A satellite image of Earth showing the Indian Ocean and surrounding landmasses. The image is semi-transparent, allowing the text to be overlaid. The text is in a bold, black, sans-serif font. The background shows the Indian Ocean, the Indian subcontinent, and parts of Africa and Australia.

Using Aerosol Express (aka Giovanni-4) with MODIS Aerosol Data

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October 1, 2014

Aerosol Express & Giovanni-4

The first public release of the next-generation Giovanni system, Giovanni-4, was named *Aerosol Express* because it operated exclusively atmospheric aerosol data.

This presentation will demonstrate the basic operations of Giovanni-4, and provide two basic case studies using the system.

A satellite-style map of the Mediterranean region, showing the sea, surrounding landmasses, and cloud cover. The map is semi-transparent, allowing text to be overlaid.

The basic operations of Giovanni-4, like its predecessor system, are:

- Selecting the desired visualization type;
- selecting the time period of interest;
- selecting the spatial area of interest; and
- selecting the data variables to be plotted.

The following slides will demonstrate each of these operations.

The Giovanni-4 Interface

NASA Earth Data Data Discovery Data Centers Community Science Disciplines Search EOSDIS

Giovanni

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Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

Select Plot

Choose a plot type.

Maps: Select... Comparisons: Map, Correlation Time Series: Select... Vertical: Select... Miscellaneous: Select...

Select Date Range (UTC)

YYYY-MM-DD

00 hrs to 23 hrs

Valid Range: 1979-01-01 to 2014-09-25

Select Region (Bounding Box)

Format: West, South, East, North

-180, -90, 180, 90

Please specify a start date.

Select Variables

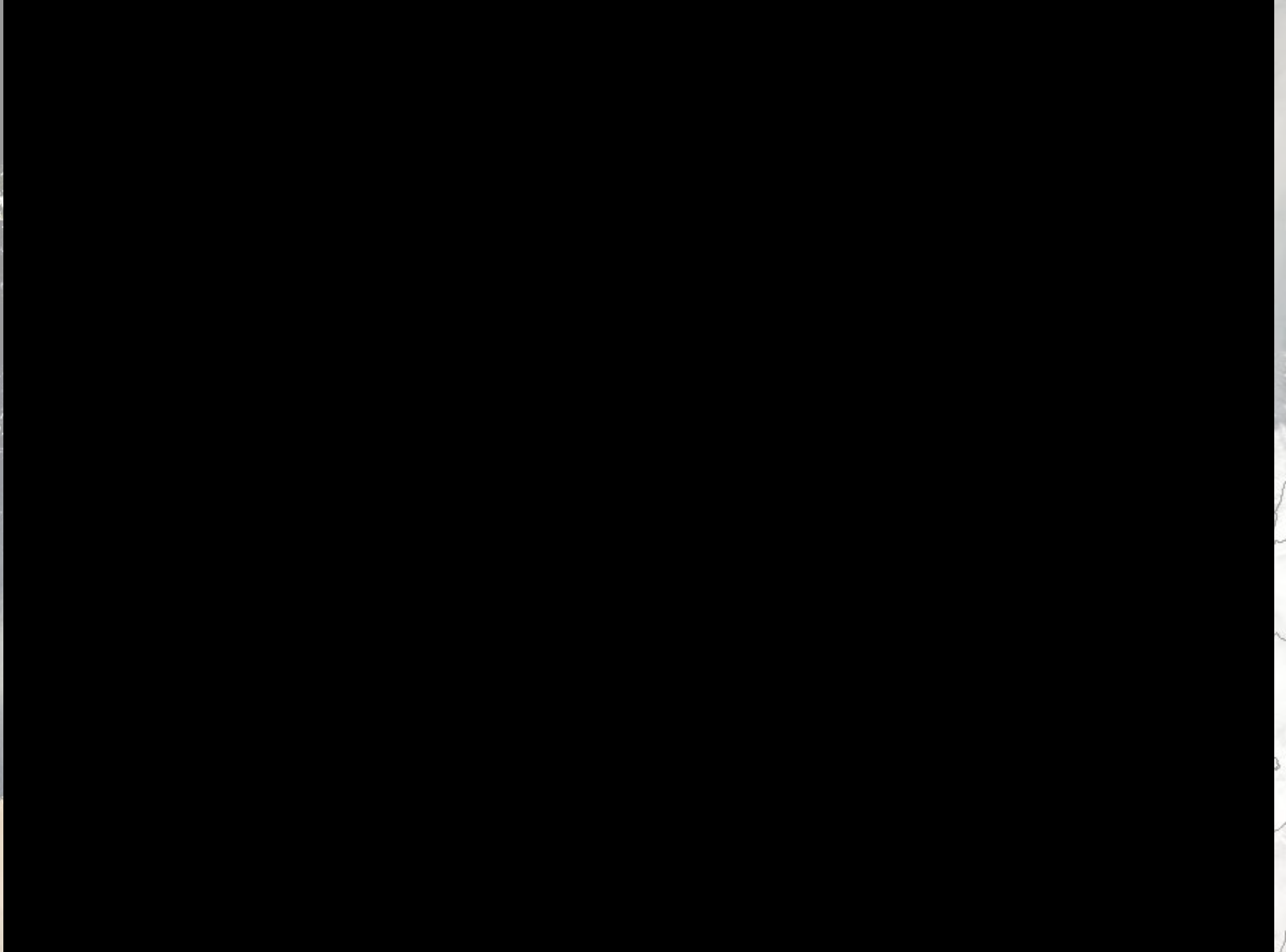
Number of matching Variables: 0 of 133 Total Variable(s) included in Plot: 0

