Geophysical Research Abstracts
Vol. 12, EGU2010-2114, 2010
EGU General Assembly 2010

The Rosetta encounter with (21) Lutetia

Rita Schulz (1), Andrea Accomazzo (2), Michael Küppers (3), Gerhard Schwehm (3), and Kristin Wirth (2)

(1) ESA, Research and Scientific Support Department, Noordwijk, Netherlands (Rita.Schulz@rssd.esa.int), (2) European Space Operations Centre, ESA/ESOC, Darmstadt, Germany , (3) Science Operations Department, ESA/ESAC, Madrid, Spain

The International Rosetta Mission is one of ESA's Planetary Cornerstone Missions on its way to rendezvous with comet 67P/Churyumov-Gerasimenko in 2014, accompany the comet into the inner solar system, and land on the comet nucleus. On cruise to the main target the spacecraft has been scheduled for close fly-bys at two main belt asteroids. After the successful fly-by at E-type asteroid (2867) Steins in September 2008, Rosetta is now on its way to encounter (21) Lutetia, a large asteroid (estimated diameter $\sim$95 km) discovered from Paris by H.M.S. Goldschmidt on 15 November 1852 and named in honor of the city. Its classification into a specific asteroid type on the basis of remote-sensing spectroscopic observations has shown to be ambiguous and includes the possibilities of a C-type or an M-type asteroid, meaning that features hint to characteristics of carbonaceous chondrites, but also to a metallic surface composition. Owing to this contradiction it is also referred to as an X-type asteroid, which makes an extraordinarily interesting object for close inspection. The Rosetta fly-by at (21) Lutetia has been scheduled for mid-2010 with closest approach on 10 July 2010 at 15:51 UT, when the asteroid is at a heliocentric distance of 2.7 AU. The spacecraft will pass the asteroid with a relative velocity 15 km/s at a targeted minimum fly-by distance of 3160 km. The selected fly-by strategy allows continuous observations of the asteroid before, during and after closest approach. Most of the scientific instruments on board Rosetta will be switched on for investigations. Imaging and spectral observations will be obtained covering wavelengths from the UV to sub-mm. In addition a number of in-situ measurements will be performed of the asteroid as well as its direct environment. A detailed overview of the planned Rosetta fly-by at (21) Lutetia will be given.