

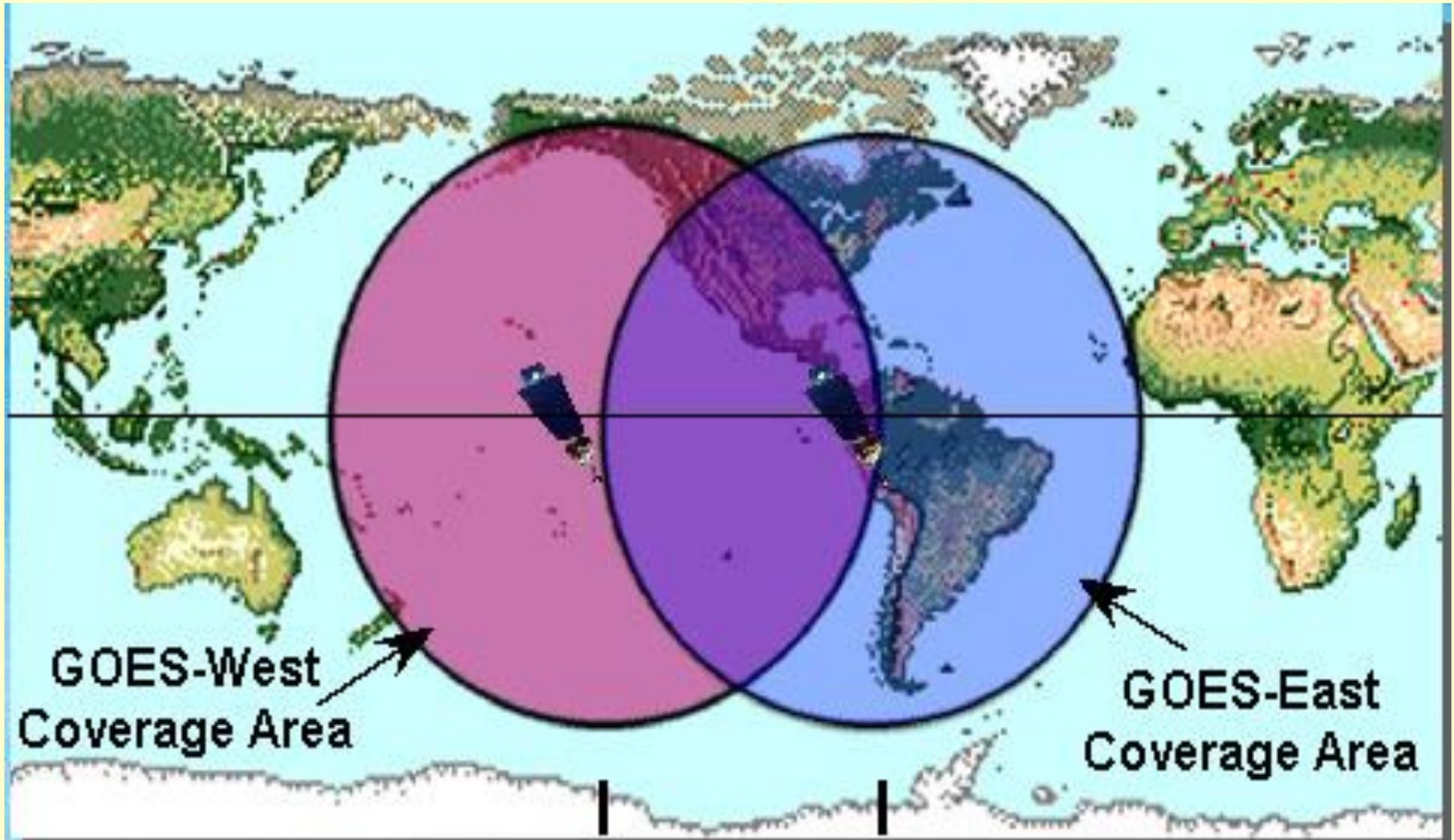
*Introduction to
NOAA meteorological satellite data -*

*Passive IR and microwave remote sensing of
SST, precipitable water and cloud liquid water*