Please select 2 variables

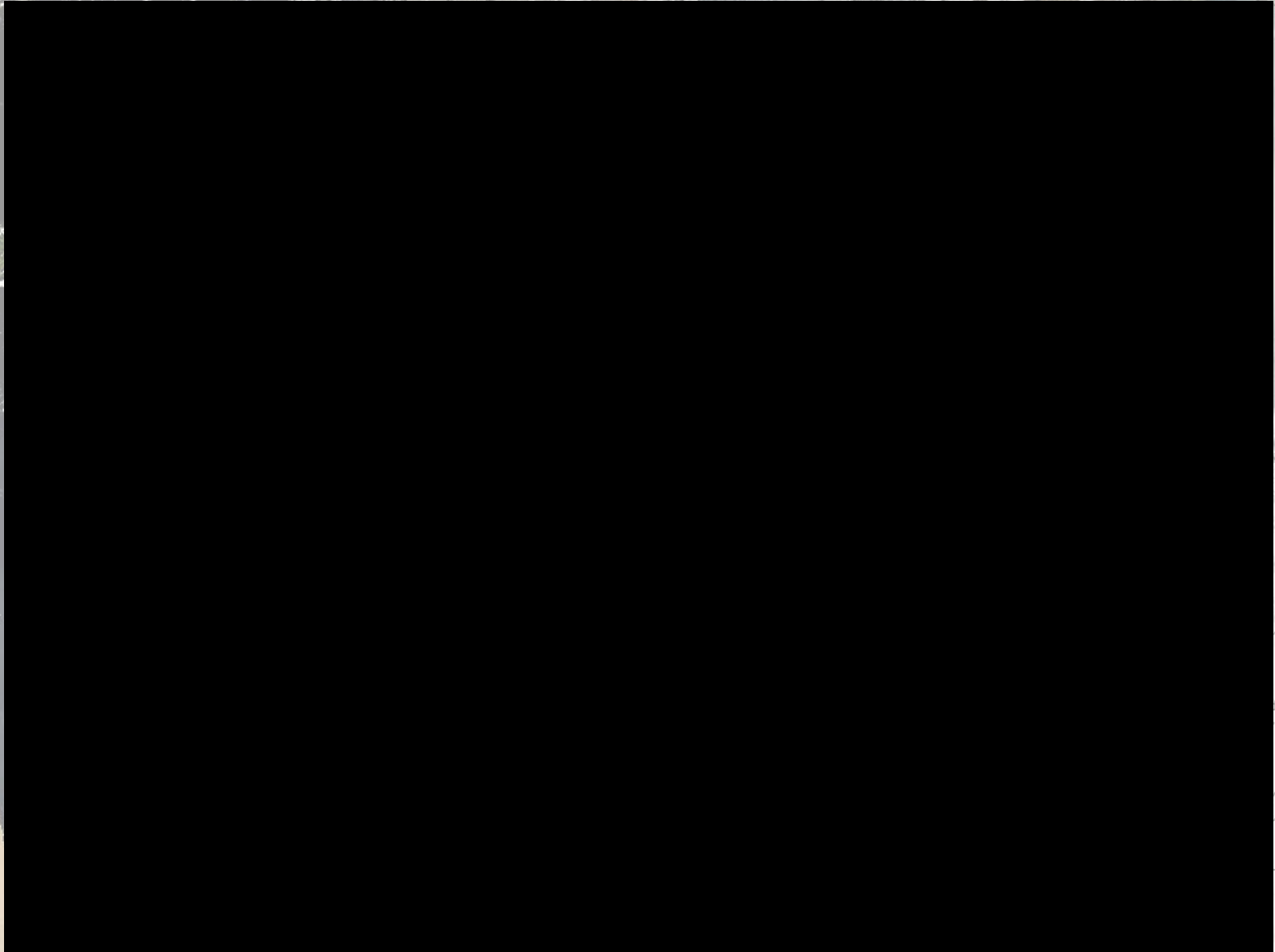
Keyword:

- Disciplines**
 - Aerosols (43)
 - Atmospheric Chemistry (12)
 - Atmospheric Dynamics (61)
 - Hydrology (5)
 - Water and Energy Cycle (24)
- Measurements**
 - Aerosol Index (1)
 - Air Pressure (4)
 - Air Temperature (12)
 - Altitude (4)
 - Angstrom Exponent (4)
 - Atmospheric Moisture (20)
 - CH4 (4)
 - CO (4)
 - Cloud Fraction (4)
 - Cloud Properties (9)
 - Component Aerosol Optical Depth (11)
 - Evapotranspiration (1)

