

DEM-based Comparative analysis of terrain with gullies on Mars and in Svalbard.

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Recently some researchers confirmed the existence of ice and underground water on Mars. Gullies are terrain features that are considered to have been generated by liquids. On Earth, gullies are formed by water, but concerning those on Mars, there is no sufficient evidence of water flow. In some areas on Mars, seasonal streaks called Recurring Slope Lineae (RSL) can be clearly observed in summer but disappear in winter. In addition, some water on Mars was found to be saline very recently, but there are many questions about the origin of water. The issue of water on Mars is important for future possible settlement or terraforming. A related issue is that in areas where gullies and RSL are found, ice such as glaciers exist or existed. Therefore, production of these landforms might be related to glaciers or rock glaciers. In order to address this hypothesis, this paper analyzes the development process of the gullies distributed in Svalbard on Earth, and compares gullies on Mars and Earth.

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