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A human hand in Indonesian fires

Severe fires in Indonesia — responsible for some of the worst air quality conditions worldwide — are linked not only to drought, but also to changes in land use and population density, reports a paper online in Nature Geoscience. Sumatra has suffered from large fires at least since the 1960s, whereas the environment in Indonesian Borneo changed from highly fire-resistant to highly fire-prone sometime between the droughts of 1972 and 1982.

Robert Field and colleagues found that airport visibility records, archived back to 1960 for the region, can be used for monitoring fire frequency in the period before satellite data. By analysing these records, the researchers defined a rainfall threshold, below which large fires have occurred in the past two decades. However Indonesian Borneo seems to have been resistant to large fires, even in dry years, until population density and deforestation increased substantially and land use changed from small-scale subsistence agriculture to large-scale industrial agriculture and agroforestry.

The researchers also found that fire-inducing droughts are not primarily linked to the influence of El Niño, as previously thought. Instead Indian Ocean climate patterns are equally important.

Human amplification of drought-induced biomass burning in Indonesia since 1960

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