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盘锦湿地芦苇生态系统长期通量观测研究

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摘要 针对2004年5月26日-2005年10月15日盘锦湿地芦苇生态系统碳通量、感热通量和潜热通量资料进行分析。结果表明:芦苇湿地具有较强的碳汇作用;2005年芦苇湿地固定二氧化碳为13.32 t/hm²,日平均感热通量和潜热通量分别为2 464 kJ/m²和3 880 kJ/m²。2004年和2005年6~9月的日累积值波文比平均值均为0.15。芦苇湿地碳通量、感热通量和潜热通量的日动态呈单峰单谷型变化,极值出现在中午前后,夜间线形平直。芦苇生长季白天通量绝对值远较夜间大,白天碳吸收,夜间碳排放。CO₂浓度年平均日变化曲线亦为单谷单峰型,夜间浓度较高且逐渐升高,直到日出前达到峰值;日出后急剧下降,傍晚又开始逐渐增加。芦苇湿地感热通量昼正夜负,潜热通量与林地不同,全天为正。各通量季节变化明显,冬季CO₂通量日变化不明显,趋近于零;感热通量总体向上输送,春季数值较大,生长季数值较小;潜热通量冬季最小,接近0,春季开始显著增加,生长季达到最大。

关键词 [湿地](#) [芦苇](#) [涡动相关](#) [碳通量](#) [感热通量](#) [潜热通量](#) [波文比](#)

分类号

Long-term flux characteristics of Phragmites ecosystem in Panjin wetland

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Long-term flux characteristics of Phragmites ecosystem in Panjin wetland

Abstract The dynamics of carbon flux, sensible heat flux and latent heat flux of Phragmites ecosystem were analyzed based on long term field observation data in Panjin wetland from May 26, 2004 to Oct. 15, 2005. The results indicated that reed wetland was a strong carbon sink. The reed wetland absorbed carbon about 13.32 t CO₂/hm² in 2005, and the values of diurnal mean sensible heat flux and latent heat flux were 2464 kJ/m² and 3880 kJ/m² in 2005, respectively. The mean Bowen ratio of daily cumulation from June to September in both 2004 and 2005 was about 0.15. The diurnal patterns of carbon flux, sensible heat flux and latent heat flux in reed wetland were single kurtosis and single vale, and the maximum value appeared at noon. The absolute flux values of Phragmites in growth season during daytime were higher than those during nighttime, and carbon was absorbed in daytime and emitted in nighttime. The annual average diurnal pattern of carbon dioxide concentration was also single kurtosis and single vale. The concentration became strong in nighttime and would reach maximum value near sunrise, then dropped down rapidly, and increased again on dusk. In reed wetland, the value of annual average sensible heat flux was positive in daytime and negative in nighttime, but the value of annual average latent heat flux was positive in all day different with that of forest ecosystems. The seasonal changes were obvious. In winter, the diurnal values of CO₂ flux had few changes, and the values were close to zero. The sensible heat flux was upwards as a whole, and the values in spring were higher than those in growth season. The value of latent heat flux was minimum and near zero in winter, then increased obviously in spring, and reached maximum in growth season.

Key words [Wetland](#) [Phragmites](#) [Eddy covariance](#) [Carbon flux](#) [Sensible heat flux](#) [Latent heat flux](#) [Bowen ratio](#)

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