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Hydrol. Earth Syst. Sci., 13, 987-998, 2009  
www.hydrol-earth-syst-sci.net/13/987/2009/

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## Seasonal and diurnal variations in moisture, heat and CO<sub>2</sub> fluxes over a typical steppe prairie in Inner Mongolia, China

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**Abstract.** In order to examine energy partitioning and CO<sub>2</sub> exchange over a steppe prairie in Inner Mongolia, China, fluxes of moisture, heat and CO<sub>2</sub> in the surface layer from June 2007 through June 2008 were calculated using the eddy covariance method. The study site was homogenous and approximately 1500 m × 1500 m in size. Seasonal and diurnal variations in radiation components, energy components and CO<sub>2</sub> fluxes are examined. Results show that all four radiation components changed seasonally, resulting in a seasonal variation in net radiation. The radiation components also changed diurnally. Winter surface albedo was higher than summer surface albedo because during winter the snow-covered surface increased the surface albedo. The seasonal variations in both sensible heat and CO<sub>2</sub> fluxes were stronger than those of latent heat and soil heat fluxes. Sensible heat flux was the main consumer of available energy for the entire experimental period. The energy imbalance problem was encountered and the causes are analyzed.

- [Final Revised Paper](#) (PDF, 1927 KB)
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Citation: Gao, Z., Lenschow, D. H., He, Z., and Zhou, M.: Seasonal and diurnal variations in moisture, heat and CO<sub>2</sub> fluxes over a typical steppe prairie in Inner Mongolia, China, Hydrol. Earth Syst. Sci., 13, 987-998, 2009. [Bibtex](#) [EndNote](#) [Reference Manager](#)



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