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The temporal and spatial relationship between NDVI and climatological parameters in Colorado

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Abstract: This paper describes the spatial and temporal relationship between AVHRR/NDVI (Normalized Difference Vegetation Index) and climatological parameters (temperature and precipitation), which, in some sense, is influenced by topographical factors and land-cover types in Colorado. The correlation coefficients and partial correlation coefficients have been computed pixel by pixel over Colorado in order to analyze the relationship. The temporal variation and correlation of AVHRR/NDVI, temperature and precipitation were analyzed with a sampling method. The study reveals that there exists a close correspondence between monthly NDVI and temperature, which has strong impact from temperature on the changes of NDVI in Colorado. The spatial changes of NDVI are not influenced obviously by the precipitation since these two variables are different from each other in time series in Colorado. The study clearly revealed the spatial variation and its distribution patterns of relationship between NDVI and climatic parameters (temperature and precipitation) in Colorado.

关键词: NDVI; AVHRR/NDVI; temperature; precipitation; Colorado