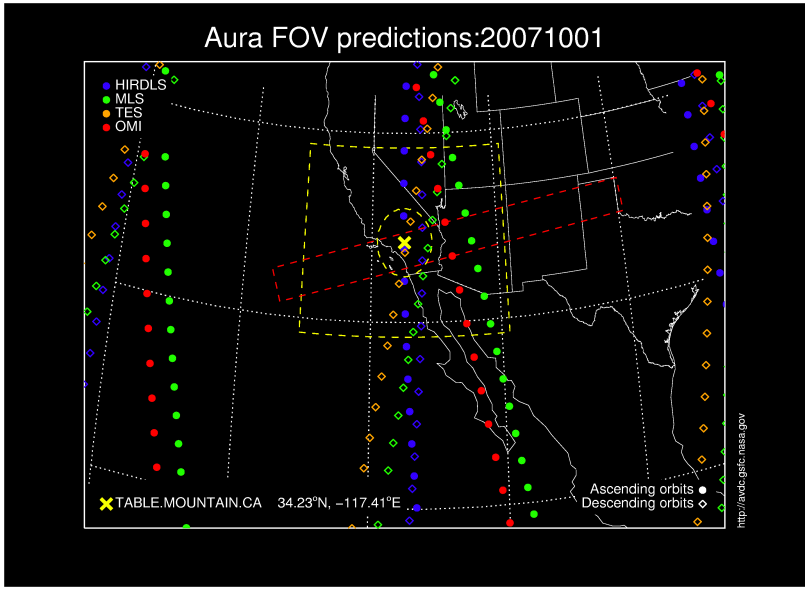
Cal/val support

L2/L3 subsets & colocation

- Sub-setting is updated as Aura L2 data becomes available:
  - *All OMI products (HDF5 and ASCII)*
    - O3: 570 sites
    - Aerosol: 328 sites, including all current Aeronet sites
    - NO2: 609 sites
    - UV: 174 sites
    - SO2: 165 sites
  - *MLS, HIRDLS and TES*
    - O3, T, H2O at NDACC sites and other key profiling stations
- *Subsetting of non-Aura data*
  - MODIS, GOME2, Envisat
- Campaign and regional sub-setting on request

Satellite instrument field of views (FOV)

- Aura FOVs
  - *Predictions in support of PIs and campaigns*
  - *16-day Aura instrument FOV predictions for stations and campaigns (updated daily)*
  - *Actual FOVs*
  - *Actual coincidences and global collocations for temporal and geographic search*
- Generation of FOV for other instruments
  - *Aqua, Terra, CALIPSO, Cloudsat and Envisat for campaigns*
  - *others instruments are easily added*



Cal/Val support

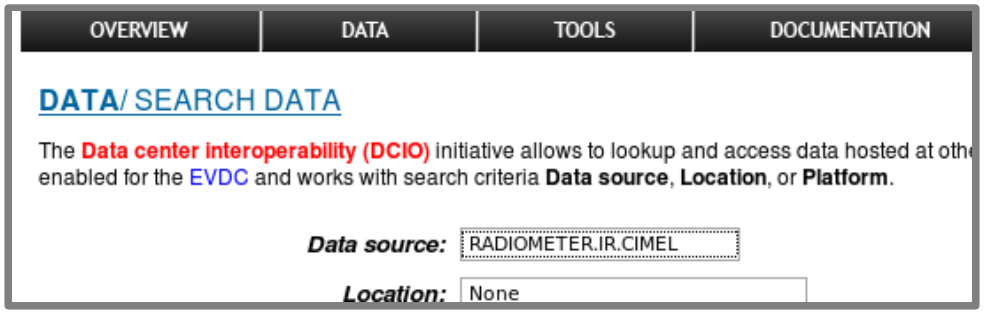
- Direct PI support
  - *Mainly in sub-setting and data conversion*
- Campaign support
  - *CINDI, MOHAVE, GloPac, ...*
- Tools and documentation on-line
  - *Generic Earth Observation Metadata Standard (GEOMS)*
  - *Creation of HDF datasets*
  - *NDACC AMES formatted data conversion into AVDC/EVDC*
  - *Download tools*
  - *Aura ST and WG documentation and presentations*

Validation data centers

Data center interoperability (DCIO)

Data Centers with correlative observations use a single data format

- AVDC
- EVDC (CALVAL, Envisat)
- NDACC
- several EC Campaigns



Maintenance of Generic Earth Observation Metadata Standard (GEOMS)

Interoperable data centers through enabling remote query, catalog replication, data ordering and/or systematic mirroring

Joint data exchange protocol and single sign on in preparation

GECA mission

Generic Environment for Cal/Val Analysis (GECA) project aims at delivery of

- *Expanded harmonized metadata*
- *Study of standards supporting interoperability between validation data centers*
- *A validation data center implementing these standards, also interoperable standards for satellite data archives*
- *Open-source data conversion tools*
- *Open-source building blocks (libraries) for collocation algorithms (both for the users local use and for the GECA server*

GECA main components

- GECA Validation Data Centre (GVDC) and end-user analysis toolboxes
  - *Allow Cal/Val analysts and Campaign Coordinators to*
    - Coordinate cal/val activities
    - Identify collocations and retrieve correlative data files
    - Analyze correlative data files and satellite data files using proven and traceable cal/val analysis techniques

- Quality Information and Action Protocol (QAIP)
  - *Identification and investigation of data quality issues*
  - *Investigators to submit or query quality information*

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