ASTEROIDFINDER: A SPACE-BASED SEARCH FOR IEOS. S. Mottola[1], A. Börner[2], J. T. Grundmann[3], G. J. Hahn[1], B. Kazeminejad[3], E. Kührt[1], H. Michaelis[1], S. Montenegro[3], N. Schmitz[1], P. Spietz[3], [1]DLR, German Aerospace Center, D-12489 Berlin, Rutherfordstr. 2, Germany. (Stefano.Mottola@dlr.de), [2]DLR - Berlin, [3]DLR - Bremen.

A small Earth-orbiting search telescope capable of observing at small angular distances from the Sun is an efficient and cost-effective tool for discovering Inner Earth Objects (IEOs) and measuring their orbits. For this reason DLR, the German Aerospace Center, has selected AsteroidFinder as the first payload to be flown on its SSB satellite platform, in the frame of the German National Compact Satellite Program. The primary scientific goals of AsteroidFinder are to contribute to the understanding of the dynamical evolution of the innermost region of the Solar System and of the cratering history of the inner planets. This is achieved by estimating the IEO population, their size-frequency distribution and their orbital properties.

In addition to these primary goals, AsteroidFinder will contribute to the assessment of the impact hazard of NEOs and therefore support the realization of the NASA Spaceguard-II Goal. Furthermore AsteroidFinder will provide a platform to evaluate the capability of compact satellites for space-based detection of orbital debris and artificial satellites.

The mission concept consists of a 30cm-class wide-field telescope equipped with an array of CCDs, installed on the DLR compact satellite bus orbiting in Low Earth Orbit. The telescope is designed to observe at solar elongation angles as small as 30°. In this way AsteroidFinder can frequently access the regions of the sky where IEOs spend most of their time – regions that are difficult to be systematically accessed by ground-based observers. Asteroids in the telescope's field of view are identified through their apparent motion across subsequent images. The telescope is body-mounted to the platform, and the necessary pointing is achieved through rotation of the spacecraft. The minimum mission operation time will be of about one year, with payload and satellite components designed to survive the space environment for at least two years. Currently the mission is in its phase A, with a planned launch date around the end of 2011.