Interplanetary effects on planetary environments: Earth, Venus, and Mercury

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The interplanetary and planetary environments are characterized by several intrinsic and induced properties as magnetic fields, waves and instabilities, boundaries, and ionizing radiation components. These features usually evolve on timescales ranging from seconds up to years, mainly controlled by the solar activity.

BepiColombo and Solar Orbiter flybys will offer an interesting opportunity to investigate the dynamical features of both magnetic fields and particle populations when passing from the interplanetary to the planetary environments, thus allowing us to properly characterize different regions of the interplanetary and planetary space.

This contribution discusses some outstanding features of planetary environments (Earth, Venus, and Mercury) when they interact with the interplanetary medium by considering data coming from in-flight space missions as ACE, MESSENGER, and Venus Express. Moreover, a special attention will be devoted to BepiColombo flybys which will be helpful for deeper investigations.