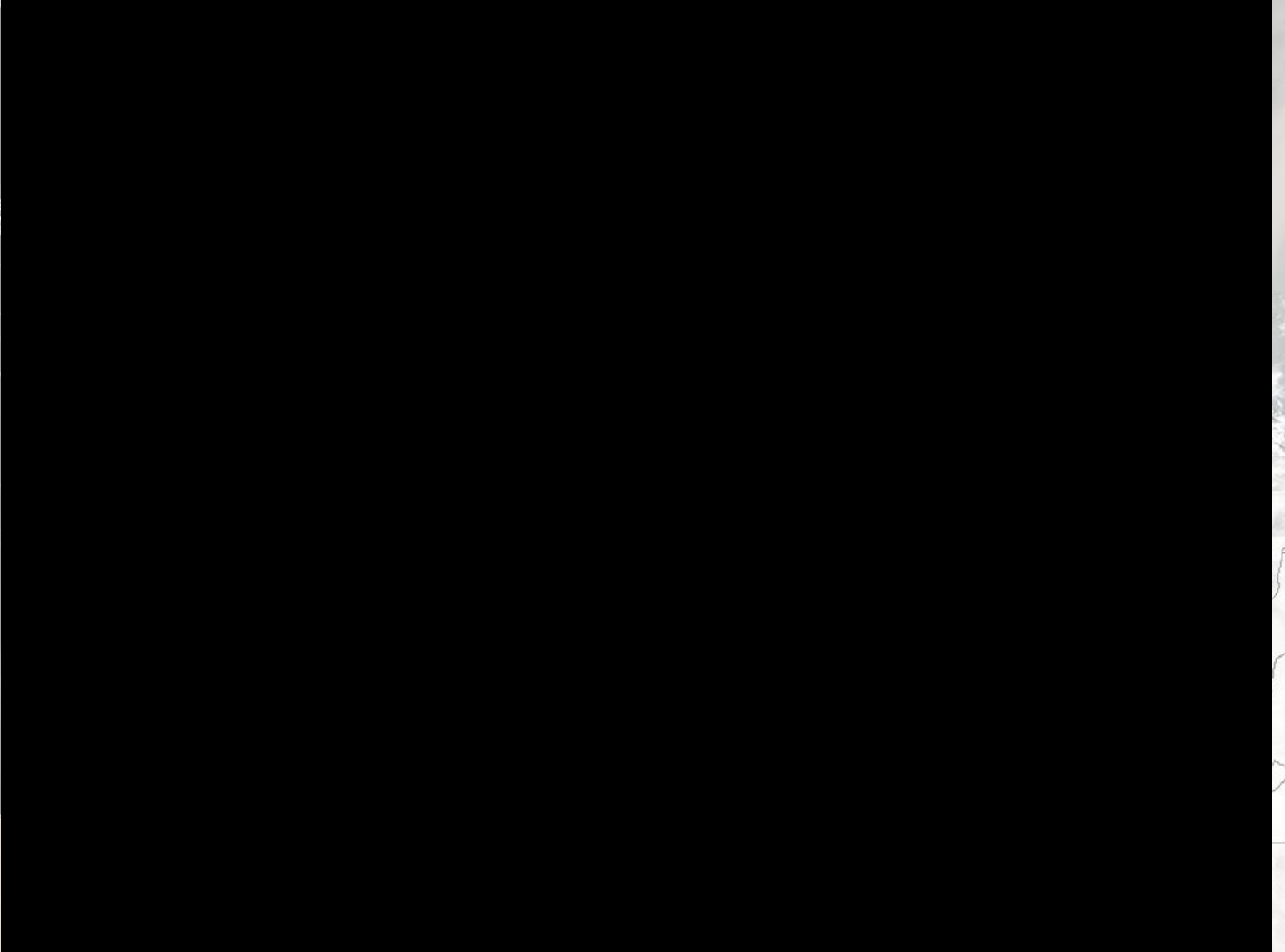
Selecting a Visualization Type



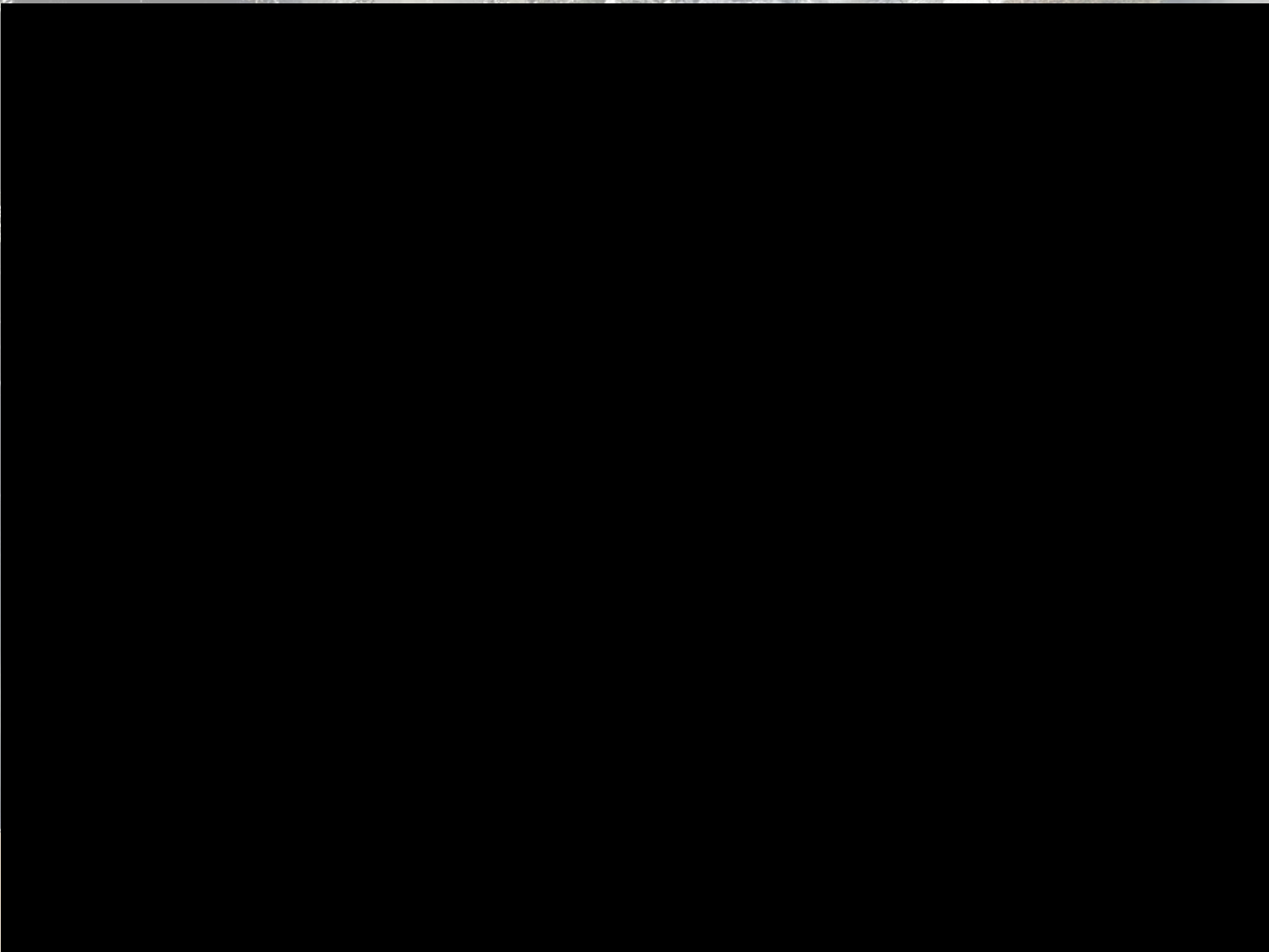
Selecting a Data Product



Selecting a Time Period



Selecting a Spatial Region



Result

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Giovanni

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Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

1. Map, Time-Averaged

Time-Averaged Aerosol Optical Depth 550 nm (Dust)

Options

History

- 1. Map, Time-Averaged
 - User Input
 - Plots
 - Plot Options
 - Downloads
 - Lineage

Im Plot Options (palette and range)

