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Assessing grassland drought threat with remotely –sensed and climatic drought indices in semiarid region of China

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Grasslands in semiarid region are significantly influenced by drought threat. Both the remote sensing data and climatic data have been used for drought threat assessment in semiarid regions in China. The remotely sensed vegetation indices (VCI, TCI, VHI) and climatic drought index SPEI are adopted to reflect the vegetation responses to drought. The study shows SPEI can effectively monitor vegetation dynamics under the drought threat with average $R(\text{NDVI-SPEI}_{06}) = 0.57$. PET has negative correlation with NDVI with average $R(\text{NDVI-PET}) = -0.44$. The vegetation in semiarid region is more significantly influenced by drought of averagely 6-month scale. Our study proves remotely sensed drought indices and climatic drought index can combine together to enhance the effective drought monitoring.