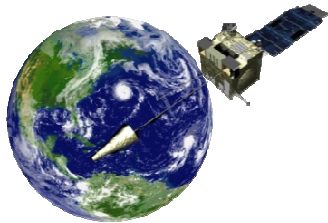




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GEOSS Joint Asia-Africa Water Cycle Symposium

Collaboration Opportunities for the Application of Earth Observations from Space in Water Activities



Martin Medina, Ph.D.
Sr. International Relations Specialist
NOAA Satellite and Information Service
Martin.Medina@noaa.gov

November 25, 2013

Tokyo, Japan



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USG Support of Development Assistance through Earth Observations from Space

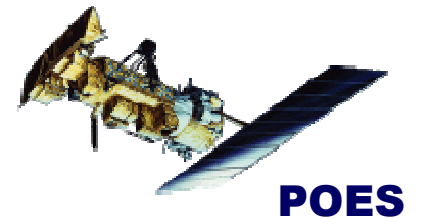
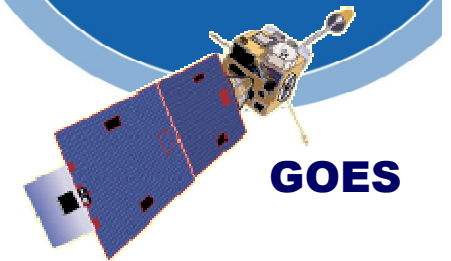
- 2010 National Space Policy
 - “The United States hereby renews its pledge of cooperation in the belief that with strengthened **international collaboration** and reinvigorated U.S. leadership, all nations and peoples—space-faring and space-benefiting—will find their horizons broadened, their knowledge enhanced, and their lives greatly improved.”
- United States Group on Earth Observations
 - For...battling drought and disease, emergency managers making evacuation decisions, farmers making planting choices...there is a real global need...to provide new analytical tools, access to timely data and forecasts about emerging threats that will enable wise choices in an uncertain world.
 - The aim is to provide the right information, in the right format, to the right people, at the right time, to make the right decisions.



NOAA Satellites

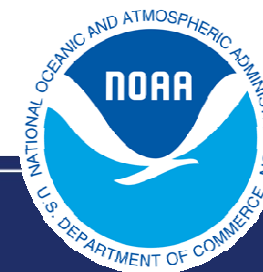
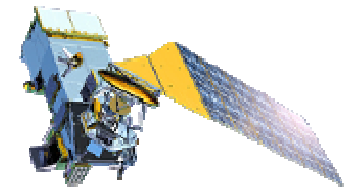
Current Satellite Programs

- 24/7 Satellite operations and product processing
 - Geostationary satellites (GOES)
 - Polar-orbiting satellites (POES)



Future Satellite Programs

- Joint Polar Satellite System (JPSS, formerly NPOESS)
- GOES-R

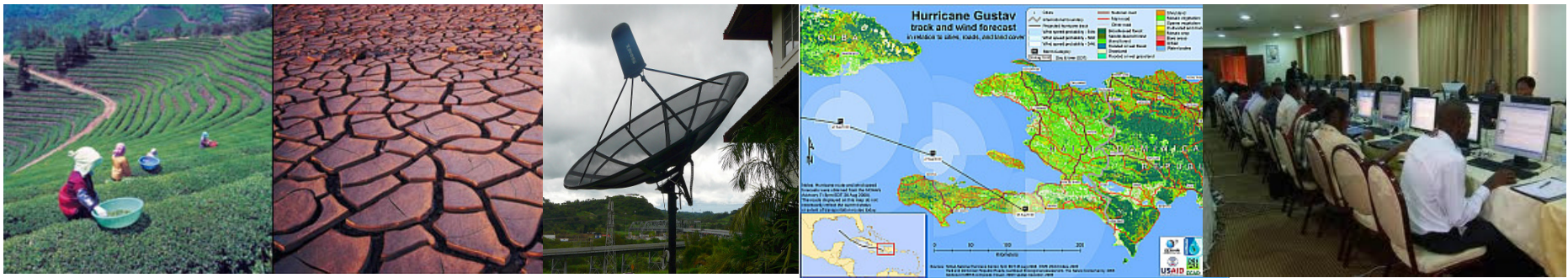




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Meeting Water Related Development Needs with Remote Sensing

- Meeting the development needs through improving:
 - Access to Earth Observation Data
 - Data Dissemination Infrastructure
 - Number and Scope of Specialized Products
 - Knowledge of How to Interpret and Assimilate Data/Products into Decision Making Processes



