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Small Space Science Missions (2)

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NASA'S STRATEGIC SCIENCE ACTIVITIES AND ACCOMPLISHMENTS WITH SMALL SATELLITES

Abstract

Large strategic (Flagship) missions represent a cornerstone of NASA's approach to explore the deepest questions across Earth, Heliophysics, Astrophysics, and Planetary sciences, and have fundamentally advanced human knowledge from the vantage point of space. Much of our scientific understanding of the universe at large is a result of the efforts of thousands of people that have enabled the development of such missions, but they are also costly, require long development timelines, and often trade-off new technological advancements and capability in favor of tried-and-true approaches that minimize risk to maximize the probability of mission success.

A new capability is emerging, however, where smaller satellites that make possible new mission architectures, rapid development, lower costs, advanced technology, and focused science uniquely enabled by these platforms (such as simultaneous multi-point observations) is challenging what can be achieved scientifically through innovative and disruptive alternative approaches. NASA's science exploration goals are broadening to investigate how small missions can contribute significant scientific discoveries recognizing that they must be a key component of a balanced portfolio of small, medium and large strategic science missions.

This talk will outline for the community NASA's strategic goals and current accomplishments regarding innovative approaches for scientific exploration using small satellites. Results from recent science and technology validation missions will be presented within the context of an overall implementation plan to expand the role of small missions as an innovative approach to achieve NASA's scientific objectives.