Satellites used for weather forecast and analysis



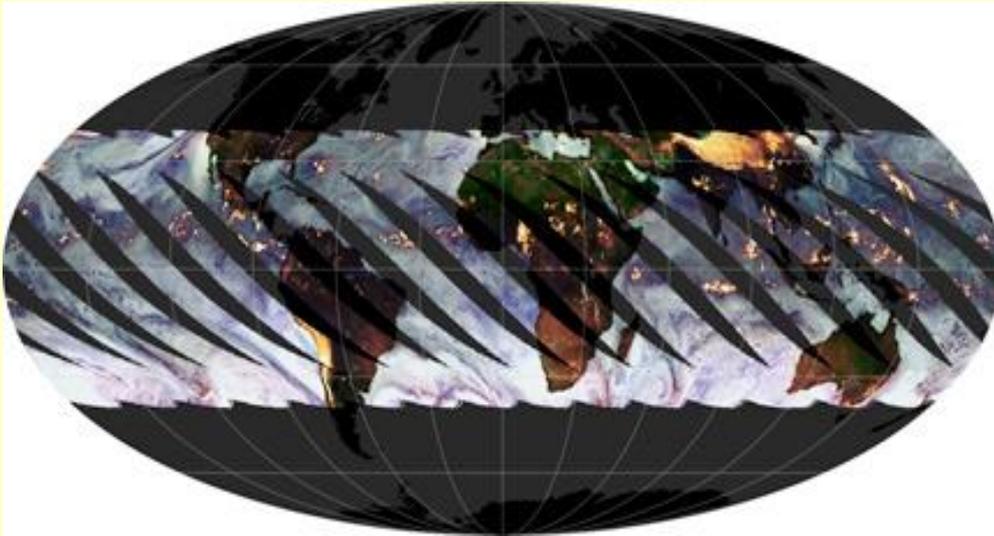
US geostationary weather satellites: GOES



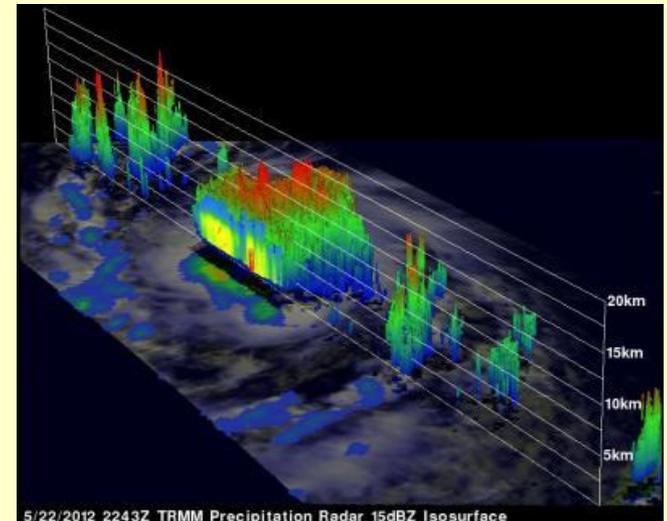
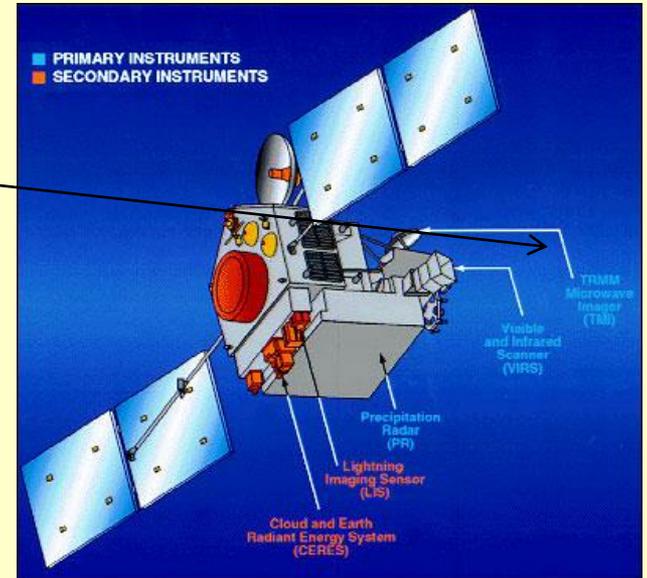
The **Tropical Rainfall Measuring Mission (TRMM)** is a joint mission between NASA and the Japan Aerospace Exploration Agency (JAXA) designed to monitor and study tropical rainfall.

