A METHOD OF IDENTIFYING DEGRADATION OF RUOERGAI WETLAND IN SICHUAN

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Wetlands are valued for their ability to store floodwaters, protect shorelines, improve water quality, and recharge groundwater aquifers [1]. As the value of wetlands to society has become recognized, it is now important to conserve these valuable resources [2]. But extensive loss of wetlands has occurred in many countries throughout the world.

This article takes Ruoergai Wetland in Sichuan as a case study; the Ruoergai Marshes are one of the world’s largest high altitude wetland at an altitude of 3400 to 3900m. Comprising 490,000 ha, the wetland is found in a shallow basin surrounded by hills and mountains, and is part of the headwaters of the Yellow River. They are of global importance for biodiversity conservation as well as for their important roles in water storage and supply, and in carbon storage. The wetland is also important for the livelihoods of local communities’ especially nomadic Tibetan herders. Following the climate change and overgrazing in Ruoergai wetland, the degradation of wetland is very serious. To prevent further loss of wetlands, and conserve existing wetland ecosystems for biodiversity and ecosystem services and goods, it is important to inventory and monitor wetlands and their degradation.

For inventorying and monitoring the degradation of Ruoergai wetlands, satellite remote sensing has many advantages [3]. The paper tries to construct a framework of extracting degradation of wetland by combining remote sensing data and ancillary data. Satellite data includes spectral data (CBERS-CCD data) and radar data (ENVISAT-ASAR). The ancillary data of using in the paper are mainly a geographic information system data and field work data.

The CBERs-CCD data were geometrically corrected to the topographic map in Albers conical equal area projection. In the end calculated the NDVI image of CBERS-CCD data [4]. The pretreatment method of ENVISAT-ASAR radar image includes incidence angular correction, backscatter coefficient calculation, speckle filter, data scaling, which can be carry out with PCI software [5]. The method of speckle filter is Lee algorithm. Then the ENVISAT-ASAR data were geometrically corrected to the CBERS-CCD data in the same projection to pixel accuracy. Finally the paper combined the CBERS-CCD NDVI imagery and the processed ENVISAT-A SAR imagery to the supervised classification based on the field word and GIS data.

The major contribution of this paper is utilizing satellite data to conduct quantitative analysis of degradation of Ruoergai Wetland.

REFERENCES
