RESEARCH OF FOREST REGULATING TEMPERATURE BASED ON

TIME-SERIES OF SHANDONG PROVINCE

Feng Haixia, He Bi, Liu Hanhai**
*Peking University, China
**Shandong Jiaotong University, China
E-mail: fhx76@163.com

Abstract：

Forest regulating temperature ecosystem services was one of aspects of forest regulating climate and purificating environment, mainly referring to forest had the cooling effect in summer and warming effect in winter. Surface temperature (LST) and normalized difference vegetation index (NDVI) were important parameter of forest regulating the temperature. The same time-series of LST and NDVI in same region had similar curves. This paper studied forest temperature changes with time using the time-series of LST and NDVI.

The LST 1-12 month product of Terra and Aqua satellite in daytime and nighttime and the NDVI 1-12month product of Terra satellite were stacked time series through layer stack function of remote sensing software during 2000-2006. The June LST and NDVI month product were stacked too. Five typical samples were respectively selected from urban areas, farmland, coniferous forest, broadleaf forest types of samples.

The conclusions of the paper are as followed: The temperature control functions of farmland is less than forest; The lowest value of NDVI of the vegetation occurred at February, it lagged time of the e minimum value of LST occurred at January ; The LST of conifer sample point had obvious low ebb, and the low ebb of broad-leaved sample point was not obvious; The occurred time of the highest value of LST had the hysteretic nature; LST and NDVI are the negative correlation in the day, this is, the better of the vegetation cover, the lower of LST.

Key words: Shandong Province, Time Series, Forest, Land Surface Temperature, NDVI

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