

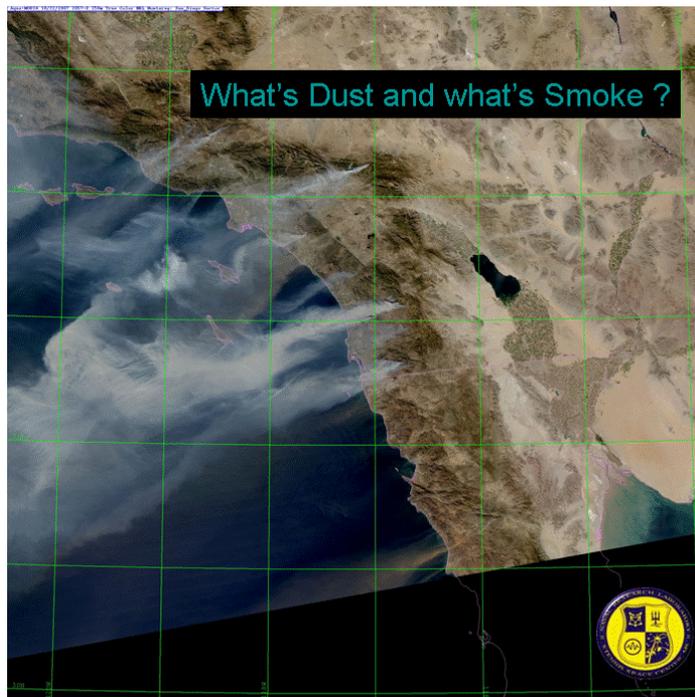


Headliner!

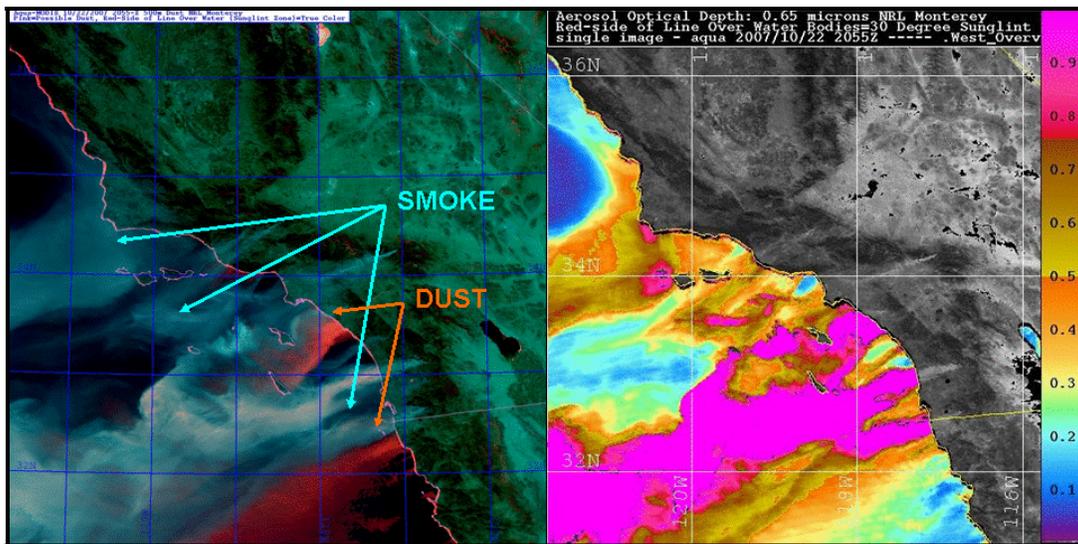
Wildfires and Dust Storms Plague Southern California

October 23 2007

Images like this one, a MODIS true color shot from Earth Observing Satellite, are shown to the public often. The one below shows huge outbreaks of what is generally referred to as smoke associated with wildfires in the hills and mountains of southern California. Yes, some of the amorphous brown and grey clouds in the image do represent smoke, but not all. There are also dust plumes, lifted by strong offshore Santa Ana winds, mixed in as well. Can you tell dust from smoke?



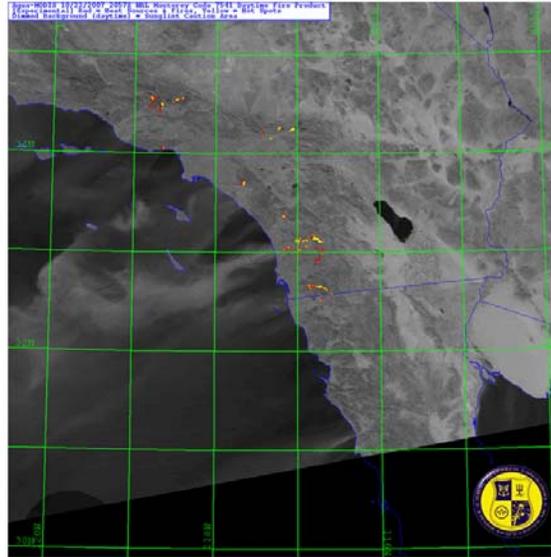
The same satellite scene as the top figure is presented below but with different enhancements. The left image is a NexSat dust product that distinguishes dust (red shades) from smoke (blue and pink shades). The appearance of large blowing dust plumes suggests extreme winds. The right image is an aerosol optical depth (AOD) product that provides a quantitative description of the smoke/dust plumes over water. The thick dust and smoke regions are in solid pink. The AOD can be used to provide visibility measurements as well as determine the amount of smoke/dust content in the atmosphere.



