

A.20 TERRESTRIAL HYDROLOGY

NOTICE: The Terrestrial Hydrology program will not be competed in ROSES-2015.

1. Scope of Program

The NASA Terrestrial Hydrology program (THP) has the scientific objective to use remote sensing to develop a predictive understanding of the role of water in land-atmosphere interactions and to further the scientific basis of water resources management. The NASA THP is a component of the Water and Energy Cycle Focus Area (see Section 2 of Appendix A.1 for a description of Earth science focus areas).

THP uses NASA's unique view from space to study hydrologic processes associated with runoff production, hydrologic fluxes at the land-air interface, and terrestrial water stores. THP fosters the development of hydrologic remote sensing theory, new hydrologic satellite missions, hydrologic remote sensing field experiments, and the interface of hydrology with other disciplines, such as ecology or modeling. Particular emphasis is placed on the application of satellite based remotely sensed data for characterizing, understanding, and predicting the terrestrially linked components of the hydrologic cycle and the dynamics of large-scale river basins. THP is currently focused on research relating to multiple missions, either currently operational, such as AQUA and Gravity Recovery and Climate Experiment (GRACE), or with approaching launch dates, such as Soil Moisture Active Passive (SMAP) and Global Precipitation Measurement (GPM), or earlier stages of planning and development, such as SWOT and Gravity Recovery and Climate Experiment Follow-on (GRACE-FO). THP projects are also extensively using data collected at previous or current field campaigns and projects, such as SMEX, SMAPVEX, AirMOSS, CLPX or numerous others, both national and international. THP furthers study of the relationship between satellite interferometric measurements of surface deformation and changes in underground water stores.

THP continues to encourage use of NASA investments to improve the use of remote sensing information in weather and climate models, primarily through data assimilation approaches involving land surface models. The Land Information System (LIS; <http://lis.gsfc.nasa.gov>) provides a modeling test bed for potential investigations of this domain along with an entrée into activities of other U.S. agencies.

More information on current THP projects and plans, as well as links to related field campaigns, can be found at mission specific websites e.g., <http://smap.jpl.nasa.gov/> or <http://swot.jpl.nasa.gov/>.

2. Point of Contact for Further Information

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