



AeroStat: NASA Giovanni Tool for Statistical Intercomparison of Aerosols

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Motivation:

- Different papers suggested different views on the quality of MODIS and MISR aerosol products.
- Peer-reviewed papers are usually behind the latest version of the data.
- Difficult to verify/reproduce results from various published paper
- Difficult to combine consistently adjusted measurements
- In need of an online shareable environment where data processing and analysis can be done in a transparent way by any user of this environment and can be shared amongst all the members of the aerosol community.

Goals:

- Provide an easy-to-use collaborative environment for exploring aerosol phenomena using multi-sensor data
- Provide consistent services with multi-sensor aerosol data
- Provide a transparent environment to collocation and comparison methods with detail documentation
- Provide easy sharing of results

AeroStat Data Are Derived from Level 2 Measurements

- Original Level 2 Product: AERONET, MODIS Terra, MODIS Aqua, MISR
- Derived Products:
 - Satellite Colocated with AERONET stations: MAPSS Database
 - Cross Satellite Colocations: Near Neighbor Search

Flowchart of Bias Adjustment using Neural Network (Details in Poster A53C-0371)

AeroStat Giovanni Online Services

Select Service

- Time Series - Multiple Y-variables vs Time
- Scatter Plot - Multiple Y-variables vs the same X-variable
- Satellite Only
- Lat-Lon Map - Map of daily data
- Merge Lat-Lon Map - Merged Map of daily data

Time Series

Scatter Plot

Lat-Lon Map

How does Giovanni-Social work? (Details in Oral IN33E-05 at 2:40 – 2:55 pm Wednesday)

Step1: Create an account on <http://social.ecs.nasa.gov>

Step2: Share/Save your Giovanni results from <http://giovanni.gsfc.nasa.gov/aerostat/>

Example of Giovanni-Social work via sharing:

Data Quality Filters

Default: Science Team Recommendation

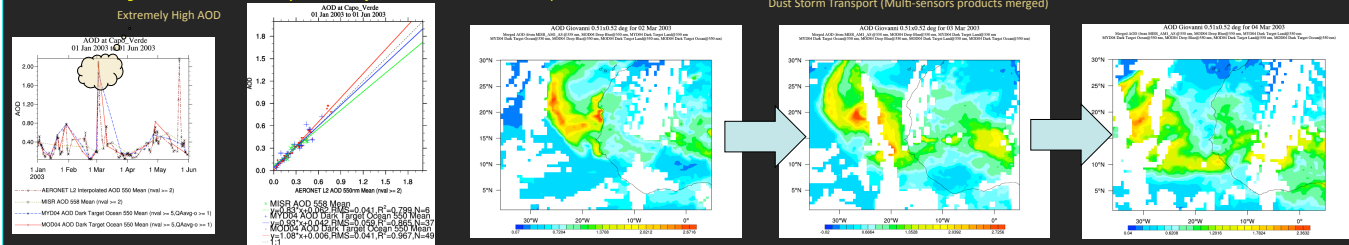
Threshold

Data Merge: Satellite Data Only (Max. 10 Days Period)

Max. bounding box is 50 degrees

Allow up to 8 variables (including QA options)

Case Study: Dust Storm Episode (March 1 ~ 5, 2003)



Down the Road:

- Add/integrate bias adjustment for MISR collocated with AERONET data
- Add/integrate bias adjustment for "Satellite Only" service
- Routinely process and ingest of collocated satellite and AERONET data
- Fold AeroStat Giovanni into main stream Giovanni
- Add new Giovanni features and services to AeroStat where applicable