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CRYOLINK: Monitoring of permafrost and seasonal frost in southern Norway

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The modern southern boundary for Scandinavian permafrost is located in the mountains of Southern Norway. Permafrost and seasonal frost are considered key components of the cryosphere, and the climate-permafrost relation has acquired added importance with the increasing awareness and concern of rising air temperatures. The three-year research project CRYOLINK ("Permafrost and seasonal frost in southern Norway") aims at improving knowledge on past and present ground temperatures, seasonal frost, and distribution of mountain permafrost in Southern Norway by addressing the fundamental problem of heat transfer between the atmosphere and the ground surface. Hence, several shallow boreholes have been drilled in August 2008 in three areas (Juvvass, Jetta and Tron) situated along a west-east transect. On most borehole sites air and ground temperatures are measured. Further, vertical arrays of Miniature Temperature Dataloggers (MTDs; Thermochron iBottons®) at fixed heights above the ground surface have been installed to roughly determine the snow depths at the sites, which is also indicated by digital cameras providing daily pictures of snow and weather conditions. In addition individual MTDs have been placed out to measure ground surface temperature at different aspects and snow settings. This presentation will focus on the field set up and give examples of data obtained from the sites.