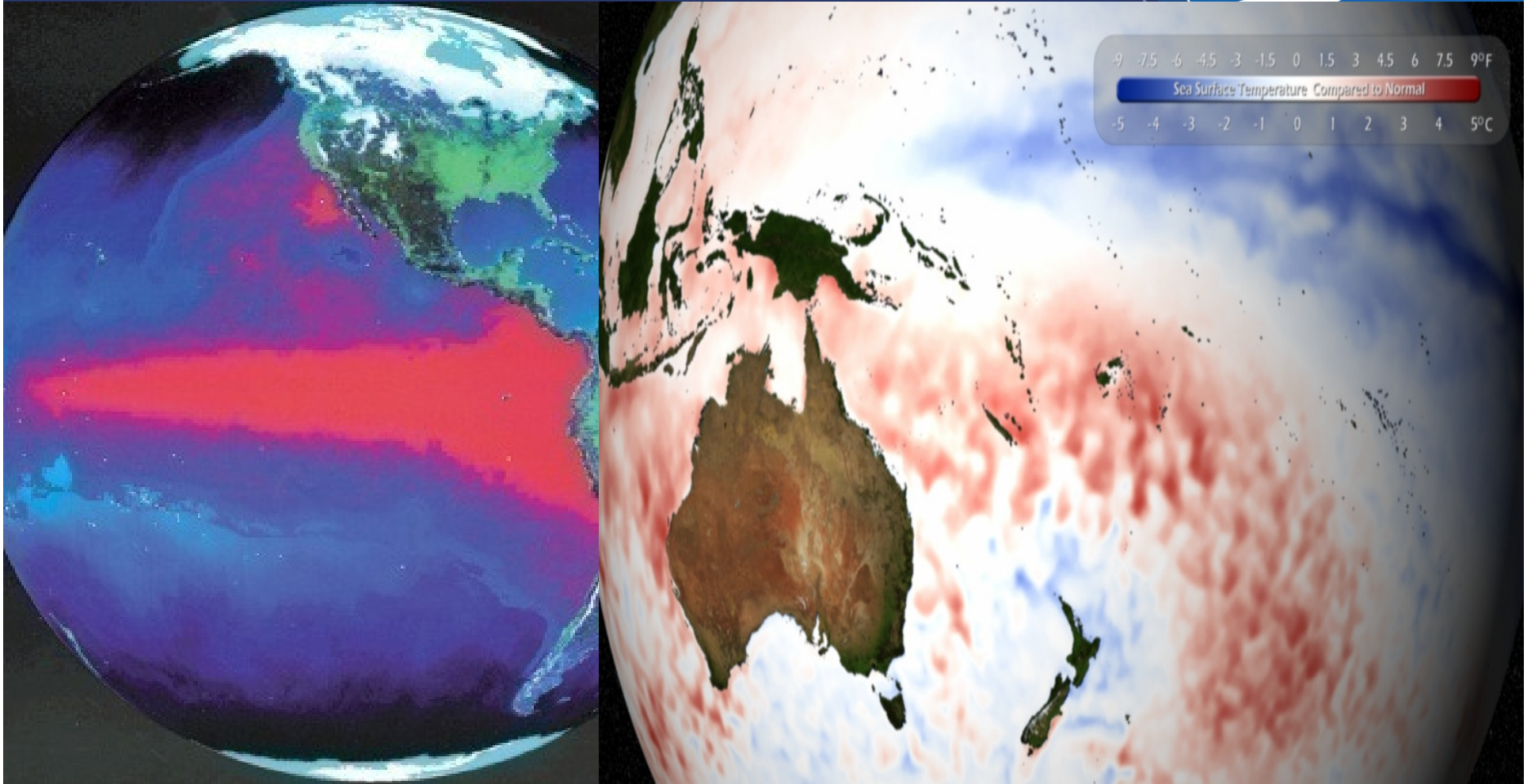


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NOAA Water Related Remote Sensing Products