TRMM Data Access: <http://disc.sci.gsfc.nasa.gov/data/datapool/TRMM/>

TRMM includes a microwave imager (TMI)

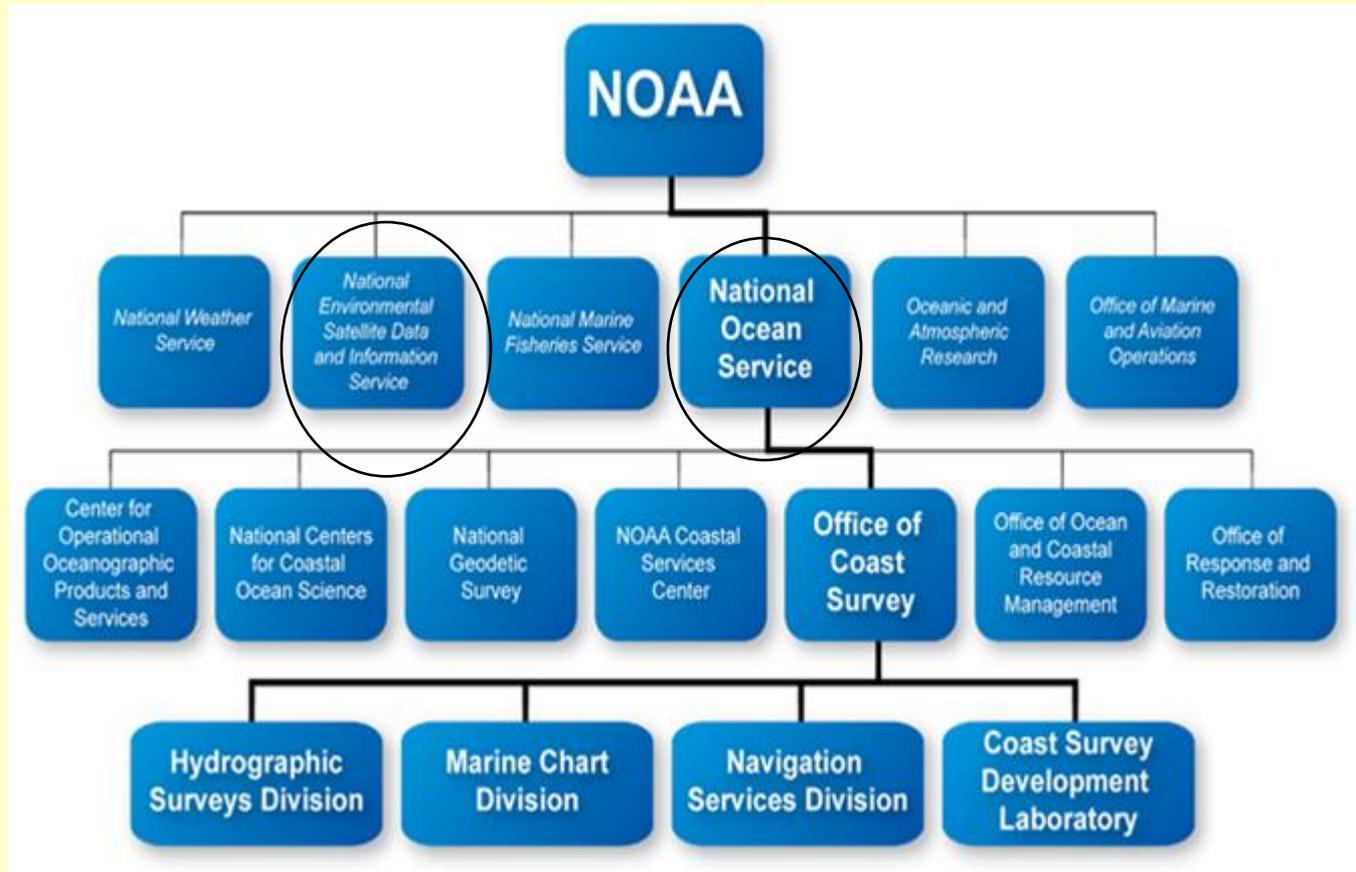


TRMM's low orbital inclination—just 35° from the equator—allows its instruments to concentrate on the tropics. This image shows one half of the observations TRMM makes in a single day.



NOAA (National Oceanic and Atmospheric Administration)

<http://www.noaa.gov/>



NESDIS (National Environmental Satellite, Data, and Information Service)

<http://www.nesdis.noaa.gov/>

National Oceanographic Data Center (NODC)

<http://www.nodc.noaa.gov/>

NESDIS

The **Office of Satellite Products and Operations (OSPO)** collects, processes, and distributes environmental satellite data and derived products about Earth's weather, atmosphere, oceans, land, and near-space conditions to domestic and foreign users.

