

AMS 2009 Giovanni Workshop Air Quality Case Study: Fires in June and July, 2008 and Poor Air Quality in Northern California

Hundreds of wildfires broke out in several locations in Northern California in June and July 2008, burning thousands of acres and leading to health related air quality alerts due to the smoke. The fires also resulted in extensive evacuations and property damage.

STEP 1: Go to the main Giovanni web page:

<https://giovanni.gsfc.nasa.gov>

STEP2: Access Giovanni Air Quality Products

Go to the table in the main page and click on 'Air Quality'

STEP 3: Generating Maps of Air Quality Products

1. Spatial Selection: Click on the map and with the mouse select a box that includes California. Alternatively, enter the latitudes and longitudes in the boxes below the maps

North: 45°

South: 28°

East: -110°

West: -127°

2. Parameter Selection - select the boxes for the two following parameters:
Fine Particulate Matter - (parameter under AIRNOW_PM)
MODIS Aerosol Optical Depth at 550 nm (first parameter under MOD08_D3.005)

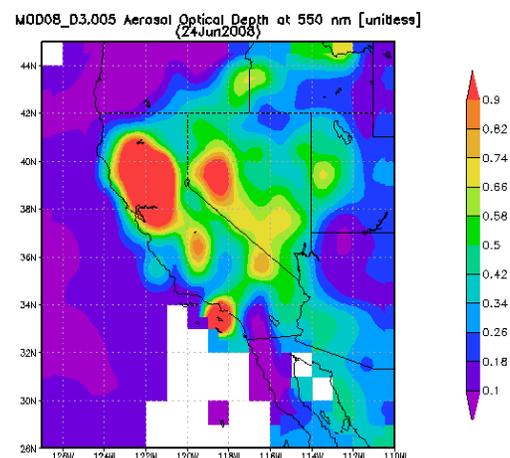
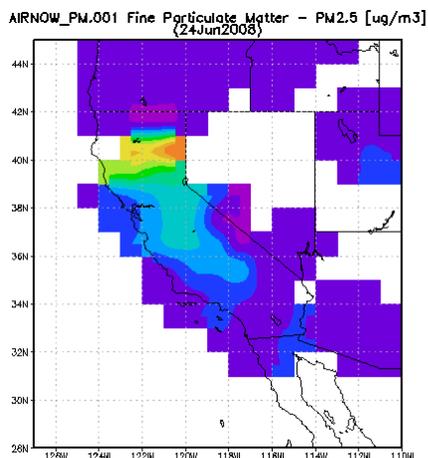
3. Temporal Selection: Begin Date = 2008, June 24th

End Date = 2008, June 24th

4. Select Visualization:

Lat-Lon Map, Time-Averaged

5. Generate Plot



STEP 4 (optional): Visualization on Google Earth and download of GIF images and data files

1. At the top of the page click on the "Download Data" tab
2. To download a KMZ or other data files click on the items on the last column.
3. To view the image on Google Earth, click on the KMZ icon, then upload to Google Earth directly or you can choose to save the file, then open Google Earth, and then open the file after you start Google Earth
4. To download a gif image click on the file name at the bottom of the first column

STEP 5: Interpretation of Results

Compare the particulate matter map (PM_{2.5}) to the MODIS Aerosol Optical Depth. Aerosol optical depth will correlate better with particulate matter when the majority of the particles are found in the lowest part of the troposphere - the Planetary Boundary Layer (PBL).

STEP 6 (optional): Long Range Transport of Pollution

1. Go back to the Air Quality page (click on Home in the tab above the map).
Make a spatial selection that is a little larger, include the U.S northwest (two states north of California).
2. Parameter Selection (select the boxes for the following parameter):
MODIS Aerosol Optical Depth at 550 nm (first parameter under MOD08_D3.005)
3. Temporal Selection: Begin Date = 2008, June 20th
End Date = 2008, July 4th
4. Select Visualization: Animation
5. What do you observe? Is the pollution moving or is it staying in California where the fires occurred. You can use the controls to slow down the loop or view each image individually.