

Introduction to Giovanni

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A Short History of Giovanni

2002: Yoram Kaufman [NASA's Goddard Space Flight Center (GSFC)—Atmospheric Scientist] and Gregory Leptoukh [GES DISC—Data Manager] began collaborating on a new way to visualize and analyze Earth science data.

GOAL: Create a system that would exploit the capabilities of data browsers and the World Wide Web.

The first Giovanni-like systems operated on data from the Moderate Resolution Imaging Spectroradiometer (MODIS) onboard NASA's Terra and Aqua missions, and Tropical Rainfall Measuring Mission (TRMM) data.

2004-2007: The first Giovanni incorporated those data sets, and added ocean color data from the Sea-Viewing Wide Field-of-view Sensor (SeaWiFS), and heritage atmospheric chemistry data from TOMS, MLS, and HALOE.

Basic analysis options in the first Giovanni:

- data mapping,
- regional subsetting
- time-series generation
- data averaging over specified time periods
- x-y scatter plots
- Hovmöller plots
- animations of consecutive time periods.

Visualization options:

- different color palettes;
- user-specified color palette ranges.

In the late 2000s: Giovanni-3

Rather than relying on off-the-shelf software (such as GrADS and IDL), Giovanni-3 was home-built, emulating the capabilities of these software packages. This allowed greater control and understanding of Giovanni analyses.

Data portals were constructed for the Atmospheric Infrared Sounder (AIRS) onboard Aqua, Ozone Measuring Instrument (OMI) onboard the EOS Aura, for the Global and North American Land Data Assimilation Systems (GLDAS and NLDAS respectively), and the Modern-era Retrospective Analysis for Research and Applications (MERRA). Existing data portals were augmented with additional data from other instruments, such as MODIS-Aqua ocean color data standard and research products.

Now: the current Giovanni (formerly known as Giovanni-4)

Features:

Unified data portal – all data searchable in one interface, allowing greater multidisciplinary analysis capability

Remote data service – can serve data from other archives, using OPeNDAP

Flexibility – all analysis capabilities applicable to all data sets

& open architecture, faster performance, new analysis capabilities

What Data Are Available Now in Giovanni?

- MODIS atmospheric data – clouds, water vapor, aerosols
- OMI data – atmospheric chemistry, ozone
- NLDAS, GLDAS data – primarily hydrological variables from assimilation models
- MERRA-2 – meteorological reanalysis data
- *Ocean Color from MODIS, SeaWiFS, OCTS; SST from MODIS
- TRMM and Global Precipitation Measurement (GPM) Precipitation Data
- Atmospheric Infrared Sounder (AIRS) data
- Aquarius salinity and wind data
- & many heritage data sets from earlier missions

* Selected variables

So to get started: giovanni.gsfc.nasa.gov

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OMI is up and running normally... [1 of 4 messages] [Read More](#)

Select Plot

Maps: Time Averaged Map Comparisons: *Select...* Time Series: *Select...* Vertical: *Select...* Miscellaneous: *Select...*

Select Date Range (UTC) **Select Region (Bounding Box or Shapefile)**

YYYY-MM-DD. HH:mm
- - - 00 : 00 to - - - 23 : 59
Format: West, South, East, North
-180, -90, 180, 90

Valid Range: 1948-01-01 to 2016-06-17

Select Variables

▼ **Disciplines**

- Aerosols (166)
- Atmospheric Chemistry (45)
- Atmospheric Dynamics (292)
- Cryosphere (13)
- Hydrology (854)
- Ocean Biology (12)
- Oceanography (15)
- Water and Energy Cycle (885)

▼ **Measurements**

- Aerosol Index (3)
- Aerosol Optical Depth (26)
- Air Pressure (44)
- Air Temperature (60)
- Albedo (15)
- Altitude (4)
- Angstrom Exponent (16)

Number of matching Variables: 0 of 1404 Total Variable(s) included in Plot: 0

Keyword :

