Improving US Bureau of Reclamation Water Supply, Demand Monitoring and Forecasting Using NASA Earth Science Data

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Abstract: In response to the need for more spatially and temporally complete information, USBR has partnered with DRI, NASA, and other government agencies to explore the use of remote sensing products and to employ different models and techniques to work further with the remote sensing products. A few pilot studies are now underway in certain regions of the western U.S. to evaluate, validate and benchmark the datasets of the MODIS (Moderate Resolution Imaging Spectroradiometer) sensor aboard the Earth Observing System (EOS) Terra and Aqua Satellites, Landsat TM data, ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer), SRTM (Shuttle Radar Topography Mission), and other remote sensing platforms provided by NASA and NOAA. Remote-sensing and enhanced observation-based products are currently being and will be tested and benchmarked as inputs to Reclamation's decision support systems (DSS's), RiverWare and AWARDS ET-Toolbox (Agriculture Water Resources Decision Support-Evapotranspiration Toolbox). By collaborating with USBR national and regional offices and their partnering agencies, like USGS and NOAA, we aim to test and develop an integrated NASA observation and modeling framework that will help meet the needs of the water managers, engineers, and farmers alike for the different regions and the different water-related problems affecting those regions (e.g., flooding, drought, etc.). This work is a joint collaborative and equally distributed effort between DRI, NASA/GSFC, the UI and the USBR. We will primarily study the MODIS (Moderate Resolution Imaging Spectroradiometer) sensor aboard the Earth Observing System (EOS) Terra and Aqua Satellites, and water availability products associated with NASA's Land Information System (LIS) in an attempt to improve the performance of USBR's water supply and demand modeling tools in the Upper Rio Grande (URG) and Truckee-Carson (TC) river systems.