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Introduction: BepiColombo is an interdisciplinary mission to explore the planet Mercury through a partnership between ESA and Japan's Aerospace Exploration Agency (JAXA). From their dedicated orbits two spacecrafts, the Mercury Planetary Orbiter (MPO) and the Mercury Magnetospheric Orbiter (MMO), will be studying the planet and its environment Both orbiter will be launched together on an Ariane V. The launch is foreseen for July 2014 with arrival in the summer 0f 2020. Solar electric propulsion will be used for the journey to Mercury. In November 2004, the BepiColombo scientific payload has been officially approved.

Payload of BepiColombo: The MPO scientific payload comprises eleven instruments/instrument packages; the MMO scientific payload consists of five instruments/instrument packages. Together, the scientific payload of both spacecraft will provide the detailed information necessary to understand Mercury and its magnetospheric environment and to find clues to the origin and evolution of a planet close to its parent star. The MPO will focus on a global characterization of Mercury through the investigation of its interior, surface, exosphere and magnetosphere. In addition, it will be testing Einstein's theory of general relativity. Major effort was put into optimizing the scientific return by defining the payload complement such that individual measurements can be interrelated and complement each other. A detailed overview of the status of BepiColombo will be given with special emphasis on the MPO and its payload complement.

Long Term Science Planning Strategy Overview. The intention for BepiColombo MPO is to adopt a more "Science Driven" approach to mission planning. In essence, the goal is to remove all engineering tasks from the instrument science teams, allowing and requesting them to provide the science operations planners within the Science Ground Segment (SGS) with specific science targets and objectives. The determination of an optimum strategy for achieving these objectives over the course of the mission is then the task of the SGS.

Mission Characteristics. Upon arrival at Mercury a period of approximately 1 month has been allocated for instrument and spacecraft commissionin. The Nominal Science Mission of BepiColombo will cover 1 Terrestrial year and be divided into 2 six month phases, tentatively called the global mapping and target mapping phases. The operation of the spacecraft's instruments during these two periods will be described in advance in a detailed self-consistent science activity plan, a so-called living document, that will be continually updated as information and experience are gained on the efficient execution of the BepiColombo mission. This science activity plan will be developed in three cycles or planning subsections. Each stage of planning will examine in increasingly refined detail the resource usage and data output and handling of the spacecraft's instrument. If an Extended Mission Phase is approved then a similar planning strategy to that used in the nominal science phase will be employed

Downlink capability of MPO. The downlink capability of MPO depends mainly on the Earth-MPO (Mercury) distance. This distance varies between 220 million km and 77 million km and the seasonal variation of the elevation of Mercury as seen from the Cebreros ground station. Other factors that effect the downlink are occultations and conjunctions due to the relative orientations of the MPO and the High Gain Antenna (HGA), the MPO and Mercury, and also the Mercury-Sun-Earth angle. Data transmission to Earth drops to effectively zero during the first inferior conjunction of October 25th 2020 and generally decreases leading up to the first superior conjunction of December 17th 2020.

A detailed overview of the science operation planning status of the MPO instruments will be given with special emphasis on available resources like power and data downlink capability.