

How do fire emissions from industrial plantations affect air quality in Equatorial SEA?

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Researchers have combined satellite observations with atmospheric modelling to calculate how fires associated with industrial concessions in the Sumatra and Kalimantan regions of Indonesia affect air quality across Equatorial Asia.

The findings, published today in the journal *Environmental Research Letters*, show that these industrial plantation-related fires make up almost half of the total fire emissions in Sumatra and Kalimantan.

The researchers, based at Columbia University, USA, and Harvard University, USA, studied the oil palm, logging, and [timber](#) (for wood pulp and paper) industries, and demonstrated that fires located in timber and oil palm concessions in Sumatra and Kalimantan, respectively, make the biggest contributions to air pollution.

"Our results show the importance in limiting the use of fire by these industries," explains Dr Miriam Marlier, of Columbia University, a lead author on the paper. "Especially in areas of land particularly susceptible to burning, such as degraded peatlands and deforested areas."

Air quality in Indonesia is an important topic, with the country ranking 112 of 178 in the 2014 Environmental Performance Index¹, and the country being the 3rd highest producer of greenhouse gases in the world².

Proximity to the polluting areas plays an important role—the lower emissions from Sumatra had a greater effect on Singapore [air quality](#) than the higher emission levels observed in Kalimantan.

"Limiting the use of fires by these industries—particularly the palm oil and timber concessions—will obviously improve things." continues Dr Marlier. "Failing this, limiting the re-classification of logging concessions, where we observed low fire activity, to [oil palm](#) and timber concessions will limit the public health impacts of these emissions."

Dr Marlier and her colleagues next plan is to see how these results are effected by yearly climate variations, and estimate the [public health](#) costs of air quality degradation caused by these industries.

More information: Fire emissions and regional air quality impacts from fires in oil palm, timber, and logging concessions in Indonesia *Environmental Research Letters* 10 085005.

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