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Analysis of vegetation condition and its relationship with meteorological variables in the Yarlung Zangbo River basin of China

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Abstract: The Yarlung Zangbo River basin is located in the southwest border of China, which is of great significance to the socioeconomic development and ecological environment of Southwest China. Normalized Difference Vegetation Index (NDVI) is an important index for investigating the change of vegetation cover, which is widely used as the representation value of vegetation cover. In this study, the NDVI is adopted to explore the vegetation condition in the Yarlung Zangbo River basin during the recent 17 years, and the relationship between NDVI and meteorological variables has also been discussed. The results show that the annual maximum value of NDVI usually appears from July to September, in which August occupies a large proportion. The minimum value of NDVI appears from January to March, in which February takes up most of the percentage. The higher values of NDVI are generally located in the lower elevation area. When the altitude is higher than 3250 meters, NDVI began to decline gradually, and the NDVI became gradual stabilization as the elevation is up to 6000 meters. The correlation coefficient between NDVI and precipitation in the Yarlung Zangbo River Basin is greater than that with temperature. The Hurst index of the whole basin is 0.51, indicating that the NDVI of the Yarlung Zangbo River Basin shows a weak sustainability.
Key words NDVI, Precipitation, Temperature, Hurst index, Yarlung Zangbo River