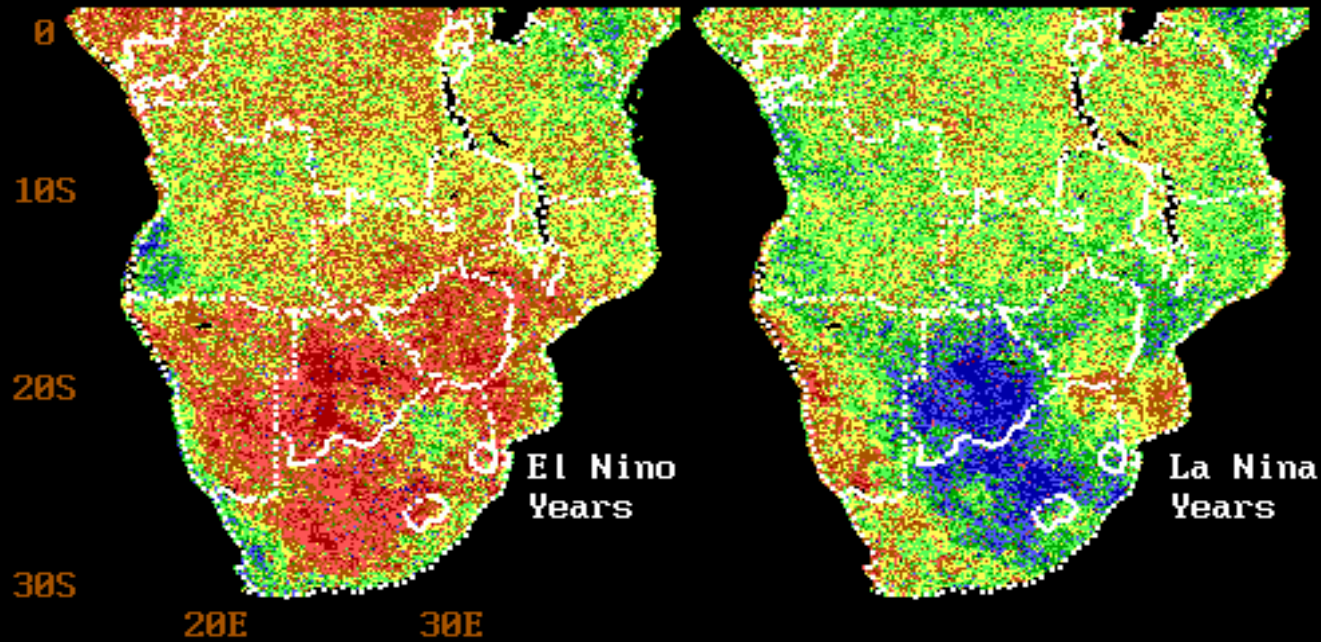
- Precipitation—short term (flooding) and long-term (water resources)
- Snow and ice cover and snow water content
- Vegetation Health—an indirect measure of water surplus / deficit
- Soil moisture / surface wetness—the water content of the topmost 1 cm or so of soil

Monitoring El Niño / La Niña



Impact of El Niño / La Niña on Precipitation and Vegetation

Vegetation & Temperature Condition Index (VTI)
SOUTHERN AFRICA
Week 30 (from the beginning of July)



Health Vegetation Index

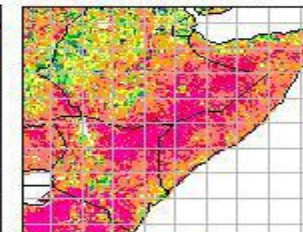
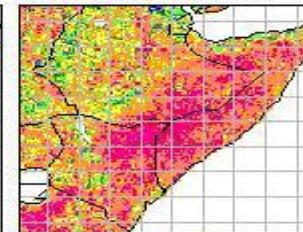
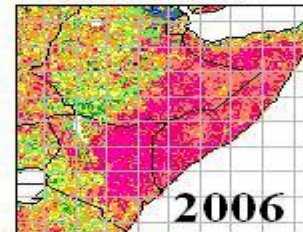
2000-2006 Drought HORN of AFRICA



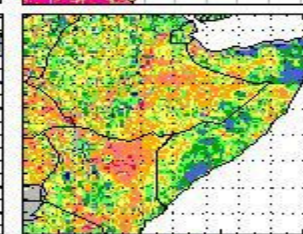
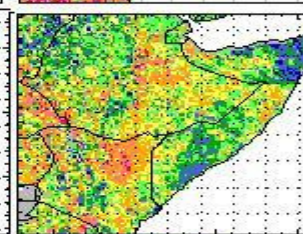
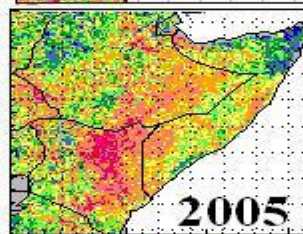
MARCH