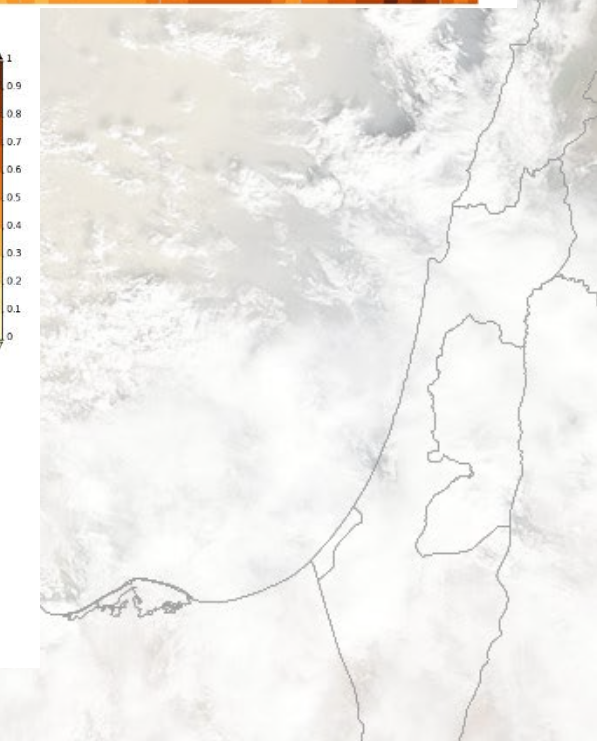
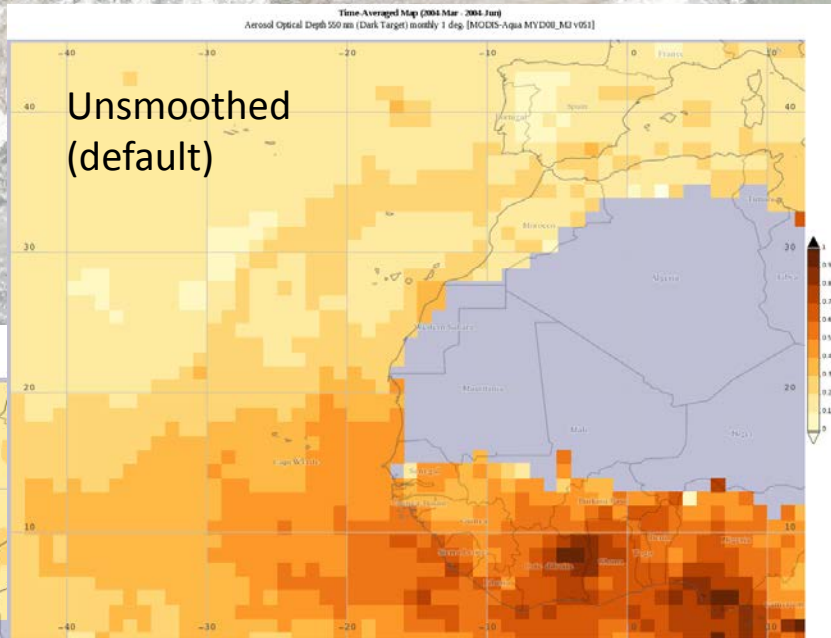
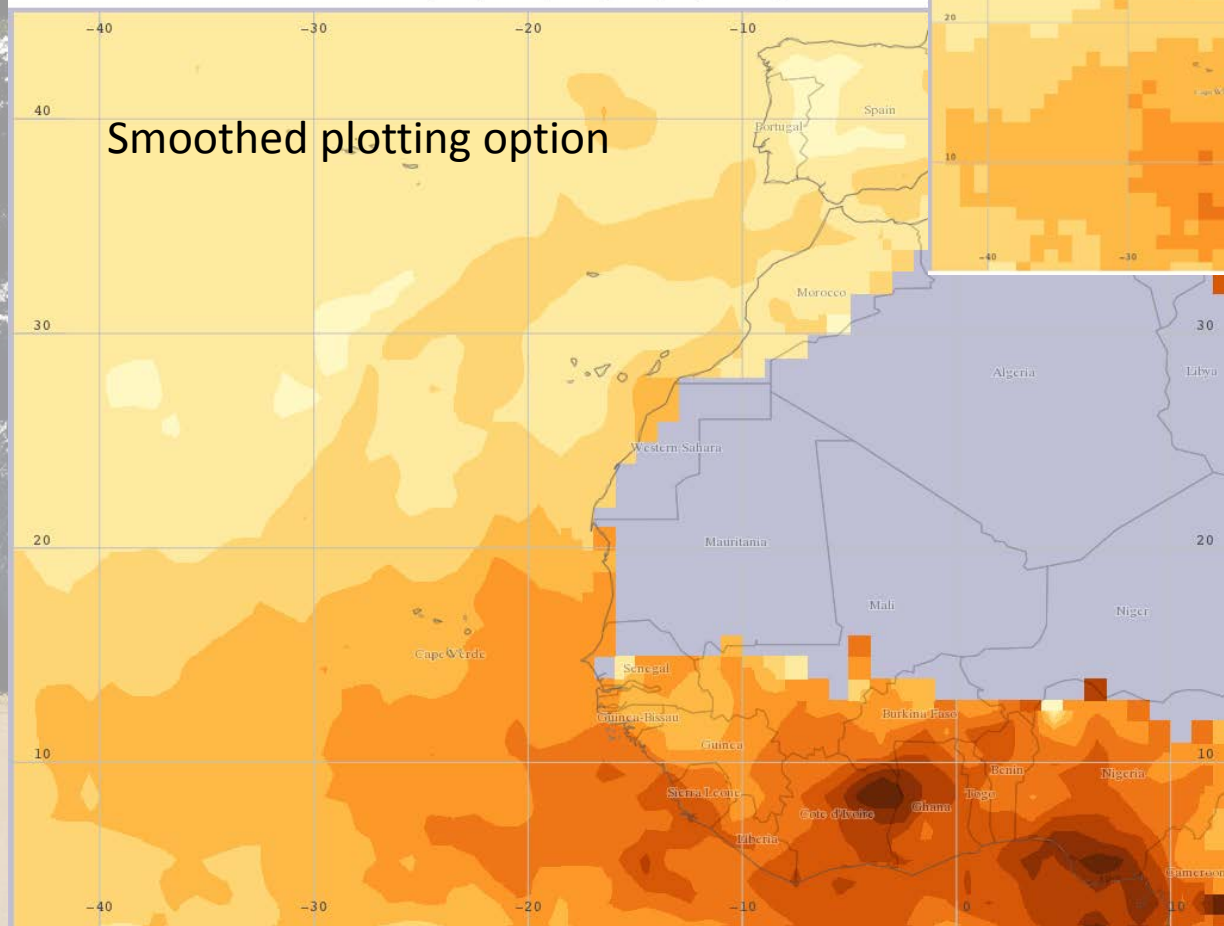
Report a problem or make a suggestion

Do it again

[Acknowledgment Policy](#) Help Share Feedback Back to Data Selection

Image Download (PNG; GeoTIFF also available)

Time-Averaged Map (2004-Mar - 2004-Jun)
Aerosol Optical Depth 550 nm (Dark Target) monthly 1 deg. [MODIS-Aqua MYD08_M3 v051]



Share-able URLs !

The URL for this session:

[http://giovanni.gsfc.nasa.gov/giovanni/#service=INTERACTIVE_MAP
&starttime=2004-03-01T00:00:00Z&endtime=2004-06-30T23:59:59Z&bbox=-
44.2969,2.3203,12.6563,45.2109&data=MYD08_M3_051_Optical_D
epth_Land_And_Ocean_Mean_Mean&variableFacets=dataFieldDisci
pline%3AAerosols%3B](http://giovanni.gsfc.nasa.gov/giovanni/#service=INTERACTIVE_MAP&starttime=2004-03-01T00:00:00Z&endtime=2004-06-30T23:59:59Z&bbox=-44.2969,2.3203,12.6563,45.2109&data=MYD08_M3_051_Optical_Depth_Land_And_Ocean_Mean_Mean&variableFacets=dataFieldDiscipline%3AAerosols%3B)

Time-Series Case Studies

I. A “Normal” Time – Series

NASA Earth Data Data Discovery Data Centers Community Science Disciplines Search EOSDIS

Giovanni

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Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

Select Plot
Choose a plot type.

Maps: Select... Comparisons: Select... **Time Series: Area-Averaged** Vertical: Select... Miscellaneous: Select...

