

Jeudi 7 avril 2022 à 11h (IAS, bâtiment 121, salle 1-2-3)

Volcanism and hollows on Mercury

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NASA's MESSENGER mission, orbiting Mercury between 2011 and 2015, has observed its surface with unprecedented resolution and spatial coverage. Among the most surprising discoveries are the low concentration of iron on the Mercury's surface in contrast to its massive metallic core and the relatively high abundance of volatiles such as sulfur and carbon compared to the other terrestrial planets. These discoveries have raised important questions about the origin and inventory of Mercury's volatile species. Indeed, models of planetary formation predict a depletion in volatile elements and an enrichment in refractory elements in the proto-planetary nebula at distances similar to that of Mercury to the Sun. I will present a study of two geological processes associated with volatile species at the surface of Mercury: Hollows and explosive volcanism. These two geological features will be interesting and important targets for the ESA/JAXA's BepiColombo mission and especially for the SIMBIO-SYS instrumental suite on which the IAS is involved.