



Evapotranspiration of *Kobresia pygmaea* pastures under different stages of degradation

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As part of the hydrological cycle, evapotranspiration plays an important role on the Tibetan Plateau. Especially during the monsoon season feedbacks of evapotranspiration on precipitation patterns are expected. The land cover on the Tibetan Plateau is characterised by dense *Kobresia pygmaea* pastures and the alpine steppe with sparse vegetation and large fractions of bare soil, as well as transition stages between these extremes. These *Kobresia* pastures are likely subject to degradation due to effects of climate change, livestock management, pica damage and other possible influences.

We investigate the impact of potential degradation on summer evapotranspiration magnitude and dynamics. Therefore eddy-covariance and lysimeter measurements are conducted at Kema site, covered by *Kobresia* pastures with different stages of degradation. Both methods show reasonable agreement. Two SVAT-type models were adapted to the site-specific conditions and then serve to estimate potential changes in land cover by changing the critical parameter. The model simulations fit well to the eddy-covariance measurements. Finally the results were compared with simulations adapted to Nam Co site as a representative of an alpine steppe site.

We show that a fictive transition from *Kobresia* pastures to roughly bare soil conditions slightly decreases daily evapotranspiration, but strongly increases its variability. Such potential changes will exhibit a complex feedback on precipitation patterns.