Select Date Range (UTC)
YYYY-MM
2003 - 01 - 01 00 hrs to 2010 - 12 - 31 23 hrs
Valid Range: 2002-01-01 to 2014-08-31

Select Region (Bounding Box)
Format: West, South, East, North
-44.2969, 2.3203, 12.6563, 45.2109
88°48'N, 168°02'E

Select Variable

- Disciplines
 - Aerosols (43)
 - Atmospheric Chemistry (1)
 - Atmospheric Dynamics (1)
 - Hydrology (5)
 - Water and Energy (1)
- Measurements
 - Aerosol Index (1)
 - Air Pressure (1)
 - Air Temperature (1)
 - Altitude (4)
 - Angstrom Exponent (1)
 - Atmospheric Humidity (1)
 - CH4 (4)
 - CO (4)
 - Cloud Fraction (4)
 - Cloud Properties (9)
 - Component Aerosol Optical Depth (11)
 - Evapotranspiration (1)
 - Geopotential (4)
 - Latent Heat Flux (4)

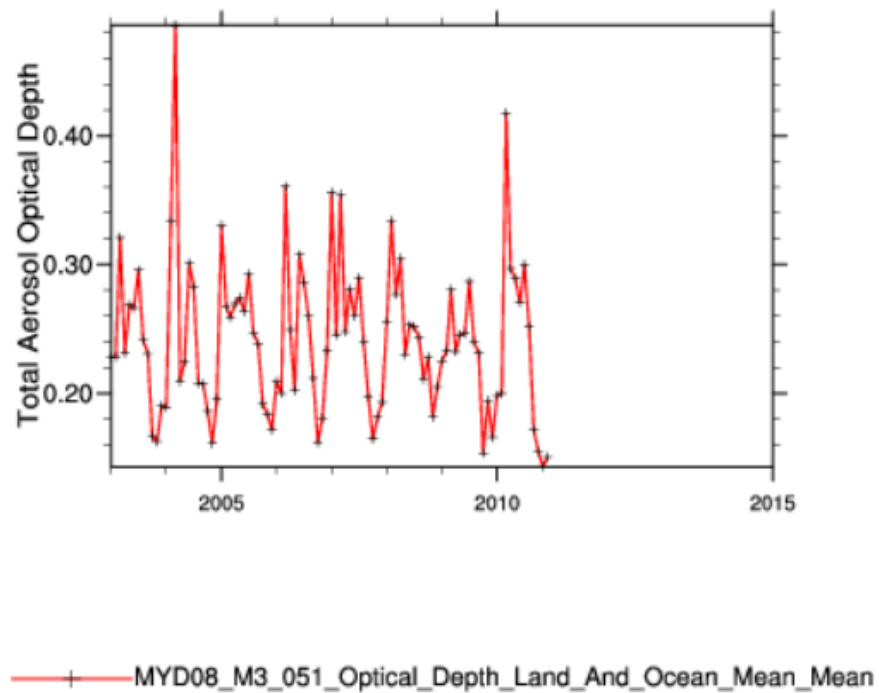
Total Variable(s) included in Plot: 1

Temp. Res.	Spat. Res.	Begin Date	End Date	Vert. Slice
Monthly	1°	2002-07-04	2014-08-31	-

Help Reset Feedback **Plot Data** Go to Results

Result

Time Series, Area-Averaged of Aerosol Optical Depth 550 nm (Dark Target) monthly 1 deg. [MODIS-Aqua MYD08_M3 v051] over 2003-Jan - 2010-Dec, Region 44.2969W, 2.3203N, 12.6563E, 45.2109N



Time-Series Case Studies

II. A Seasonal Time - Series

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Giovanni

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Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

Select Plot
Choose a plot type.

Maps: Select... Comparisons: Select... **Time Series: Seasonal** Vertical: Select... Miscellaneous: Select...

Select Seasonal Dates
Month or Season and YYYY range.

MAM 2003 to 2010

Select Region (Bounding Box)
Format: West, South-East, North

-44.2969, 2.3203, 12.6563, 45.2109

Valid Range: 2002-07-04 to 2014-08-31

Select Variables

Disciplines

- Aerosols (12)
- Atmospheric Chemistry (6)
- Atmospheric Dynamics (30)
- Water and Energy Cycle (14)

Measurements

- Air Pressure (2)
- Air Temperature (6)
- Altitude (2)
- Atmospheric Moisture (10)
- CH4 (2)
- CO (2)
- Cloud Fraction (2)
- Cloud Properties (4)
- Geopotential (2)
- Latent Heat Flux (1)
- OLR (4)
- Ozone (2)
- Sensible Heat Flux (1)
- Statistics (2)
- Surface Temperature (2)

