

Muses-C as a Benchmark Mission for the S-Type Asteroid Group

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MUSES-C is launched in May 2003, and arrives in the vicinity of a near-Earth asteroid (25143)1998 SF36 in June 2005. The spectral type is S and its diameter is 300-600 m. During four months stay multi-band imaging, near-infrared spectra, and X-ray spectra will be taken at the nominal altitude of about 6km above the asteroid surface.. Sampling of the surface material will be made at two different locations. The total mass collected will be about 1 g. A miniature hopping lander on which imaging cameras are boarded will be dropped onto the surface. The sample will be returned to the earth in June 2007. These methods, the close-up global observation from the spacecraft, in situ observation from the lander, and detailed analysis of the returned sample, can, as well as ground-based observation of the targeted asteroid, provide information of surface material distribution in various scales, and also provide powerful benchmarks to interpretation of spectroscopic data obtained through ground-based observation of S-type asteroids.