Current status, initial results, and updated plans of BepiColombo/Mio: interplanetary cruise and planetary flybys

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The ESA-JAXA joint mission BepiColombo is now on the track to Mercury. Two spacecraft for BepiColombo, "Mio" (Mercury Magnetospheric Orbiter: MMO) and "Bepi" (Mercury Planetary Orbiter: MPO), were successfully launched by Ariane-5 launch vehicle from Kourou in French Guiana on 20 October 2018. Mio is fully dedicated to investigating Mercury’s environment with a complete package of plasma instruments (particles, electric fields, and magnetic fields), a spectral imager of sodium exosphere, and a dust monitor. During the cruise to Mercury, in addition to two spacecraft MMO Sunshield and Interface Structure (MOSIF) and Mercury Transfer Module (MTM) are all integrated together. After the commissioning operations of spacecraft, we are focusing on preparing science operations for interplanetary cruise and planetary flybys. Some science instruments can be used even in the composite spacecraft configuration. The first and second flybys will happen at the Earth in April 2019 and at Venus in October 2019, respectively. In addition, during the interplanetary cruise BepiColombo can contribute to inner heliospheric science by measuring the solar wind and solar energetic particles. Thanks to NASA’s Parker Solar Probe and ESA’s Solar Orbiter, multi-spacecraft observations of the inner heliosphere will soon be possible and provide us deeper knowledge of this region. Here we report the updated status of BepiColombo mission, initial results of the commissioning operations, and the future plans for interplanetary cruise and planetary flybys.