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Poster
Wetlands are an important source of methane (CH4) emissions in East Africa over the last decade. We use column measurements of atmospheric methane (XCH4) from the Japanese Greenhouse gases Observing Satellite (GOSAT) and the Enhanced Vegetation Index (EVI) from the Moderate Resolution Imaging Spectroradiometer (MODIS) to infer CH4 emissions in East Africa during the last decade. The results show that CH4 emissions are well correlated with EVI variations, with a correlation coefficient of 0.77 in the long rains (March to May, abbreviated LR) and 0.76 in the short rains (October to December, abbreviated SR). The spatial correlation between CH4 emissions and EVI is better than that of precipitation although precipitation is a driving factor. There are three seasons with abnormally high rainfall (LR 2018, SR 2019, and LR 2020), resulting in increased EVI and CH4 emissions concentrated in four water basins (Juba, Tana, Rift, and Nile), corresponding to herbaceous vegetation, shrubs, and cultivated vegetation. We develop a simple linear regression model to estimate total CH4 emissions in each water basin based on EVI and rainfall observations.
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