Peatland Fires Monitoring in Kalimantan and Sumatra: The Recent MODIS Hotspots Data

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Abstract: Indonesia has the largest peatland in Asia, where mostly the area distributed in Kalimantan and Sumatra. Both islands also support the agricultural sectors especially rice field and plantation. Nevertheless, unwise land managements have an impact on a variety of environmental disasters, such as peatland fires. This may have been exacerbated by the open access of peatlands and forest areas, making these fires a grave environmental problem that must be better understood under REDD+ scheme. In this study, the hotspots data from NASA MODIS sensor were applied to monitor the fire distribution and time of the active fires in the last 11-year surveyed. Mostly data was tallied 1^o~0.01^o grids cell of latitude and longitude, and every 10-day interval. Spatial analysis using a 1^o resulted seven high hotspots cell of 0,188 hotspots/km^2/yr were on south of Kalimantan. Followed by five and one cell was located at Riau and a part of South Sumatra. Secondly, the highest hotspot density of 0.5^o cells was 0.129 hotspots/km^2/yr, where its 7 adjacent cells located at Mega Rice Project (MRP) and Dumai regions respectively. Thirdly, most of the hotspots using 0.01^o cell occurred on large peatlands, namely the south of MRP, the northeast of Dumai, the southeast of Dumai, and the east of Palembang. Annual and seasonal fire occurrence for these areas are mostly explained using the two different precipitation patterns: the summer dry season pattern (S) and the winter-summer dry season pattern (WS).

Keywords: dry season, hotspot density, MODIS hotspot, peat fire, REDD+