**A.4 Terrestrial Ecology**

**NOTICE:** The Terrestrial Ecology program does not currently plan to solicit proposals in ROSES-2015. All funds available for Terrestrial Ecology research have been reserved for support of awards to be selected through the ROSES-2014 Terrestrial Ecology solicitation focused on the Arctic-Boreal Vulnerability Experiment (ABoVE). This program will be competed again in ROSES-2016.

NASA Terrestrial Ecology research addresses changes in Earth’s carbon cycle and ecosystems using space-based observations. The goals of NASA’s Terrestrial Ecology research are to improve understanding of the structure and function of global terrestrial ecosystems, their interactions with the atmosphere and hydrosphere, and their role in the cycling of the major biogeochemical elements and water. This program of research addresses variability in terrestrial ecosystems, how terrestrial ecosystems and biogeochemical cycles respond to and affect global environmental change, and future changes in carbon cycle dynamics and terrestrial ecosystems. The research approach combines (i) use of remote sensing to observe terrestrial ecosystems and their responses; (ii) field campaigns and related process studies to elucidate ecosystem function; and (iii) ecosystem and biogeochemical cycle modeling to analyze and predict responses.

Research to establish a theoretical and scientific basis for measuring Earth surface properties using reflected, emitted, and scattered electromagnetic radiation and to develop the methodologies and technical approaches to analyze and interpret such measurements is an important component of the Terrestrial Ecology research program.

Priorities for new research within NASA’s Terrestrial Ecology program continue to derive from the goals and objectives for Earth Science in NASA’s Strategic Plan (http://nasascience.nasa.gov/about-us/science-strategy), the research agenda of the U.S. Global Change Research Program (USGCRP) (http://www.globalchange.gov/), and the science priorities of the U.S. Carbon Cycle Science Program (https://www.carboncyclescience.us). A new emphasis within the Terrestrial Ecology program is its next major field campaign, the Arctic-Boreal Vulnerability Experiment (ABoVE). Thus, the ABoVE Concise Experiment Plan (ACEP; http://above.nasa.gov/acep.html) is an additional guide to the types of research of interest to NASA under the Terrestrial Ecology Program.

NASA anticipates that the ROSES-2016 Terrestrial Ecology Program solicitation will focus on additional ABoVE research to include airborne science, collaborations with ABoVE partner organizations to fill research gaps and take advantage of new opportunities for collaboration, and tightly focused opportunities for other Terrestrial Ecology research in support of major program goals and NASA missions.

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