

Recent magmatism in Amazonis Planitia, Mars

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On Mars, several young volcanic fields have been discovered such as at Tharsis region, Acidalia Planitia, Utopia Planitia, Isidis Planitia, Elysium Planitia, and Amazonis Planitia (e.g. Fagents and Thordarson, 2007, Jaeger et al., 2010). Some of these volcanic field seem to consist of flood lava plain and volcanic cones (e.g. Jaeger et al., 2007, Hamilton et al., 2010). It is interesting whether the recent magmatism is different from those of large edifice-build-up type. For example, in Central Elysium Planitia, there exist vast smooth plain. Since a lot of cones are found on this plain, which are identified as rootless cones, the surface is interpreted to be covered by young fluidic lava, which emanated from Cerberus Fossae (e.g. Jaeger et al., 2007, Noguchi and Kurita, 2012). But there exist quite few investigation focusing on the style of recent magmatism except Central Elysium Planitia. In this report we describe the style and extent of recent magmatism at Amazonis Planitia.

Amazonis Planitia is also famous for its young smooth plain, although only a few paper stated its origin. Fuller and Head, 2002 stated Southern Amazonis Planitia (SAP) is covered with lava flow from Tharsis region in Early Amazonian, while Northern Amazonis Planitia (NAP) is occupied with lava from Cerberus Fossae via Marte Valles in Early Amazonian to Mid Amazonian. On the other hand, Tanaka et al., 2005 and Harmon et al., 2012 stated that SAP lava should have a local source. While its young origin has been well documented by crater chronology, identification of the volcanic origin seems insufficient such as the point whether the smooth plain is fluidic lava flow or not. Volcanic cones are important morphology for the inspection of flood lava magmatism on Mars. Types, distributions, and shapes of volcanic cones tell us its volcanic origin rather than mud flows, and the style of the magmatism. In this presentation, we focus on the volcanic cone morphologies in Amazonis Planitia. We surveyed its spatial distribution and the size by using CTX and HiRISE images.

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