

## Estimation of evapotranspiration in Wetland of the Yellow River Delta based on remote sensing data

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Evapotranspiration (ET) is an important variable for water and energy balances on the earth's surface. In this paper, ET in wetland of the yellow river delta was estimated based on the Surface Energy Balance Algorithm for Land (SEBAL), which is one of the most successful models in ET estimation. The SEBAL model has the advantages of comparative simplicity, fewer input land surface parameters, better veracity and so on. For the study area, the net radiation heat density, the soil heat flux density and the sensible heat flux are calculated after deriving the parameters such as surface albedo, surface temperature and NDVI from remote sensing images, and then we can get the latent heat flux density. In detail, mainly based on MODIS images, ET of various land cover types such as reed, tamarix chinensis, suaeda, forest, farmland, grassland and residential area is evaluated. Spatial and temporal characters of ET are analyzed all over the yellow river delta, especially for the wetland area. The meteorological data of land surface, such as wind speed and air temperature required by SEBAL as input parameters are obtained from two meteorological stations of Dongying city. Besides the SEBAL method, we also evaluate the ET with Penman-monteith (P-M) method. P-M equation's physical meaning is clear and only needs meteorological data which can be used as validation. Despite of the predominance of SEBAL to evaluate the ET, there is some uncertainty arising from the assumptions and the operations of the model, as well as the local area characters. Therefore, limitations of SEBAL model for ET evaluation in yellow river delta are analyzed and methods to improve the precision are discussed.

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