

Current Highlights on ESA's Planetary Technology Reference Studies

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The concept of Technology Reference Studies has been introduced already at EGU05, where the Venus Entry Probe (VEP), the Jupiter Minisat Explorer (JME), the Deimos Sample Return (DSR) and the Interstellar Heliopause Probe (IHP) have been presented in detail. At the EGU06 the new studies in reaction to the Cosmic Vision exercise have been introduced. The formulation of themes and mapping into potential future missions has been taken as basis in the planning of additional new and adaptation of existing TRS's to cover areas, which have not yet been addressed by any TRS. These new ongoing studies are progressing well and current highlights will be presented in the paper in further detail as well as an overview on supporting technology studies and Concurrent Design Facility (CDF) sessions.

The Jupiter System Explorer (JSE) study investigates mission concepts with up to two Magnetospheric Orbiters placed in a highly elliptical Jovian orbit and the possibility to deploy a Jovian Entry Probe. The mission profile is based on a solar powered concept launched on a Soyuz-Fregat launcher. Mission analysis and the application of a new Jovian radiation model are supporting the study activities.

The Near-Earth Asteroid Sample Return (NEA-SR) concept explores the possibilities of sample return or in-situ mission profiles with visits to up to two NEA targets. Due to the assumed low cost cap a trade between a sample return and remote/in-situ exploration concept has a high attention in the study.

The Cross Scale TRS (CS-TRS) is intended to simultaneously investigate magnetospheric and plasma processes in three spatial scales with a formation flight of up to 12 spacecraft, orbiting on deep elliptical orbits around Earth. One of the major challenges is the launch of that number of spacecraft on a single launcher and the collisionless deployment of the formation at the target orbit.

The scope of the GeoSail TRS is to demonstrate deployment, attitude control and navigation concepts for a solar sailing mission as required by Interstellar Heliopause Probe (IHP) or Solar Polar Orbiter (SPO) mission concepts and to investigate the potential influence of the extended sail for science measurements.