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Ongoing and Upcoming Mission Highlights

**VALIDATION OF THE SURVEY SIMULATOR TOOL FOR THE NEO SURVEYOR
MISSION USING NEOWISE DATA**

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ABSTRACT

The Near-Earth Object Surveyor (NEOS) mission has a requirement to find two-thirds of the potentially hazardous asteroids larger than 140 meters in size. In order to determine the mission's expected progress toward this goal during design and testing, as well as the actual progress during the survey, a simulation tool has been developed to act as a consistent and quantifiable yardstick. This simulator will be run on a regular basis during design, testing, and operations, and will provide performance metrics that can be used to evaluate the mission design and determine the effects of trade studies that are proposed during this process.

To ensure that the Survey Simulator accurately reflects the data that will be obtained after the launch of NEO Surveyor, we must confirm that it is functioning as expected and can reproduce external measurements. We validate that the survey simulation software is correctly predicting on-sky positions and thermal infrared fluxes by simulating the observations that were obtained during the NEOWISE cryogenic survey from Jan 2010 to Aug 2010, and comparing predictions made by the Survey Simulator code to measurements reported by NEOWISE. These comparisons demonstrate that the accuracy of the Survey Simulator's astrometric positions and infrared photometry is sufficient to meet the requirements of the NEO Surveyor mission. We present here the results of this validation effort and discuss the implications for the NEO Surveyor mission.

Comments:

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