

Near Earth Asteroid Scout Mission – Status Update a Few Weeks Before Delivery!

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The Near Earth Asteroid Scout (NEAScout) mission was selected in 2013 as one of the 13 CubeSats to be flown on Artemis-1 (formerly Exploration-Mission 1). NEAScout is being developed under NASA's Advanced Exploration Systems. It is a science and technology demonstration mission. NEAScout's science objectives are to retire strategic knowledge gaps for Human exploration of asteroids. It will target and perform a slow flyby of an asteroid during which the spacecraft visible imager will acquire far and close range images of the asteroid with the objectives to constrain its physical and dynamical properties, close environment (e.g., search for companions and debris), and surface properties. NEAScout is propelled by an 86 m² solar sail that builds on the 2010 pathfinder NanoSail-D2. This will be the largest solar sail ever to be flown in space. Other technology demonstrations include a small computer called Sphinx and on-board data processing, analysis, and extraction for prioritized downlink. NEAScout will also fly an improved version of the Iris radio flown on the Mars CubeSat One CubeSats.

At the time of the conference, NEAScout will be nearing full integration and testing before delivery for integration in the dispenser to be mounted on Artemis-1 Multi-Purpose Crew Vehicle stage adapter. This presentation will review the science and technology objectives of NEAScout and the status of integration and testing.

NEAScout paves the way for future missions that would benefit from low cost, small spacecraft applied for example to networked constellations enabling new class of science or fleets targeting many objects. The Sphinx computer has a performance similar to the RAD750 for a fraction of the resource requirements. The NEAScout solar sail will represent a major milestone in sail technology with far-reaching applications to heliophysics missions, in particular.

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