FEBRUARY

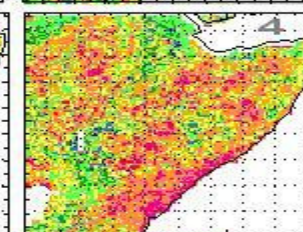
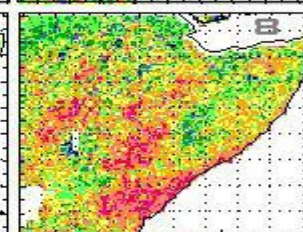
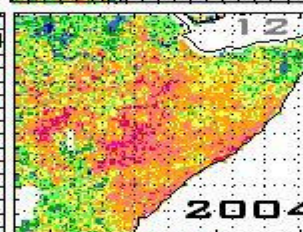
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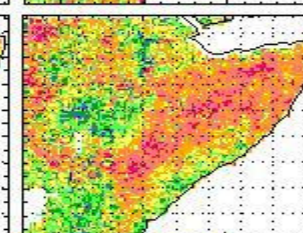
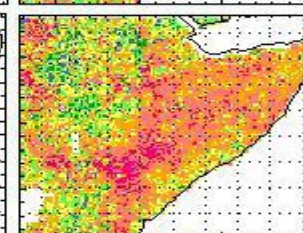
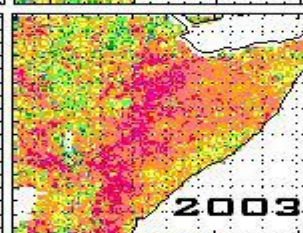
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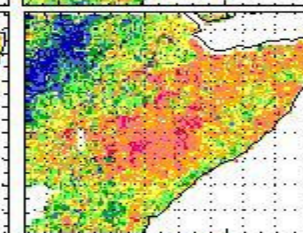
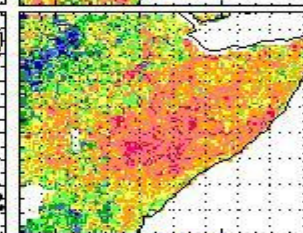
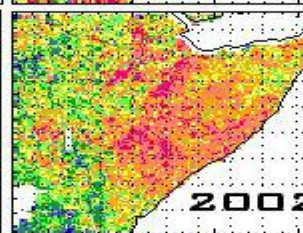
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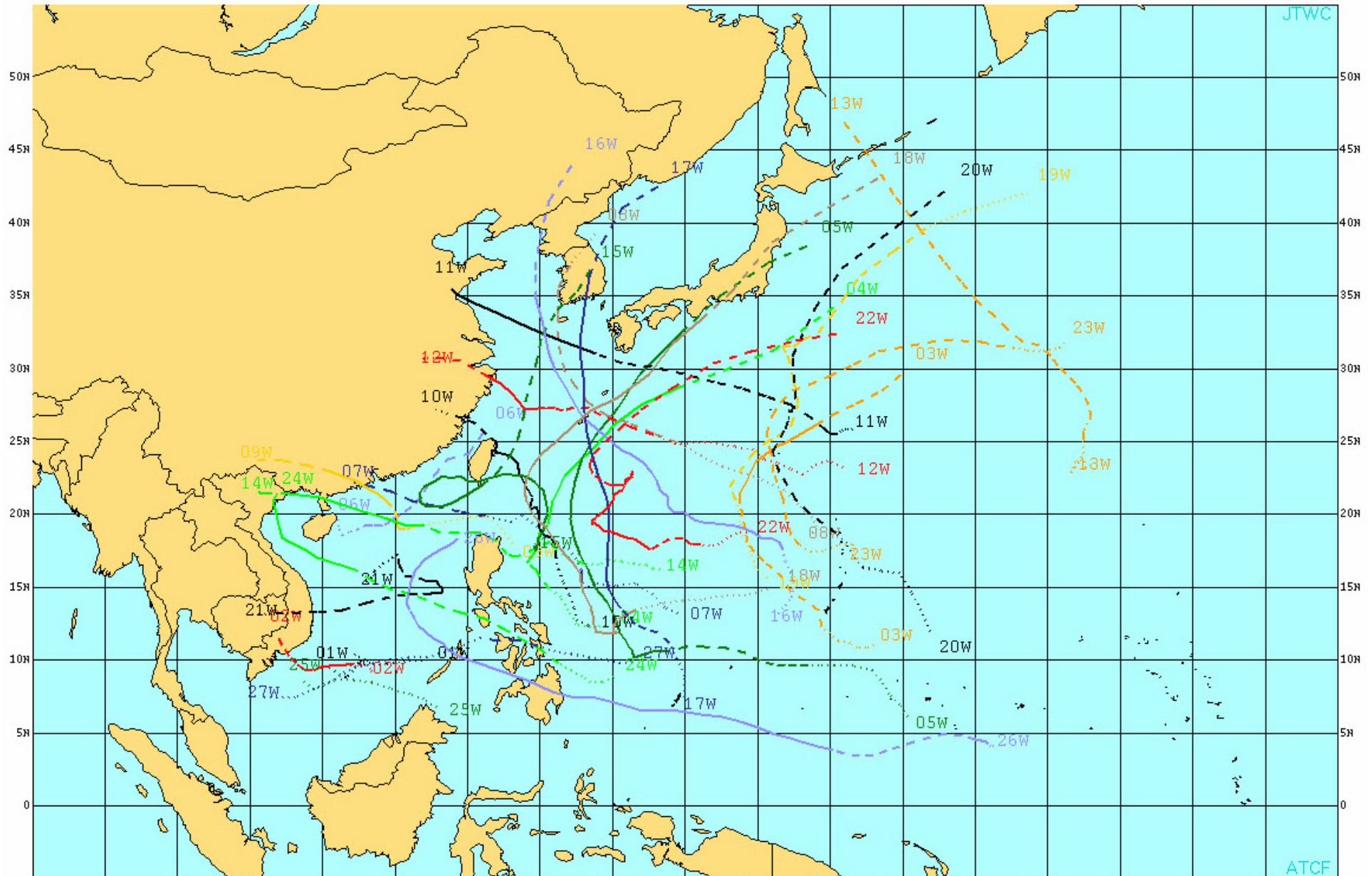
2004

