Position #356
Revised and Readopted
(Originally adopted Oct 29, 2010)

POSITION
of the
WESTERN STATES WATER COUNCIL
regarding
NASA'S APPLIED SCIENCE RESEARCH PROGRAM
Deadwood, South Dakota
October 3, 2013

WHEREAS, the Western States Water Council is a policy advisory body representing eighteen states, and has long been involved in western water conservation, development, protection, and management issues, and the member states and political subdivisions have long been partners in cooperative federal water and climate data collection and analysis programs; and

WHEREAS, in the West, water is a critical, vital resource (much of which originates from mountain snows) and sound decision making demands accurate and timely mapping of, and data on, altimetry, topography, precipitation, temperature, snow water content, groundwater, land use and land cover, water use, water quality parameters, and similar information; and

WHEREAS, the demands for water and related climate data continue to increase along with the West's population, and this information is used by federal, state, tribal, and local government agencies, as well as private entities and individuals to: (1) forecast flood and drought occurrence; (2) project future water supplies for agricultural, municipal, and industrial uses; (3) estimate streamflows for hydropower production, recreation, and environmental purposes; (4) facilitate water management and administration of water rights, decrees, interstate compacts, and international water treaties; (5) assist in disaster response; (6) assess impacts of climate variability and change; and

WHEREAS, thermal infrared imaging data available from Landsat 7 and Landsat 8 is used to measure and monitor agricultural and other outdoor water uses and needs, and is increasingly important for present and future management of our scarce water resources, and is an example of the application of basic science pioneered by the National Aeronautics and Space Administration (NASA); and

WHEREAS, spaceborne interferometric synthetic aperture radar (InSAR) has a demonstrated ability to measure land subsidence due to groundwater extraction and is now being evaluated in a research mode for its potential ability to measure changes in groundwater elevations; and

WHEREAS, airborne light detection and ranging **(**LiDAR) using light waves instead of radio waves to measure the distance to objects and imaging spectroscopy are now being flown in California and Colorado to estimate basin-wide snow water equivalent; and

WHEREAS, additional airborne and spaceborne remote sensing research and observations have a potential to provide other information on varied temporal and spatial scales that could with sustained engagement ultimately be useful for water resources planning, management and decision-making; and

WHEREAS, NASA has identified the "water and energy cycle" and "water resources" as topics to support in the agency's research and applications programs respectively; and.

WHEREAS, NASA's ARRA demonstration project on California applications for use of remote sensing information has illustrated that the potential exists for repurposing data collected from certain present NASA missions for water management applications, and that additional potential exists for research applications with sensors planned in future Decadal Survey missions such as the Deformation, Ecosystem

Structure and Dynamics of Ice mission (DESDynl), which would combine radar and LiDAR technologies to get three-dimensional views; and

WHEREAS, the successful transfer of technology from the research domain to the applications domain is dependent, in part, on on-going communication between researchers and those responsible for resource management and policy decisions and a long term commitment to maintain such communication;

NOW THEREFORE BE IT RESOLVED, that the Western States Water Council urges the Administration and NASA to enhance the agency's focus areas on research for water resources applications, and to promote long term engagement with the Council and the state and regional agencies in the western United States responsible for water management and water policy to maximize benefits to the public from NASA's existing and future investments in Earth observations, Earth system models and systems engineering; and

BE IT FURTHER RESOLVED, that the Council urges the Administration and NASA to plan and provide for long-term continuity of observations from key sensors such as the thermal infrared sensor and InSAR; and

BE IT FURTHER RESOLVED, that the Council strongly supports an expedited NASA review of options for a continuing National Land Imaging Program, including existing thermal imaging capabilities, and expresses its strong preference for an immediate short-term effort to replicate and launch a satellite similar in design and instrumentation to Landsat 8 to minimize any loss of data – while exploring the potential for medium and longer-term advances in technology, design and future capabilities to meet existing and future uses.