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Smooth plains on Mercury. A comparison with Vesta

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Abstract.

Mercury, the closest planet to the Sun, has been visited by the MESSENGER spacecraft Solomon et al. (2007). After 3 years of orbit around Mercury a global coverage of the surface has been done revealing that ~27% of Mercury's surface is covered by smooth plains Denevi et al. (2013). Large part of Mercury's smooth plain (SP) seems to have volcanic origin. Different composition has been observed, most of the SP have a magnesian alkali-basalt-like composition, while some of them have been interpreted as ultramafic. A further 2% of smooth plains have been identified as Odin-type plains and represent the knobby and hummocky plains surrounding the Caloris basin Denevi et al. (2013). Application of classification methods Adams et al. (2006) applied to color image data of the MESSENGER wide angle camera (MDIS-WAC) Mick et al. (2013) and a spectral analysis of the spec- trometer data (MASCS-VIRS) Espiritu and Malaret (2012) are useful to highlight the differences in composition of the smooth planes. A compa rison between Mercury's SP and those of other solar system bodies, such as Vesta De Sanctis et al. (2012), reveals useful to obtain information on the origin and the evolution of this bodies.

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