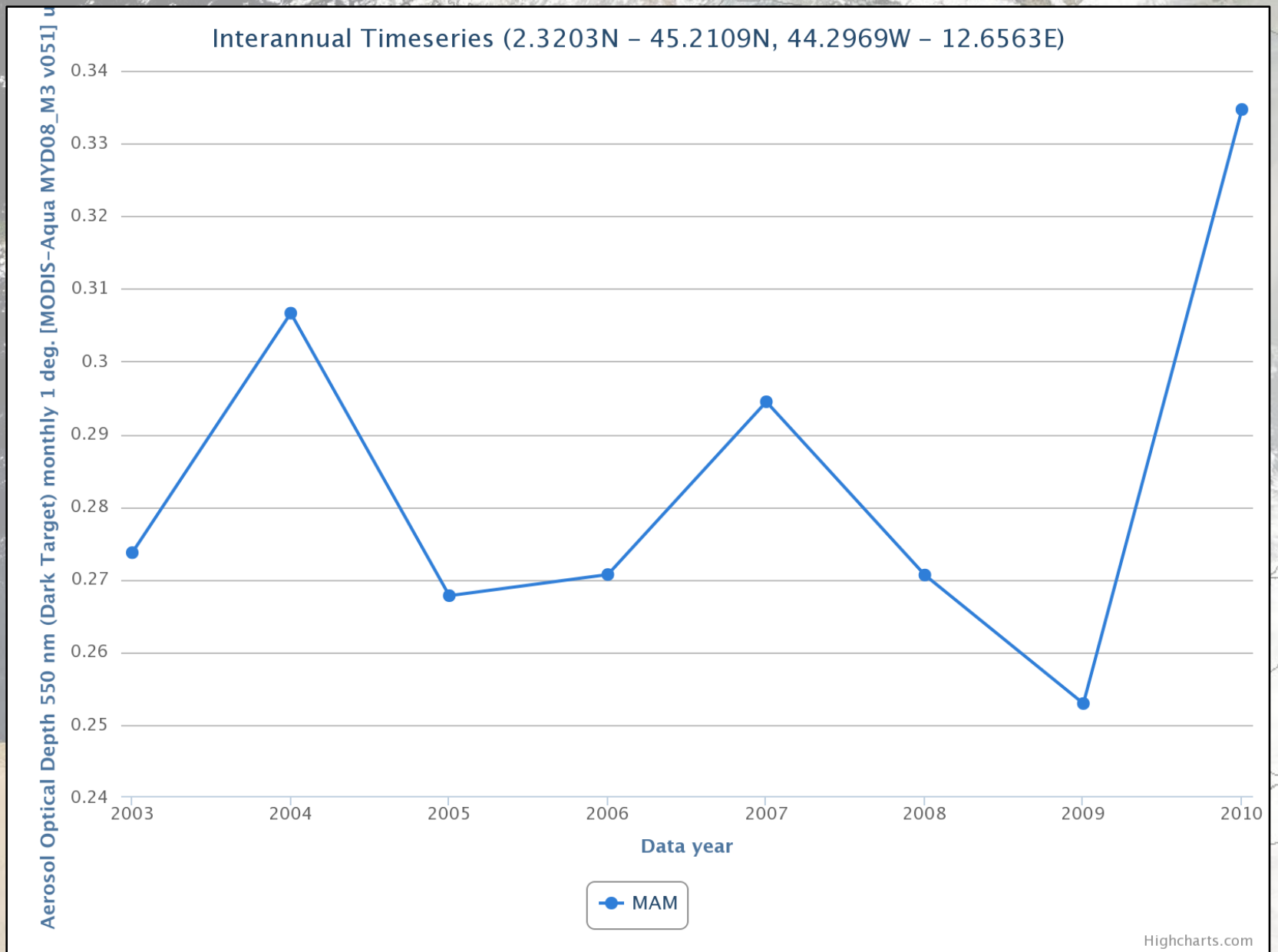
Number of matching Variables: 0 of 133

Total Variable(s) included in Plot: 1

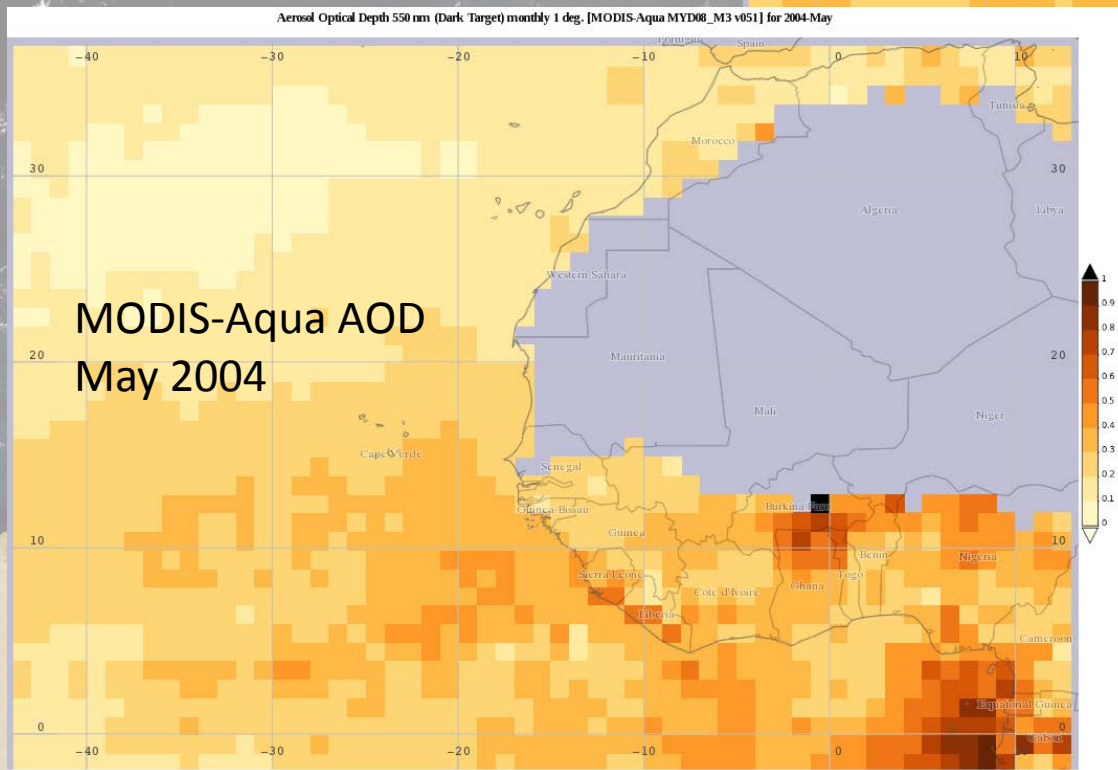
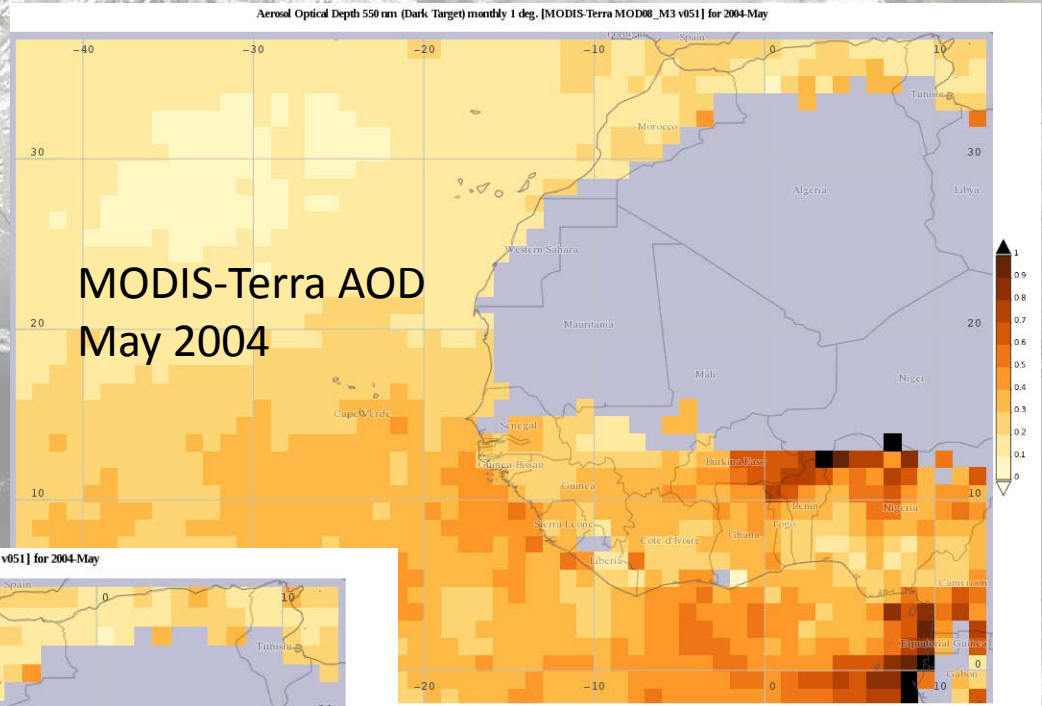
Keyword:

	Variable Name	Source	Temp. Res.	Spat. Res.	Begin Date	End Date	Vert. Slice
<input checked="" type="checkbox"/>	Aerosol Optical Depth 550 nm (Dark Target) (MYD08_M3 v051)	MODIS-Aqua	Monthly	1°	2002-07-04	2014-08-31	-

Result



Interactive Scatter Plot : Compare MODIS-Terra AOD to MODIS-Aqua AOD



Interactive Scatter Plot : Compare MODIS-Terra AOD to MODIS-Aqua AOD

NASA Earth Data Data Discovery Data Centers Community Science Disciplines Search EOSDIS

Giovanni

The Bridge Between Data and Science v 4.10 [Release Notes](#) [Browser Compatibility](#) [Known Issues](#)

Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

Select Plot
Choose a plot type.

