

NASA's Water Solutions Using Remote Sensing

David Toll (NASA/GSFC)

NASA Water Resources works within Earth sciences to leverage investments of space-based observation, model results, and development and deployment of enabling technologies, systems, and capabilities into water resources management decision support tools for the sustainable use of water. Earth science satellite observations and modelling products provide a huge volume of valuable data in both near-real-time and extended back nearly 50 years about the Earth's land surface conditions such as land cover type, vegetation type and health, precipitation, snow, soil moisture, and water levels and radiation. Observations of this type combined with models and analysis enable satellite-based assessment of the water cycle.

With increasing population pressure and water usage coupled with climate variability and change, water issues are being reported by numerous groups as the most critical environmental problems facing us in the 21st century. Competitive uses and the prevalence of river basins and aquifers that extend across boundaries engender political tensions between communities, stakeholders and countries. The NASA Water Resources Program has the objective to provide NASA products to help deal with these issues with the goal for the sustainable use of water. The Water Resources program organizes its projects under five functional themes: 1) stream-flow and flood forecasting; 2) water consumptive use (includes evapotranspiration) and irrigation; 3) drought; 4) water quality; and 5) climate and water resources. NASA primarily works with national and international groups such as other US government agencies (NOAA, EPA, USGS, USAID) and various other groups to maximize the widest use of the water products. A summary of NASA's water activities linked to helping solve issues for developing countries will be highlighted.

Proposed NASA related Panel Side Event to the US Pavilion 'Time for Solutions'
POC D. Toll, NASA/GSFC

"NASA Water Remote Sensing and Modeling Tools are Part of the Solution"

Partnering with NASA and Earth Data Observation Groups for Improved Water Management

- 1) World Bank's Remote Sensing Examples and Highlights (Julia Bucknall)
- 2) USAID's Remote Sensing Examples and Highlights (TBD from USAID)
- 3) Example End User Highlight Using Remote Sensing (TBD)

Using Remote Sensing Technology for Improved Water Management

- 4) Key NASA Water Resources Satellite Capabilities, Includes NASA GRACE (Ground Water), NASA GPM (Precipitation) & NASA SMAP (Soil Moisture)
- 5) Highlights of successful NASA's remote sensing and modeling activities to address water issues related to drought, aquifer monitoring, consumptive water loss, floods, food and water, water availability and climate impacts.
- 6) Example projects highlighting the successful use of NASA technology
 - a) Famine Early Warning System – Network for Developing Countries
 - b) SERVIR 'to Serve'
 - c) MENA Water Information System Platforms