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## The volcanic provinces of the Lennon-Picasso basin (Mercury)

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The volcanic provinces are embedded between the NE margin of b56 /Lennon-Picasso basin and high terrain bounding structures. Resulting plains are interested by endogenic pits associated with pyroclastic activity, in agreement with the observation that Mercury's explosive volcanic vents tend to be located along major fold and thrust belts (Byrne et al 2014) and around large impact basins. Recent large scale mapping defined them intercrater plains partly covered by smooth plains (Malliband et al 2019; Whitten et al 2020). In addition to endogenic pits, these provinces display several 10-km diameter prominent cones, sometimes aligned forming high-relief ridges, resembling constructional edifices. In colour composite images, cone tops are peculiarly darker (blue) or, alternatively, brighter (and yellow) with respect to the surrounding material. On the surface Mercury, Wright et al. (2019) interpreted two randomly located constructional edifices of similar size, attributing their origin to a late highly viscous stage of volcanism that followed lower-viscous stage that are thought to provide typical smooth plains. Wider et al. (2016) proposed that the encounter of highly-viscous lavas with C-rich material during the magma ascent can easily provide volatiles (Zolotov et al. 2011) that progressively accumulate and lead to explosive eruptions. The resulting high reflectance of pyroclastic deposits would arise from removal of graphite as it was consumed during oxidation. The study aims to reveal the nature of cones at the margin of the Lennon-Picasso basin and to explain the relationship between a potential long-lasting volcanic activity and the concurrent global contractional regime.

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