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Effects of snow-cover on annual and seasonal soil respiration from a temperate mountain forest soil

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Climate change will alter the duration and magnitude of snow cover, especially in temperate areas at lower altitude, where wintertime air temperatures often fluctuate around freezing. A five years time series of consecutive soil respiration measurements was used to assess the effects of duration and magnitude of cold season snow-cover on annual and seasonal soil CO_2 efflux. The temperature sensitivity of soil CO_2 efflux during the cold season was assessed from seasonal data as well as from high frequency measurements during periods when air/soil temperatures showed high fluctuation. Substrate limitation as a potential driver of soil CO_2 efflux during the cold season was tested by periodic amendment of sucrose followed by measurement and determination of the isotopic signature (13C) of the substrate induced soil respiration in the field. First results will be presented at the conference.