Science Read

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Indonesia province skies turn hellish red as haze filters out sunlight

BY Julia Yeo, Mothership.sg

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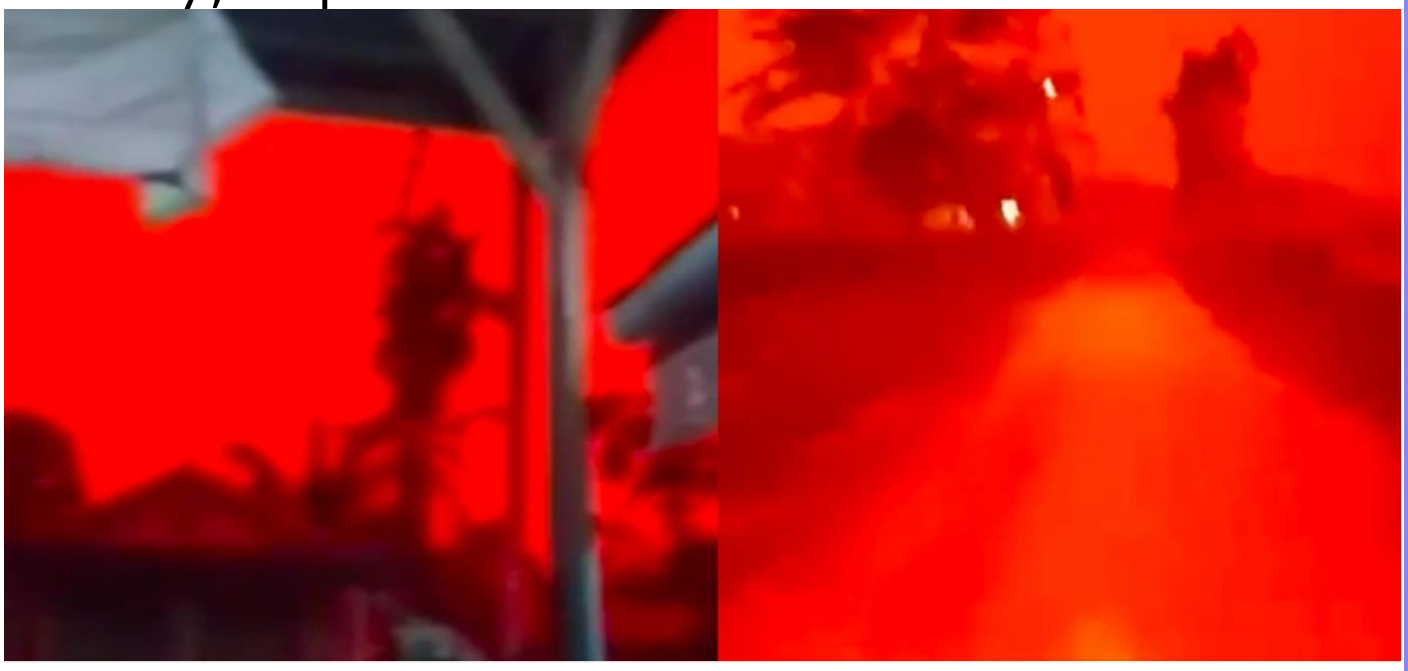
The skies in Jambi, Indonesia turned red on Sunday, September 22.



This was caused by the haze from widespread forest fires across the region, Sinar Harian reports.

Several clips of the strange phenomenon went viral on social media.

The phenomenon, known as Rayleigh Scattering, was caused by the movement of haze particles

away from the hotspots, the Indonesian National Board for Disaster Management information chief Agus Wibowo Soet explained.

Did not have any adverse effects on human vision

Indonesian astronomer Marufin Sudibyo explained that the red skies were not caused by a sudden increase in temperature.

According to Sudibyo, the effects of Rayleigh Scattering does not adversely affect human vision.

Sinar Harian also reported that similar scenes were observed in Indonesia after the Krakatau volcano eruption in 1883 and after Mount Pinatubo erupted in 1991.

Rayleigh Scattering is caused by the refraction of light that hits dust or other air particles in the atmosphere — particles that release wavelengths in the orange or red spectrum.

This creates a reddish vision when the density of particles in the air is high enough.

PSI in Pekanbaru, Indonesia surges to 700

The PSI reading in Pekanbaru, the capital city of Riau in Indonesia, surged to 700 on Sunday, Sep. 22, at about 10pm, according to The Straits Times.

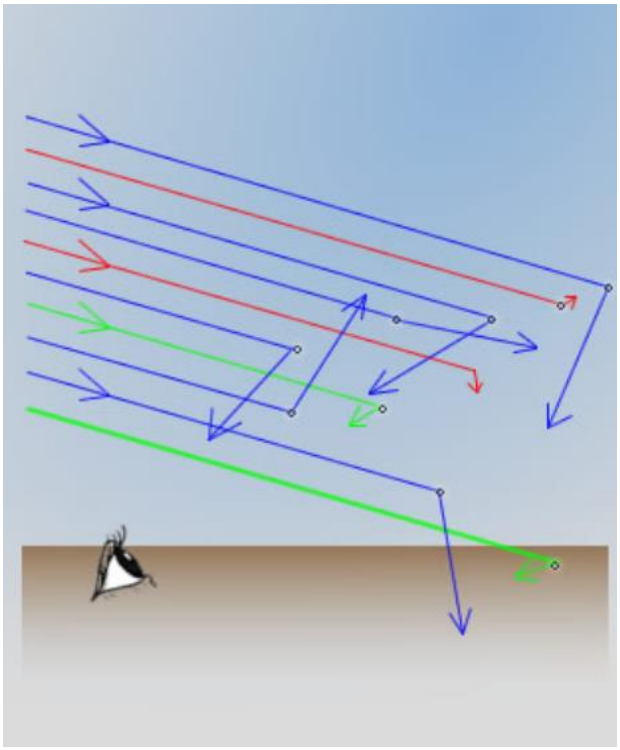
It was recorded as an all-time low in air quality for the city, worse than the levels seen in Indonesia’s worst haze episode in 2015.

The PSI reading of Pekanbaru dropped to 489 in the morning of Sep. 23.

Riau is the second-closest Indonesian province to Singapore, after the Riau Islands province.

A little bit more on…

Rayleigh Scattering



Air molecules are 1000X smaller than visible light wavelengths. They act as Rayleigh scatterers and scatter blue light ~4X more strongly than longer wavelength reds.

Sunlight photons of all colours stream through the air. Its molecules scatter a tiny proportion in every direction. The scattered photons have the same colour and energy.

Blue photons are more strongly scattered than greens and reds.

The scattered light makes the sky appear blue. The sky is not pure blue as it also contains a small proportion of other scattered colours.

Article adapted from:
https://mothership.sg/2019/09/indonesia-red-sky-haze/

To find out more:
https://www.atoptics.co.uk/atoptics/blsky.htm