Spatiotemporal Patterns of Burned Areas Based on The Geographic Information System for Risk Fire Monitoring

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Abstract

Forest and land fires occur every year in Indonesia. Efforts to handle forest and land fires have not been optimal because fires occur in too many places with unclear patterns and densities. The study analyzed the spatiotemporal patterns of burned areas and fire density in fire-prone areas in Indonesia. Data of burned areas were taken from http://sipongi.menlhk.go.id/. The website collected its data from NOAA (National Oceanic and Atmospheric Administration) images. Data were analyzed using the hot spot analysis to determine the spatiotemporal patterns of the burned areas and the kernel density analysis to examine the density of land fires. Findings showed that the spatiotemporal pattern from 2016 to 2019 formed a hot spot value in the peatland area with a confidence level of 90-99%, meaning that land fires were clustered in that area. In addition, the highest density of land fires also occurred in the peatland areas. Clustered burned areas with high fire density were found in areas with low-medium vegetation density— it was the peatland areas. The peatland areas must become the priority to prevent and handle forest and land fires to reduce risk fires.

Keywords: burned area, spatiotemporal pattern, fire density