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IPA Report: Are Extreme Rainfall Events Increasing In Frequency?

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Torrential rains along the east coast of Australia during February and March 2022 have been blamed on climate change. Specifically, a narrative has developed suggesting that rainfall is becoming more extreme.

“The pattern of more intense rainfall events is well established in Australia. In recent decades, the intensity of short duration (hourly) extreme rainfall events has increased by 10 percent. The intense rainfall and floods devastating communities in Queensland and New South Wales is taking place in an atmosphere made warmer and wetter by climate change, which is driven by the burning of coal, oil, and gas.” – Climate Council, March 2022

Analysis of the 20 longest rainfall records in the 2022 flood zone does not, however, support this claim. There has been no overall increase in the intensity or frequency of extremely wet days. The wettest year, measured as the year with the highest number of 99th percentile rainfall days since 1900, is 1974.

Average annual number of 99th percentile rainfall days at 20

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The amount of rain falling on these wettest days also peaked in 1974, when measured as total rainfall since 1900. Some locations measured wettest days in the late 1800s, but not all locations had weather stations operating at that time, so we begin averaging from 1900. Mullumbimby, for example, did not begin measuring daily rainfall until 1899.

Average annual total mm of 99th percentile rainfall days at 20

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Only four locations – Mullumbimby, Rosewood, Yamba and Lowood – recorded their highest ever 24-hour rainfall totals in 2022. It will be interesting to understand how 2022 compares with other years when all the data for this year has been compiled and averaged.

The Australian 24-hour rainfall record of 907mm is still Crohamhurst in the Brisbane catchment recorded on 3rd February 1893. We will never know how much rain fell at Crohamhurst in February 2022 because that weather station (#040062) was closed by the Australian Bureau of Meteorology (BoM) in March 2003.

This research report formed the basis of a submission to the NSW Flood Inquiry, made in May 2022.

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