2003

2002



Tropical Cyclone / Storm Tracking



Rainfall Estimates

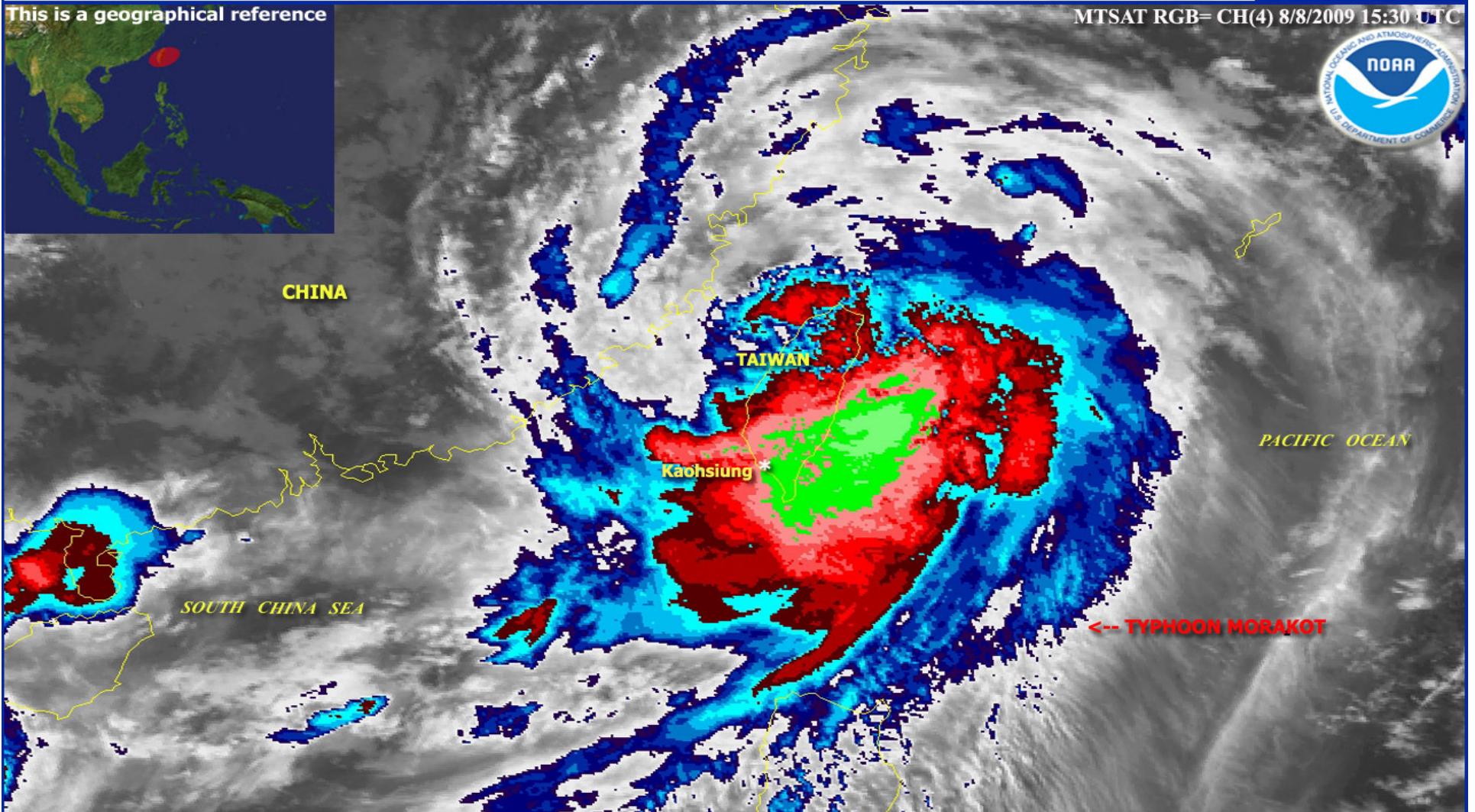
This MTSAT image showed coldest tops represented by the green/reds/pinks which can be interpreted for heavy rainfall signatures. Typhoon Morakot brought torrential rains over Taiwan on Friday (Aug. 07) and Saturday (08) and caused Taiwan's worst flooding in decades. As of local time at 11:40 p.m. Saturday, Hsinan water station in Kaohsiung County had recorded 1287 mm (50.7 inches) of rainfall, which was the second highest level ever recorded as reported by the Central News Agency (CNA).