Maps: Select... Comparisons: Scatter (Interactive) Time Series: Select... Vertical: Select... Miscellaneous: Select...

Select Date Range (UTC)
YYYY-MM
2004 -05 -01 00 hrs to 2004 -05 -31 23 hrs
Valid Range: 2002-07-04 to 2014-08-31

Select Region (Bounding Box)
Format: West, South, East, North
-44.2969, -1.8984, 13.3594, 37.4766

Select Variables

Disciplines

- Aerosols (43)
- Atmospheric Chemistry (12)
- Atmospheric Dynamics (61)
- Hydrology (5)
- Water and Energy Cycle (24)

Measurements

- Aerosol Index (1)
- Air Pressure (4)
- Air Temperature (12)
- Altitude (4)
- Angstrom Exponent (4)
- Atmospheric Moisture (20)
- CH4 (4)
- CO (4)
- Cloud Fraction (4)
- Cloud Properties (9)
- Component Aerosol Optical Depth (11)
- Evapotranspiration (1)
- Geopotential (4)
- Latent Heat Flux (4)

Number of matching Variables: 0 of 133 Total Variable(s) included in Plot: 2

Keyword: Search Clear

	Variable Name	Source	Temp. Res.	Spat. Res.	Begin Date	End Date	Vert. Slice
<input checked="" type="checkbox"/>	Aerosol Optical Depth 550 nm (Dark Target) (MYD08_M3 v051)	MODIS-Aqua	Monthly	1°	2002-07-04	2014-08-31	-
<input checked="" type="checkbox"/>	Aerosol Optical Depth 550 nm (Dark Target) (MOD08_M3 v051)	MODIS-Terra	Monthly	1°	2000-03-01	2014-08-31	-

