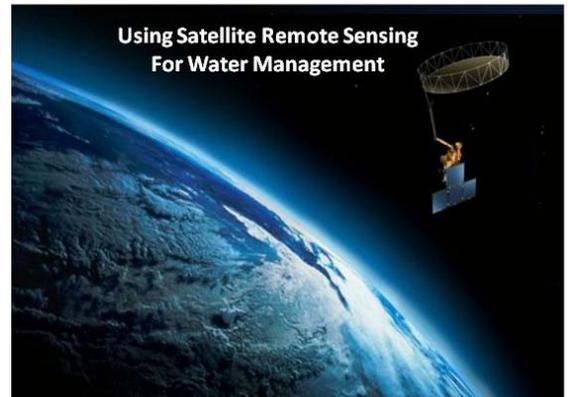




NASA Applied Sciences Program delivers satellite based and modeled data to water managers, researchers and communities throughout the world, especially benefiting developing nations and data poor parts of the world.

- Approximately \$1.7B of the FY09 NASA budget supports Earth science technology, research and applications.
- NASA and Earth observing remote sensing based observations are valuable to developing countries with sparse in situ data. NASA tools for combining satellite data with existing in situ networks can effectively fill observational gaps and are powerful for decision makers.
- NASA strongly supports a free and open exchange of its Earth science and satellite data throughout the world.
- NASA —satellite data, tools, ground measurements, and models—provide invaluable Earth and related information which is a vital resource for addressing societal benefits such as:
 - water resource planning and management,
 - famine early warning and drought monitoring & prediction for food security,
 - disaster management including floods and landslides,
 - water quality and transboundary water issue.



Famine Early Warning System

NASA provides critical information such as near real-time precipitation, lake level and vegetation information to the USAID sponsored Famine Early Warning Systems Network relevant

to crop production, rangeland condition, and food security. NASA products and technology are helping FEWS-NET expand their service from 21 countries to numerous additional developing countries.



Global Rains, Floods & Landslides

Floods and associated rainfall-driven landslides account for the largest number of natural disasters. NASA satellite data on rainfall and surface characteristics are used to inform, understand, and predict flood and landslide hazards globally. The goal is to produce operational systems providing near real-time data.



Water Management Platforms

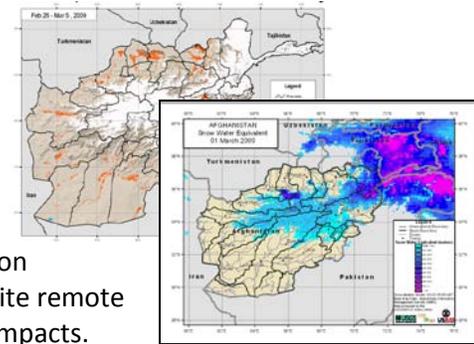
NASA in collaboration with USAID and The World Bank is developing remote sensing and Earth Science data platforms in water critical parts of the world, i.e., the Middle East and North Africa (water availability, agriculture & aquifer monitoring). This will address multitude of issues dealing with water resources, aquifer & streamflow transboundary issues, agriculture planning, floods management and early warning and overall water balance. This will further enable users and the decision makers to build capacity to address these issues in the long run.





HIMALAYA: Climate Impacts on Glaciers in the Himalaya Region

This project focuses on climate and water resources with the objectives to provide potable and integrated water resources management information on Himalayan glacier fed rivers in Asia using NASA's satellite remote sensing and to provide projections of climate change impacts.



Summary of Additional NASA Water International Projects

Region	Activity
World	Lake Level Monitoring. Using satellite microwave data to provide near-real time global water level data for lakes and reservoirs (currently 75 soon for 600+) important for assessing drought and food production. http://www.pecad.fas.usda.gov/cropexplorer/global_reservoir
Africa, Asia, Central America	SERVIR. (to serve) visualization and monitoring systems of environmental stations in data poor parts of the world (currently in Panama, Kenya and plans for Nepal and West Africa). Also includes 'Climate One Step'. http://www.servir.net
Africa & Latin America	Capacity Building in Latin America and Africa. NASA is working in cooperation with other groups to help overcome problems developing countries have with the collection, training, and analysis of water-related geo-information. http://wmp.gsfc.nasa.gov .
Nile Basin	Distributed Hydrological Data for Nile Basin. To improve water resource decision support systems for the Nile Basin through satellite observations and modeling to promote improved water management and data sharing between countries. http://wmp.gsfc.nasa.gov
India	Groundwater Monitoring in India. NASA scientists have applied satellite observations in combination with a hydrological modeling system to quantify the depletion rate of aquifers in the Indian states of Rajasthan, Punjab and Haryana (including Delhi).
South America	Integrating NASA Products into Decision Systems for Agriculture and Water Management. NASA remote sensing and modeling products combined with surface observations at various scales (sub-country to continental) to improve decisions support systems in agriculture, drought and water resources management. http://wmp.gsfc.nasa.gov
Iraq	Agriculture for Pre-War and Post-War Iraq: NASA is mapping agriculture before and after the Iraq war with the US Army to assist with improved food production. http://wmp.gsfc.nasa.gov
Catchment to Global	Hydrology for Life Environment and Policy (HELP). NASA supports HELP (under UNESCO) to help bridge the gap between scientific hydrology and the various other stakeholders involved in comprehensive basin management decisions. http://www.unesco.org/water/ihp/help/