



Spatio-temporal evolution of supraglacial lakes over Greenland from visible/NIR spaceborne data

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Studying and understanding the cryosphere is pivotal in gauging and predicting climate change. Melting over the Greenland Ice Sheet (GrIS) has been increasing over the past years and liquid water from melting can accumulate in surface features like supraglacial lakes. Quantifying the water-lakes volume and their seasonal and interannual evolution is a key point for understanding what is their role in the direct or indirect contribution to the GIS energy and mass balance.

Supraglacial lakes can be studied by means of the combination of visible and near-infrared spaceborne data. In this study, we report results regarding the comparison between melt-lake surface and volume trends derived from the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) and from the Moderate Resolution Imaging Spectroradiometer (ModIS) sensors over the Greenland western margin. The comparison highlights advantages and disadvantages in studying supraglacial lakes and it provides a tool for monitoring the evolution of supraglacial lakes over the past ten years.