As shown below, strong Santa Anna winds flow in a clockwise fashion from the Great Basin through the mountains and Los Angeles region. Wind gusts reached 108 mph at Whitaker Peak northwest of Los Angeles near Tejon Pass during the event, and gusts of 85 mph were common below mountain passes and canyons, according to the National Weather Service. Sustained winds measured 30 mph to 40 mph.

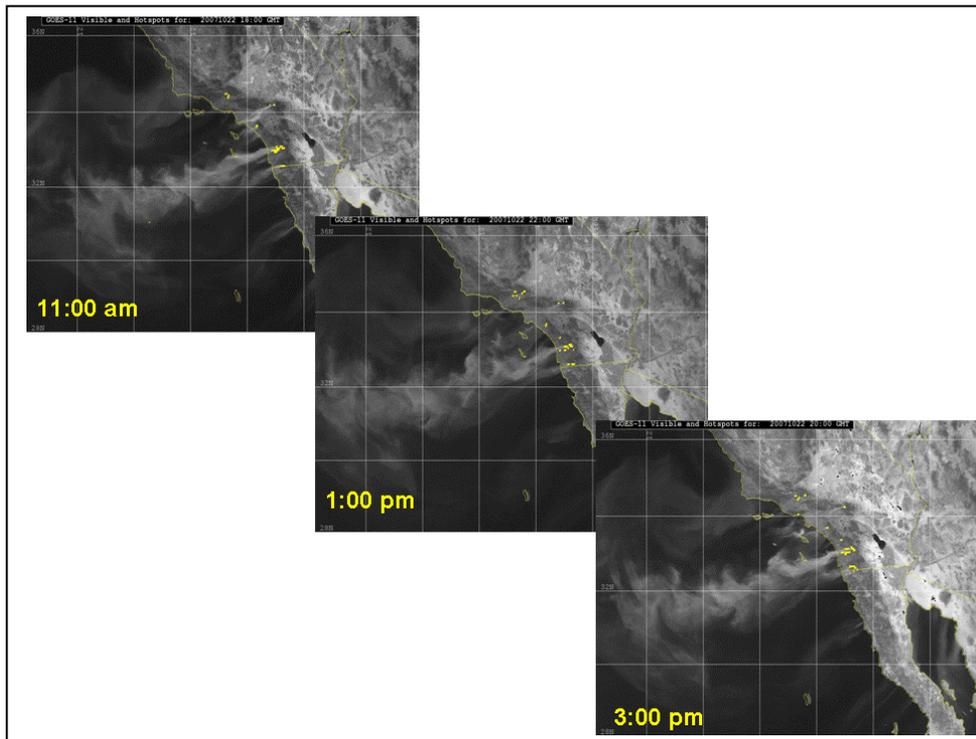


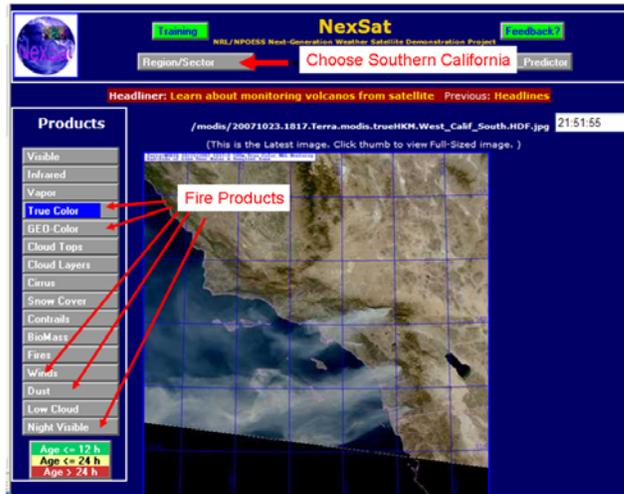
Santa Ana Winds (Image courtesy of NASA)



The NexSat fire product above shows the actual location of the fires in red and yellow dots. This is another way to help distinguish dust from smoke. The thickest smoke plumes will emanate from known fire locations, whereas blowing dust will normally be lifted from dry lake beds or dry river beds.

Although not as high quality as the MODIS product, the GOES images allow users to view the smoke and fires every 30 minutes. A time series of images is shown below. The yellow dots represent the “hotspots” or fire locations.





To see fires in southern California, go to the NexSat page:
<http://www.nrlmry.navy.mil/NEXSAT.html/> On the Region/Sector button (annotated above) select southern California. For fire products consult the frame on the left.