Components of the Giovanni Interface

GIOVANNI The Bridge Between Data and Science v 4.19 [Release Notes](#) [Browser Compatibility](#) [Known Issues](#)

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Visualization Selection

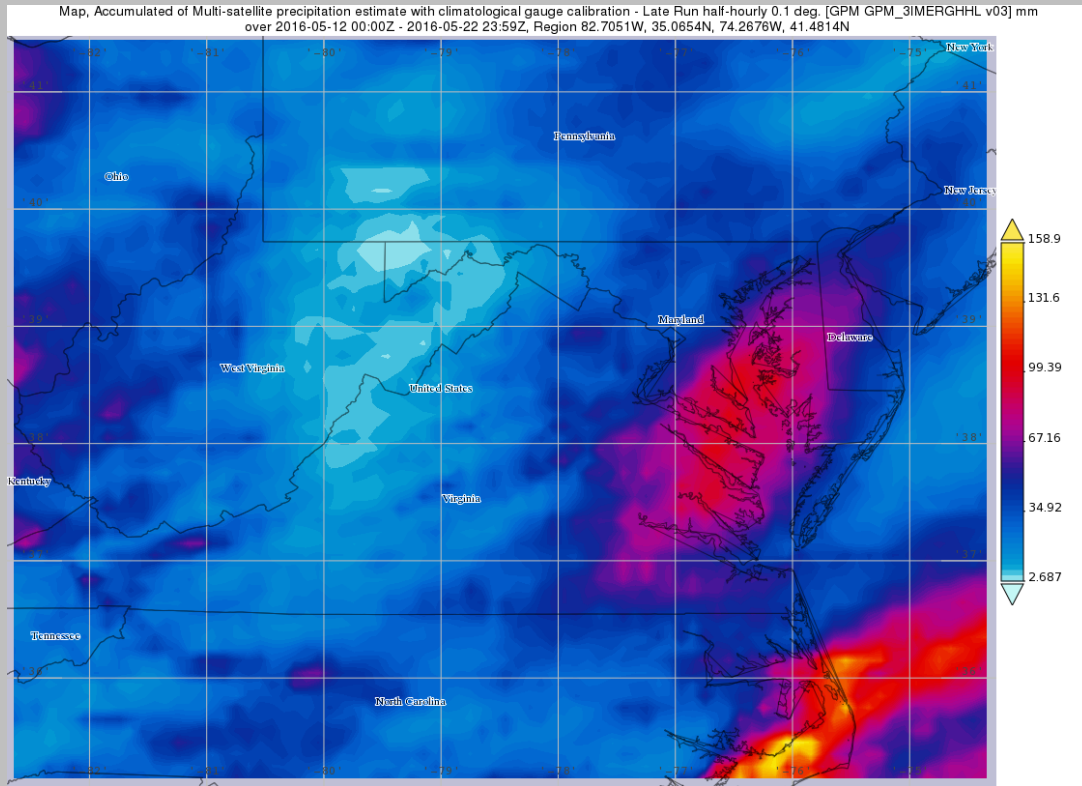
