

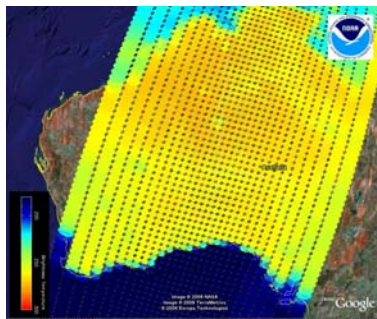


The Use of Google Earth in Meteorological Satellite Visualization

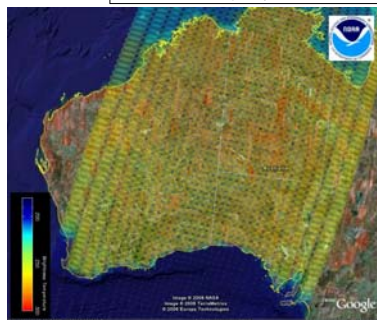
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AMSU-A Channel 1 imagery over Australia at full opacity.



AMSU-A Channel 1 imagery over Australia at half opacity.

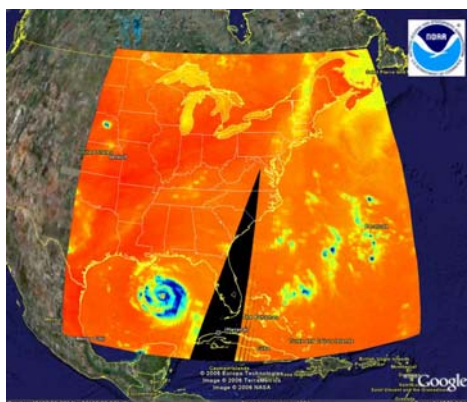


Google Earth (GE) (1) is a browser that allows a user to view a vast (several terabytes) dataset of satellite and aircraft imagery of the earth. In browser mode, the user need only enter a place name and the GE will 'fly' to that location. GE uses sophisticated caching and staging of the imagery to permit smooth and seamless Visualization.

Like any browser, GE is programmable via an extensible markup language (XML), which in this case is known as Keyhole Markup Language (KML (2)). Keyhole was the company which did the initial development of KML which was later purchased by Google.

This poster gives a number of examples of the use of KML to display satellite data. The KML used to create these images was automatically generated by code written by the author.

Hurricane Katrina just before landfall



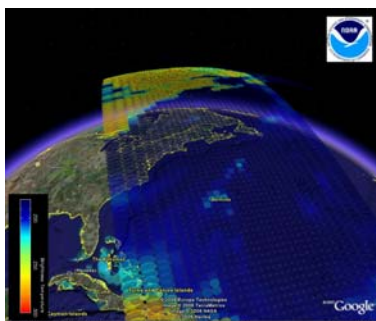
Vicarious Calibration area over Amazon rainforest outlined by green wall. AMSUA fields of view illustrated in white.



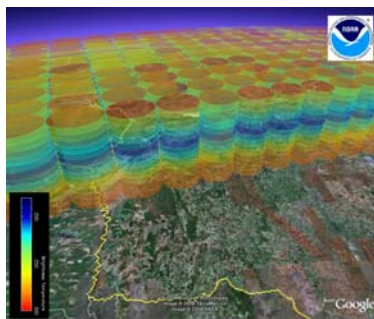
Zoom in of Amazon vicarious calibration site showing deforested area, which presumably will have different emissivity from surrounding forest.



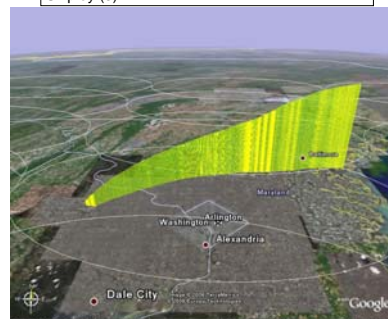
AMSU-A-Channel 1 placed at orbital altitude for illustration purposes



AMSU-A-data over Brazil. Channels are stacked in order: Channel 1 at surface, Channel 15 at top. Separation is an arbitrary 10km. This clearly shows the cooling of the atmosphere with height through the troposphere, and warming in the stratosphere. Channel 15 on top indicates surface values.



Path of a radiosonde launch from Sterling Virginia, USA, with AMSU-A fields of view superimposed. Radiosonde courtesy of Scott Shipley (3).



Example Color Definition

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<Style id="color010">
  <LineStyle>
    <color>FF4D0000</color>
  </LineStyle>
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Example Ellipse Definition

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</LinearRing>
</outerBoundaryIs>
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References:

- 1) <http://earth.google.com/>
- 2) <http://earth.google.com/kml/>
- 3) http://ams.confex.com/ams/Annual2006/techprogram/paper_104279.htm