Credit: NOAA

This is a geographical reference



MTSAT RGB= CH(4) 8/8/2009 15:30 UTC



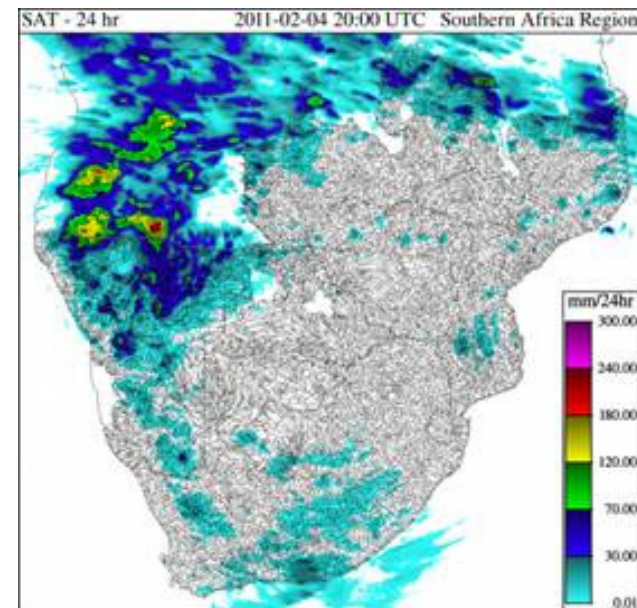


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NOAA Solutions to Water Related Development Needs

Flash Flood Guidance System

- NOAA provides satellite rainfall estimates for a Hydrologic Research Center -developed forecasting tool used by in-country weather services to identify regions of flash flood risk
- Namibia Example:
 - February/March 2011—heaviest rainfall in many areas in >120 years of records
 - Satellite rainfall estimates used extensively in Namibia Hydrological Service (NHS) bulletins



Namibia 24-h rainfall from the Hydro-Estimator from 2 February 2011.

