



## **Observed diurnal variation changes of Jakarta precipitation from 144 available meteorological records**

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Using a long available meteorological observation for almost 114 years hourly and daily record from Jakarta Observatory, the temporal heterogeneity of climate trends and its variability over Jakarta, Indonesia has been studied. The analyses showed that the number of wet days has decreased between 1880 and 2010, while the precipitation exceeding 50 mm is observed to be slightly increased. An increased trend of heavy rainfall in the 80% and 95% percentile between April and September was detected. Diurnal variation of Jakarta precipitation and temperature changed markedly. In the wet season (DJF), the morning rainfall has increased in intensity, while in other seasons; delayed amplitude of late afternoon rainfall peak is observed. The diurnal variation of night time temperature considerably increased while daytime temperature remains similar.

Changes in temporal characteristics of light and heavy precipitation, as well as the diurnal variation of precipitation and temperature lead to hypotheses concerning anthropogenic influence. Some theoretical arguments on Urban Heat Island and aerosol effect precipitation could be linked to our results. Jakarta is a metropolitan city where its development is characterized by mixing of many different land uses and economic activities, including large-scale housing projects, industrial estates, and agricultural activities. In the future, the separation of local response to large scale and local changes will be investigated.