Tuesday, October 9
Poster Session 2
10:30–12:30

Poster 98

DYNAMICS OF THE WETLAND VEGETATION IN LARGE LAKES OF THE YANGTZE PLAIN IN RESPONSE TO BOTH FERTILIZER CONSUMPTION AND CLIMATIC CHANGES

Using moderate-resolution imaging spectroradiometer (MODIS) data that cover the 15-year period from 2000 to 2014 and a phenology-based classification method, the long-term changes in the wetland vegetation of 25 large lakes on the Yangtze Plain were obtained. The classification method was developed based on the phenological information extracted from time series of MODIS observations, which demonstrated mean user's/producer's accuracies of 76.17% and 84.58%, respectively. The first comprehensive record of the spatial distribution and temporal dynamics of wetland vegetation in the large lakes on the Yangtze Plain was created. Of the 25 lakes examined, 17 showed a decreasing trend of vegetation area percentages (VAPs) during the study period, and 7 were statistically significant ($p<0.05$). The same number of lakes was found to display decreasing trends in vegetation greenness over this 15-year period, and these decreasing trends were statistically significant ($p<0.05$) for 11 of the lakes. Substantially fewer lakes showed increases in either their VAPs or their vegetation greenness values. Analysis using a multiple general linear model revealed that the amounts of chemical fertilizer used for farmlands surrounding the lakes, precipitation, daily sunshine hours, temperature and water turbidity played the most important roles in regulating the interannual changes in vegetation greenness in 40% (10/25), 12% (3/25), 4% (1/25), 20% (5/25) and 12% (3/25) of the lake wetlands, respectively. On average, the combined effects of these five driving factors above explained 89.08±7.89% of the variation in greenness over this 15-year period for the 25 lakes.

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