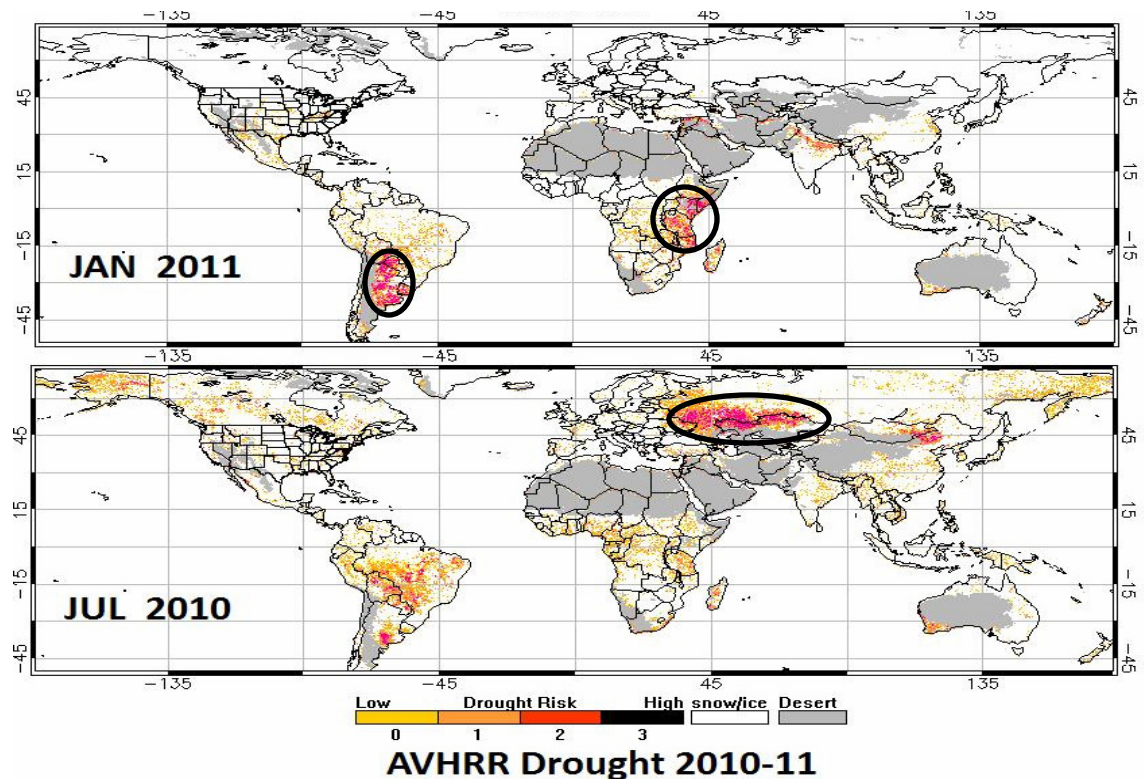


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NOAA Solutions to Water Related Development Needs

Monitoring Drought with Operational Satellites

- NOAA uses satellite data to monitor the health of vegetation (greenness and temperature) every week for the entire globe, providing an indication of the coverage and severity of drought conditions.
- This example shows recent severe droughts in Russia, East Africa, and Argentina.





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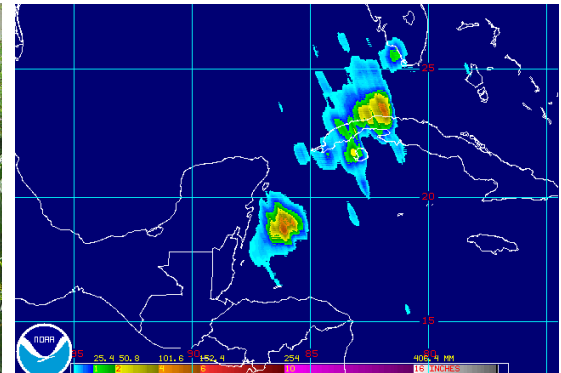
NOAA Solutions to Water Related Development Needs

GEONETCast Dissemination System in Support of GEO / GEOSS

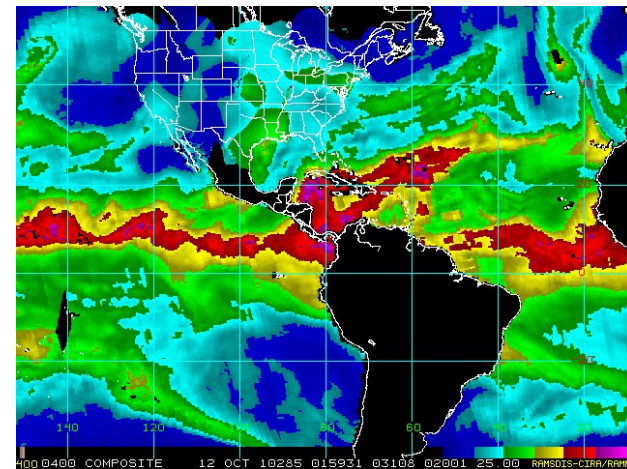
- A satellite-based data and product distribution network.
- Low cost, stand alone, off-the-shelf reception stations.
- Particularly applicable in areas of poor telecommunications infrastructure or where there is risk of damage due to disasters.
- Global system in cooperation with EUMETSAT and CMA.