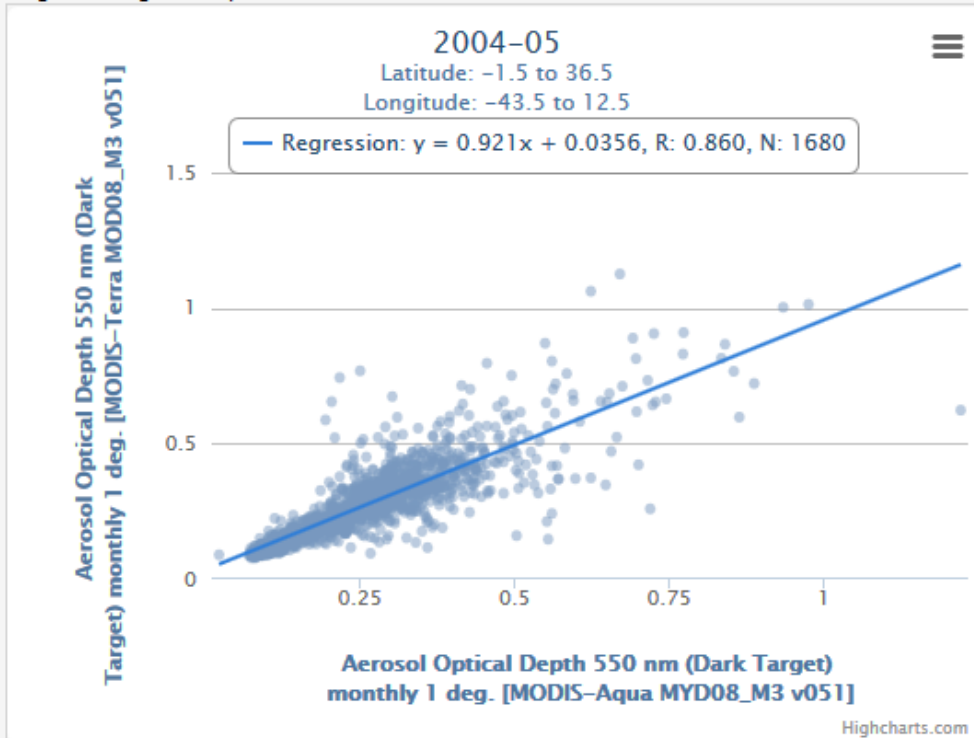
Choose 2 variables to compare

Help Reset Feedback **Plot Data** Go to Results

Interactive Scatter Plot : Compare MODIS-Terra AOD to MODIS-Aqua AOD

4. Scatter (Interactive)

Drag bounding box on plot to subset data



Drag bounding box on map to subset data

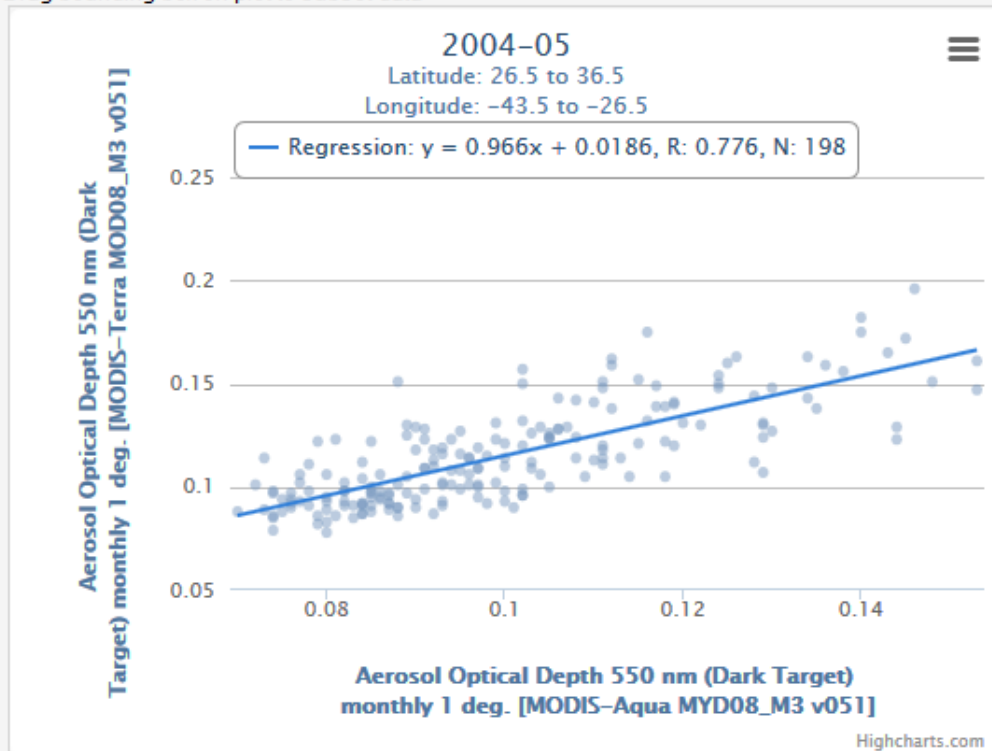


Reset Map and Chart

Interactive Scatter Plot : Compare MODIS-Terra AOD to MODIS-Aqua AOD

4. Scatter (Interactive)

Drag bounding box on plot to subset data



Drag bounding box on map to subset data

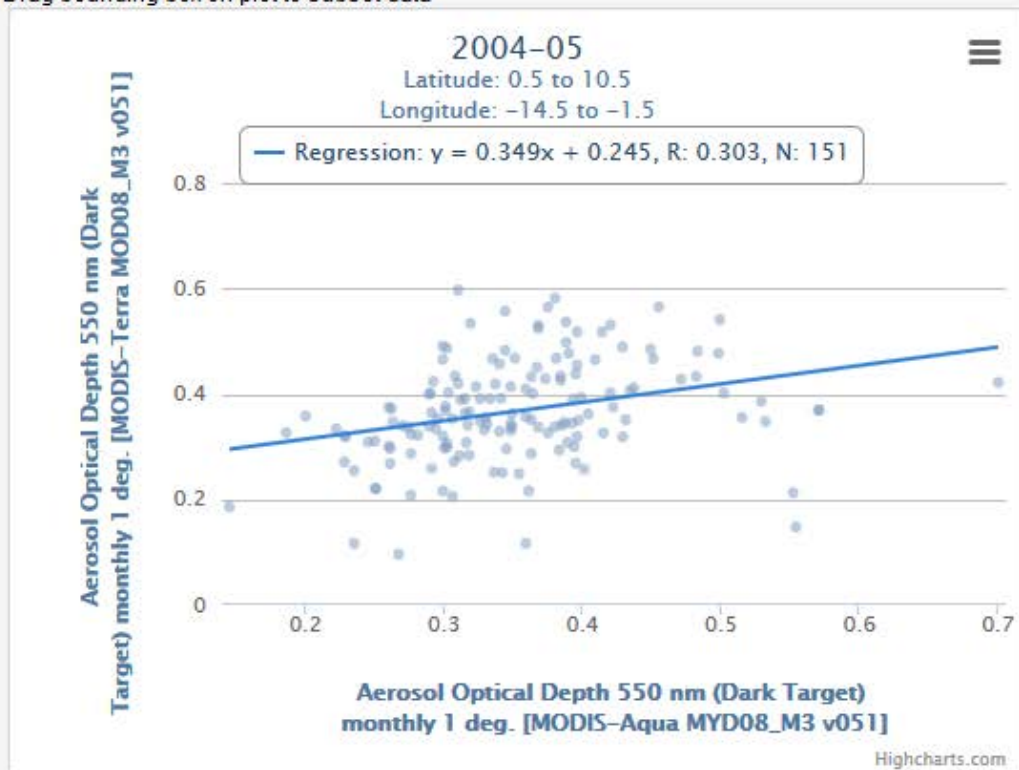


Reset Map and Chart

Interactive Scatter Plot : Compare MODIS-Terra AOD to MODIS-Aqua AOD

4. Scatter (Interactive)

Drag bounding box on plot to subset data



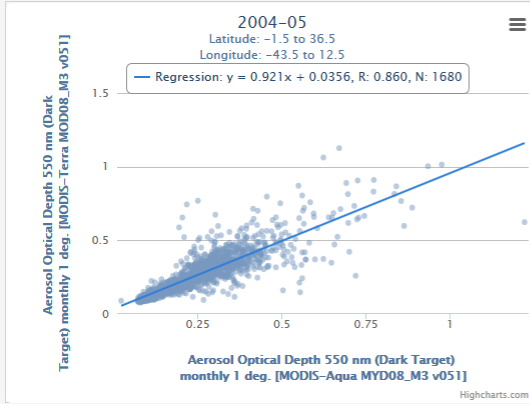
Drag bounding box on map to subset data



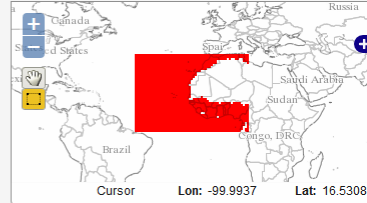
Reset Map and Chart

4. Scatter (Interactive)

Drag bounding box on plot to subset data



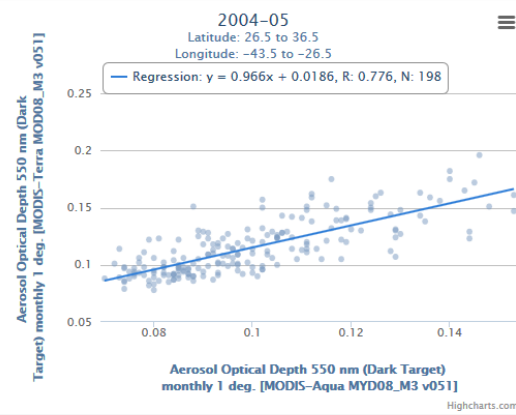
Drag bounding box on map to subset data



Reset Map and Chart

4. Scatter (Interactive)

Drag bounding box on plot to subset data



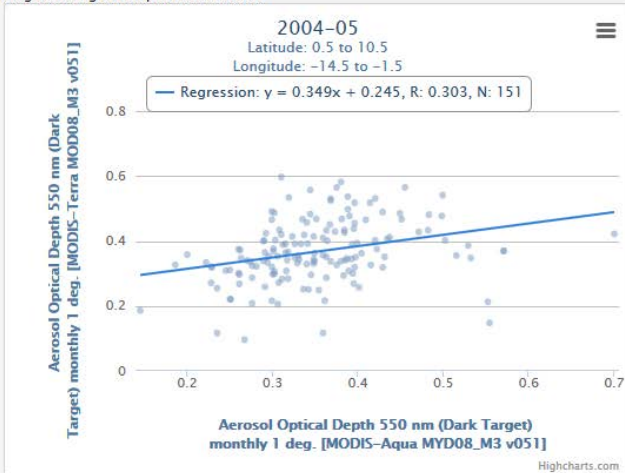
Drag bounding box on map to subset data



Reset Map and Chart

4. Scatter (Interactive)

Drag bounding box on plot to subset data



Drag bounding box on map to subset data



Thank you for attending this demonstration of Giovanni-4 today.

Any questions?

bing