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Southeast Asia Climate Risk Report

HEADLINE CLIMATE STATEMENTS

Between 1980-2015, average temperatures across the majority of Southeast Asia increased by around 0.5°C. Warming rates have been highest across the Malay Peninsula and Sumatra, where this increase was around 0.9°C. Conversely, the lowest rates of warming were across southeast Indonesia and Timor-Leste where little change has been detected.

Average temperatures across Southeast Asia will increase uniformly by around 1.1°C by the 2050s* under a medium emission scenario, compared to a 1981-2010 baseline, with increases of up to 3.5°C possible under high emission scenarios. Only under these high emission scenarios is significant regional variation expected, with the highest warming projected to occur across Thailand, northern Lao PDR, and southern Myanmar.

The intensity, number and duration of positive heat extremes will increase in the Southeast Asia region.

Moist heatwaves** are likely to be an increasing hazard through Maritime Southeast Asia.

Annual rainfall is projected to increase across the region, and this is most pronounced across Myanmar, northern Thailand, and northern Lao PDR through the southwest monsoon season (June to October). Some projections indicate a drying trend across Timor-Leste and southern Indonesia outside of the main wet season (April to October).

The frequency of intense rainfall events is expected to increase across the region. Conversely, the number of consecutive dry days*** are projected to increase across the Maritime Southeast Asia by 5-15 days per year by the 2050s.

The proportion of intense typhoons (those of Category 3-5) will increase.

Sea surface temperatures in Southeast Asia will increase by 0.7°C on average by the 2050s under a low emission scenario and by 1.2°C under a high emission scenario, relative to a 1995-2014 baseline.

Sea levels across Southeast Asia will continue to rise through the 2050s and beyond. By the 2050s, sea level will rise by 0.2 – 0.3m irrespective of emission scenario, compared to a 1995-2014 baseline.

Southeast Asian seas will continue to acidify, and the frequency, intensity and duration of marine heatwaves**** will increase.

*The 2050s refer to the 2041-2060 time period.
**A moist heatwave is a typical heatwave (typically where maximum daily temperatures remain above the 90th percentile of what is typically expected during the season), combined with humidity above 66%.
***Consecutive dry days refer to the number of consecutive days where less than 1mm of precipitation is received across the area of interest within a year.
****Marine heatwaves are periods of extreme ocean temperature, where temperatures are above the 90th percentile of climatology.