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ADVANCING INDONESIAN FOREST RESOURCE MONITORING USING MULTI-SOURCE REMOTELY SENSED DATA

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ABSTRACT:

Indonesia, home to the world's third largest tropical forest, is in an alarming condition for increasing greenhouse gases emission and loss of biodiversity. Within last decade, in almost every dry season, smoke and haze from smouldering dried peatlands are worsening; give rise to high environmental and economic costs for Indonesian. Meanwhile, there is no consensus on the areal extent and temporal trends of primary forest clearing in Indonesia, including how much of those are on wetlands. Our work intended to quantify an increasing rate of primary forest loss over Indonesia from 2000 to 2012, which was achieved by utilizing multi-source remotely sensed imagery, of both passive and active sensors, as a data source. Comprehensive analyses were employed to quantify the loss of primary forests over basic landforms, including wetlands, as well as to quantify the loss over official forest land use of Indonesia. Here our results shows that of the 15.79 Mha of gross forest cover loss for Indonesia reported by Hansen *et al*. (2013) over 2000-2012 period, 38 percent or 6.02 Mha occurred within primary intact or degraded forests, and increased on average by 47,600 ha per year. By 2012, primary forest loss in Indonesia was estimated to be higher than Brazil (0.84 Mha to 0.47 Mha). Proportional loss of primary forests in wetland landforms, including peatlands, increased and almost all clearing of primary forests occurred within degraded types. Meaning logging preceded conversion processes. Loss within official forest land uses that restrict or prohibit clearing totalled 40 percent of all loss within national forest land. The increasing loss of Indonesian primary forests has significant implications for climate change mitigation and biodiversity conservation efforts. Besides, an alarming signs for the need of vigorous monitoring-system.

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