Information about NOAA satellites:

<http://www.nesdis.noaa.gov/SatInformation.html>

Information about NOAA satellite products:

<http://www.nesdis.noaa.gov/SatProducts.html>

Total Precipitable Water (TPW)

(i.e., column-integrated water vapor amount)

<http://www.ospo.noaa.gov/Products/atmosphere/index.html>

See under “Precipitation” products

<http://www.ospo.noaa.gov/Products/atmosphere/rain.html>

Microwave instruments/products overview (TPW, SST, etc)

NOAA MSPPS (Microwave Surface and Precipitation Products System) is dedicated to the retrieval of near-real-time operational surface and precipitation products using antenna temperatures from the AMSU-A and AMSU-B/MHS instruments on board of NOAA's KLMNN' series and the EUMETSAT Polar System's (EPS) MetOp series polar-orbiting satellites. This project has advanced from 5 products at its Day-1 phase to 9 products at the Day-2 phase. The current Day-2 MSPPS products include: rain rate and falling snow, total precipitable water, cloud liquid water, snow cover, snow water equivalent, sea ice concentration, ice water path, emissivity (23.8 GHz, 31.4 GHz, and 50.3 GHz), and land surface temperature .

<http://www.star.nesdis.noaa.gov/corp/scsb/mspps/overview.html>

SSM/I- Special Sensor Microwave/Imager

DMSP satellites carry the SSM/I instrument (F08, F10, F11, F13, F14, F15) and the SSMIS instrument (F16, F17, F18), an instrument similar to the SSM/I, but with sounding capabilities.

<http://www.osdpd.noaa.gov/ml/spp/sharedprocessing.html>

http://www.remss.com/ssmi/ssmi_description.html

TMI - TRRM Microwave Imager

<http://trmm.gsfc.nasa.gov/>

SST (retrieved from the IR and microwave)

IR Instruments/products overview:

AVHRR- Advanced Very High Resolution Radiometer

<http://podaac.jpl.nasa.gov/SeaSurfaceTemperature/AVHRR-Pathfinder>

National Oceanographic Data Center (NODC)

<http://www.nodc.noaa.gov/>

SST data info <http://www.nodc.noaa.gov/SatelliteData/pathfinder4km/>

Browse images http://data.nodc.noaa.gov/pathfinder/Version5.2/browse_images/

Merged NOAA SST product - browse images and get ASCII data

http://www.class.ncdc.noaa.gov/saa/products/search?datatype_family=SST50

Remote Sensing Systems provides research-quality geophysical data to the scientific community

<http://www.remss.com/>

The screenshot shows the Remote Sensing Systems website interface. At the top, there is a browser window with the URL "Remote Sensing Systems / ...". Below the browser window is a navigation bar with the site logo and several menu items: "SSM/I", "TMI", "AMSR", "WSAT", "MSU", "Storm Watch", "RSS Research", "Support", and "Site Map". A satellite icon is positioned to the right of the navigation bar. Below the navigation bar is a banner with the text "Research-quality geophysical products from satellite data". The main content area features a central image of Earth with several satellite icons orbiting it. To the right of this image is a list of data products, each with a title, a "DATA" label, and a "New Data" indicator. Each product has a "Description" and "Browse Data" link. The products listed are: SSM/I, TMI, AMSR, QSCAT, MSU, WindSat, Sea Surface Temperature (SST), Total Precipitable Water Vapor (TPW), and Water Vapor Cycle: Evaporation ≈ Precipitation. At the bottom of the page, there is a mission statement and a footer with three columns of links: "Tropical Cyclone Watch" (Active Storms, Data Archive), "RSS Research" (Climate Variability, Sea Surface Temperature), and "Support" (Publications, Crossing Times).

