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Energy Partitioning of a Mountain Meadow: Controls, seasonal and inter-annual Variability

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Latent and sensible heat fluxes were measured above a mountain grassland in Tyrol/Austria using the eddy covariance method between 2001-2006. Additional parameters measured included net radiation, soil heat flux, standard meteorological parameters and the amount of above-ground phytomass. Most of the net radiation available to the meadow was used for evaporation of water, followed by the sensible and soil heat fluxes, which were of approximately equal magnitude. Most of the variability in the evaporative fraction was controlled by the amount of transpiring leaf area and, in particular during periods of full canopy development, by soil water availability. Seasonal trends and inter-annual variability in energy partitioning were thus controlled to a large part by the inter-active effects of management activities, the meadow is cut three times per year, and climatic conditions.