

Synergies - Understanding water cycle

([SILMAS](#), [PermaNET](#))

[SILMAS](#) and [PERMANET](#) focus on the same alpine water cycle considering the water released by permafrost melting process as a contribution to the hydrological mountain system. The estimation of the permafrost evolution with scientific models could contribute to the analysis of the state of alpine lakes. Both projects address different elements that could influence the hydrological situation in the alpine space, both in terms of quantity and quality of water, also regarding the human utilisation of it. Permafrost, studied in [PermaNET](#), is one component that can directly affect the water quality and the lakes; especially those located next to the higher mountain areas could be subjected to important changes in the quality of water and suspension load. Lakes are dynamic aquatic systems, hydrologically linked to the water cycle in various ways, through inflow and outflow of surface and ground water. Permafrost degradation and the release of highly concentrated melt water from active rock glaciers can influence water chemistry and discharge patterns of high altitude lakes. Limnological studies and hydrological water balance models developed in [SILMAS](#) can be used to analyse more in detail what in [PermaNET](#) has only been started: the influence of melt water from rock glaciers on the characteristics and quality of alpine high altitude lakes.

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