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## Possibly water-related active features on Mars: Their climatic and biological implications

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Currently active features on Mars include numerous flow-like features identified mostly in higher latitude areas. Although liquid water has long been considered impossible to stably exist under the current climate condition, origins of some flow-like features are proposed to be related to liquid water based on their morphologies and remaining chemical compositions. Because the presence of water ice in shallow subsurface and water vapor are known to exist on Mars, water-related active processes might be a part of the story of long-lasting slow circulations of water on the surface of Mars, which might be an intriguing target for synergetic observations between the orbiter and the rander of the future MELOS mission to Mars.

The rander group of the MELOS mission is actively discussing its mission concepts, which include a biological aspect. One of the biggest goals proposed is to critically discuss if certain types of bacteria are still alive on Mars. A tentative scenario drawn for this purpose is to explore source areas of putative discharge of Methane, which may include mud volcano-like features widely spread western side of Elysium. In this talk, I will review current understanding of the flow-like features as well as other features indicative of the previous presence of liquid at a little deeper depth, such as mud volcanoes, and discuss their implications to the mission concept of the MELOS mission.

Keywords: Mars exploration, MELOS, Mars, water, periglacial area