Remote Sensing Systems

SSM/I TMI AMSR WSAT MSU

Home About RSS Contact RSS

Storm Watch RSS Research Support Site Map

Research-quality geophysical products from satellite data

SSM/I DATA SSM/I DATA SSM/I

> Description > Browse Data > Validation

TMI DATA TMI DATA TMI

> Description > Browse Data > Validation

AMSR DATA AMSR

> Description > Browse Data

QSCAT DATA QSCAT

> Description > Browse Data

MSU DATA MSU DATA MSU

> Description > Browse Data > Validation

New Data WindSat DATA WindSat

> Description > Browse Data

Optimally Interpolated Sea Surface Temperature (SST)

> Description > Browse Data > Validation

Total Precipitable Water Vapor (TPW)

> Browse Data > Download Data

Water Vapor Cycle: Evaporation ≈ Precipitation

> Description > Browse Data > Download Data

Remote Sensing Systems is a world leader in processing and analyzing microwave data collected by special satellite microwave sensors. The mission of this website is to provide research-quality geophysical data to the global scientific community.

Tropical Cyclone Watch

> Active Storms

> Data Archive

RSS Research

> Climate Variability

> Sea Surface Temperature

Support

> Publications

> Crossing Times

Validation of SST retrieved from satellites:

National Buoy Center <http://www.ndbc.noaa.gov/>

The screenshot displays the National Data Buoy Center (NDBC) website interface. At the top, the NOAA logo and the text "National Oceanic and Atmospheric Administration's National Data Buoy Center" are visible. Below this, navigation links for "Home", "News", and "Organization" are present. The main content area features a search bar for "Station ID Search" and a "Station List" button. A sidebar on the left contains various links for "Observations", "Mobile Access", "Classic Maps", "Recent Historical", "DART@ MMS ADCP", "Obs Search", "Ship Obs Report", "Gliders", "APEX", "TAO", "DODS", "HF Radar", "OSMC", "Dial-A-Buoy", "RSS Feeds", "Obs Web Widget", "Email Access", "Station Status", "NDBC Maintenance", "NDBC Platforms", "Partner Platforms", "Program Info", "Facebook", "NDBC on Facebook", "About NDBC", "Met/Ocean", "Moored Buoy C-MAN", "TAO", "DART@", "VOS", "CSP", "IOOS@ Program", "IOOS@ DAC", "Publications", "NDBC DOC Handbook", "Hurricane Data Plots", "Mariners Weather Log", "Observing Handbook No. 1", "Science Education", "NDBC Director", "FAQ", "Media Inquiries", "Contact Us", "Visitor Information", "Links", and a "USA.gov" logo.

The main map area shows a global distribution of buoy stations, represented by red and yellow diamond markers. The map is titled "National Data Buoy Center" and includes a "Program Filter" and an "Owner Filter" section. The "Program Filter" includes checkboxes for "NDBC Meteorological/Ocean", "International Partners", and "IOOS Partners". The "Owner Filter" includes checkboxes for "NDBC", "Amerada Hess", and "Anadarko". Below the filters, there is a text box with instructions: "To save the current map view, right click on this link and select either 'Add to Favorites' or 'Bookmark this link'. To zoom the map, use the zoom slider on the map, or hold down the Shift key while dragging a box; or click the magnifying glass below the zoom slider to turn drag zoom on and off." The map itself shows a world map with numerous red and yellow diamond markers representing buoy stations. A "Map" and "Satellite" toggle is visible in the top right corner of the map area. A "Select a region:" dropdown menu is also present, listing various regions such as "Atlantic (Tropical)", "Atlantic (West)", "Australia", "Bay of Bengal", "Caribbean Sea", "Central America", "Chile", "Europe", "Gulf of Alaska", "Gulf of Mexico (West)", "Gulf of Mexico (East)/Florida", "Nova Scotia", "Pacific (North)", "Pacific (West)", "USA-Alaska", "USA-Hawaii", "USA-Great Lakes (East)", "USA-Lake Superior", "USA-Northeast", "USA-Northwest", "USA-Southeast", and "USA-Southwest".

Below the map, there is a "Mouse Cursor Coordinates:" box showing "1180 stations deployed" and "893 have reported in the past 8 hours". A "Disclaimer" link is also visible. At the bottom of the page, there are links for "Get Observations by Program as KML", "Get Observations by Owner as KML", and "How do I use KML?". The footer includes "U.S. Dept. of Commerce", "National Oceanic and Atmospheric Administration", "National Weather Service", "National Data Buoy Center", "Bldg. 3205", "Stennis Space Center, MS 39529", "Contact Us", "Page last modified: September 19, 2012", "Disclaimer", "Information Quality", "Credits", "Glossary", "Privacy Policy", "Freedom of Information", "About Us", and "Career Opportunities".