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The Complex Morphology of The Medusae Fossae Formation on Mars

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The Medusae Fossae Formation [MFF] is a significant and complex geological feature on Mars that extends for more than 5,000 km along the equator of Mars. The soft, easily eroded deposits rise 4km from the Northern Plains of Elysium Planitia to the Southern Highlands. It has been suggested that the MMF was emplaced during the Hesperian epoch (3.8-3.0 billion years ago) and has been physically reworked up to the present day.
There is a clear separation of the Southern Highlands from the MMF which can be seen to be eroding into the at the Martian Dichotomy.
The major structural features within the Central MFF region include
1 A low lying, fractured foreland that abuts the thin lava flows of Elysium Planitia.
2.A smooth, featureless ridge system, which is rising from 250m to 500m above the Plain. This is eroding at its the SE edge.
3.A moderately cratered dome rising from1000m to 1500m.
4.A heavily eroded sloping and stratified feature rising from 1500m to 2250m before dropping steeply into the Martian Dichotomy.
The relationship between features and the evolution of the MFF are discussed in terms of
• Impact cratering and the resulting basal surges.
• Sublimation of ice layers and the formation of collapse features.
• Folding mechanisms.
• Volcanic interactions with Apollinaris Mons.

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