GNC Receiving Station

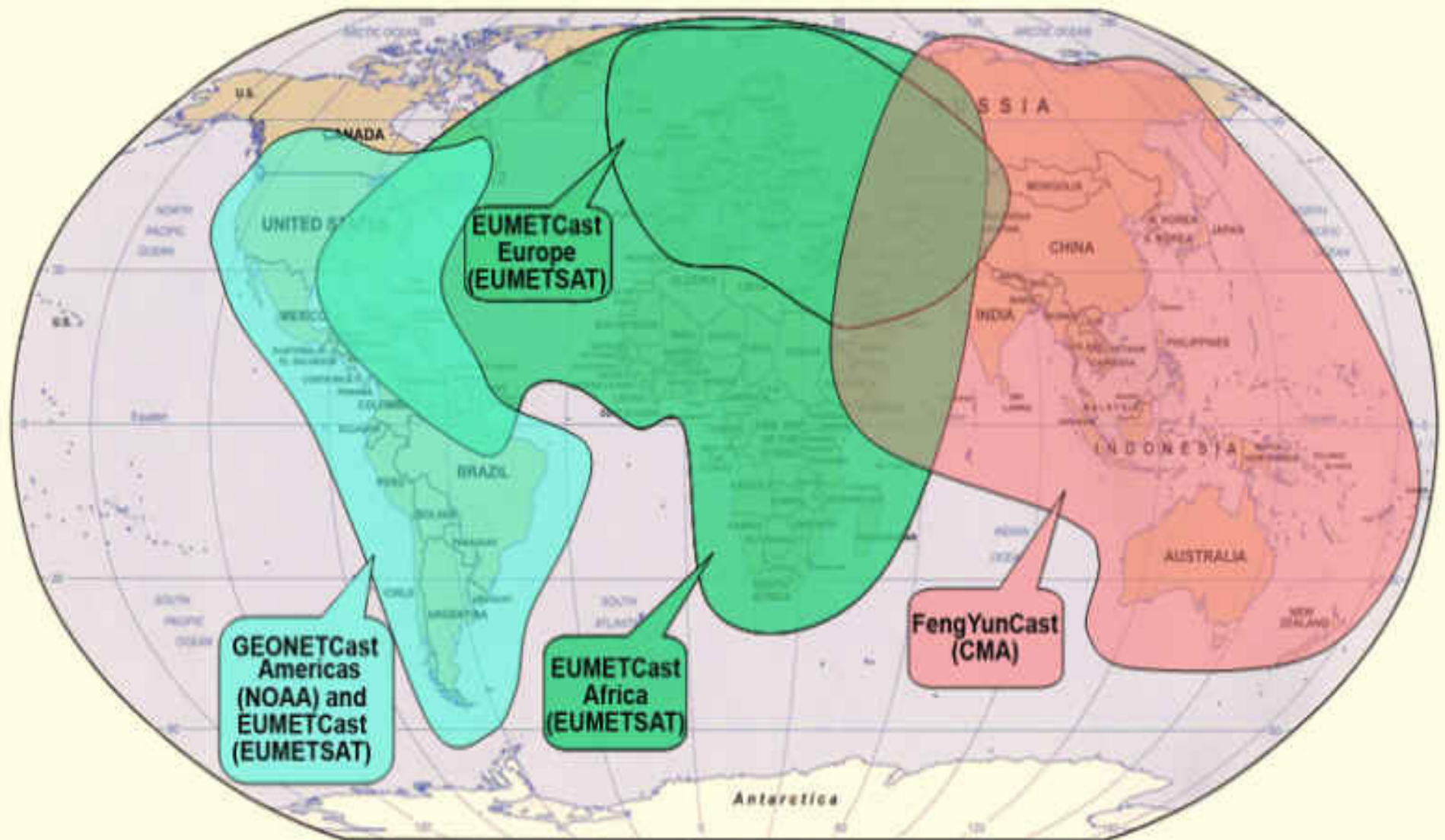


NOAA Tropical Rainfall Product



CIRA Total Precipitable Water

Global GEONETCast Coverage



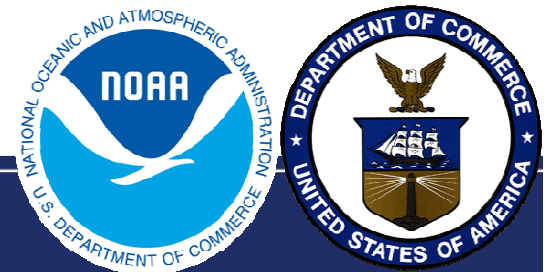
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Conclusion

NOAA can contribute with historic and current data / products related to water. The GEONETCast system can support the data integration, distribution, and access in Africa, Asia and Latin America. NOAA welcomes collaboration and partnerships with users / donors.

Thank you!