Time Period Selection

Region-of-Interest Selection

Faceted Search

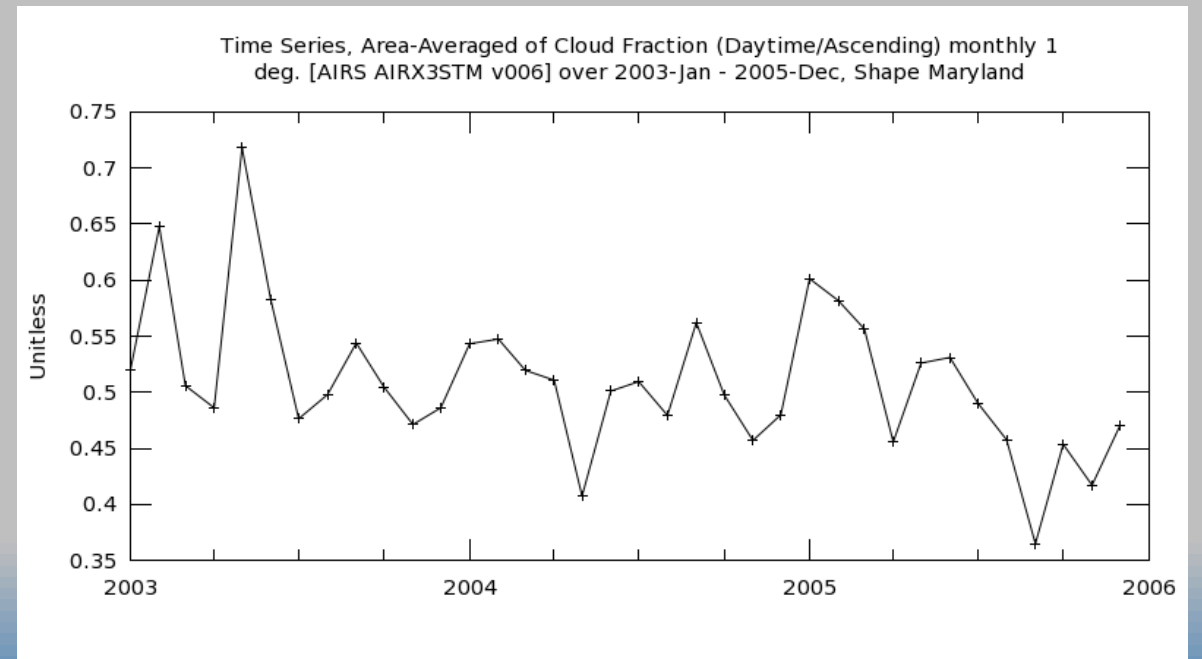
Keyword Search

Basic Operations

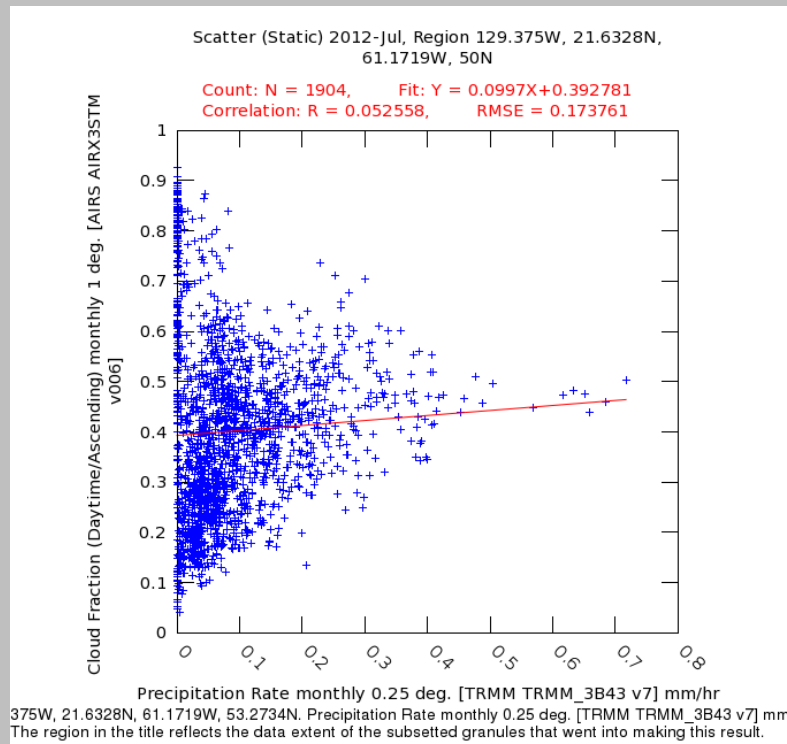


Data Maps

Time Series



Basic Operations



X-Y Scatter Plot

Correlation Map

