

Abstract Submitted
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Possible Relict Glacial Landforms on Venus ALANA MACKEN, Dartmouth College, PASCAL LEE, SETI Institute, Mars Institute, NASA Ames Research Center — Venus presently has high surface temperatures near 477C, a dense CO₂ atmosphere, and no possibility of stable condensed H₂O at its surface [1]. However, surface conditions might have been different in the past. Models of Venus' atmospheric evolution and terrain interpretations suggest that wetter, more Earth-like climate conditions once prevailed [2-3]. In a survey of the planet's surface imaged by Magellan's orbital radar at 75 mpp, we searched for morphologic signatures uniquely associated with cold-climate features. In SW Aphrodite Terra, at 17.7S, 51.0E and 17.7S, 58.0W, we identified several systems of linear trough valleys with short tributaries, each with stubby cirque-like valley heads, joining the main trough at right angles. The morphologies are analogous to terrestrial glacial trough valleys and their feeder glacial tributaries. We interpret the Venusian features to be possible relict glacial landforms, now flooded by volcanic lavas. If convergence of form is not at play, then Venus experienced glaciation(s) in its past, implying drastic change in surface conditions over time. References: [1] Taylor, F. W. et al. (2018). *Space Sci. Rev.*, 214. [2] Way, M. J., & Del Genio, A. D. (2020). *JGR Planets*, 125. [3] Khawja, S. et al. (2020). *Nature Comms*.

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