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## Checking actual evapotranspiration model using remotely collected surface data: Case study

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Drought is a reoccurring worldwide natural hazard that affects not only food production but also economics, health, and infrastructure. It is also known that regional drought condition is sensitive to the fine particulate matters (PM) and has relationships with future changes in fine dust levels and associated health impacts under climate change. This mode is strongly correlated to evapotranspiration and land surface conditions and drought index might be good when the actual evapotranspiration and the land surface characteristics are implicitly included in the formula. The procedure for estimating actual evapotranspiration is complex and scientists often tend to select simple model that does not require intensive field data. As a preliminary study this study checks the possibility of PT-JPL which is relatively simple and requires minimum number of observations for estimating local actual evapotranspiration. The model has no calibration, tuning, or spin-up for local adjustment. The model was set up for five representative stations in East Asia. The satellite-collected normalized difference vegetation index (NDVI) and soil-adjusted vegetation index (SAVI) were used to describe the land surface characteristics. Meteorological information such as temperature, water vapor, radiation, and actual evapotranspiration was retrieved from AsiaFlux. The results show that the PT-JPL is promising for estimating local actual evapotranspiration. This study will extend to developing a drought index and its relationship to particulate matters (PM) in the near future.

**Key words:** Actual evapotranspiration, Particulate matters (PM), Drought, PT-JPL

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