Bushfire tweets reveal role of social media in emergencies

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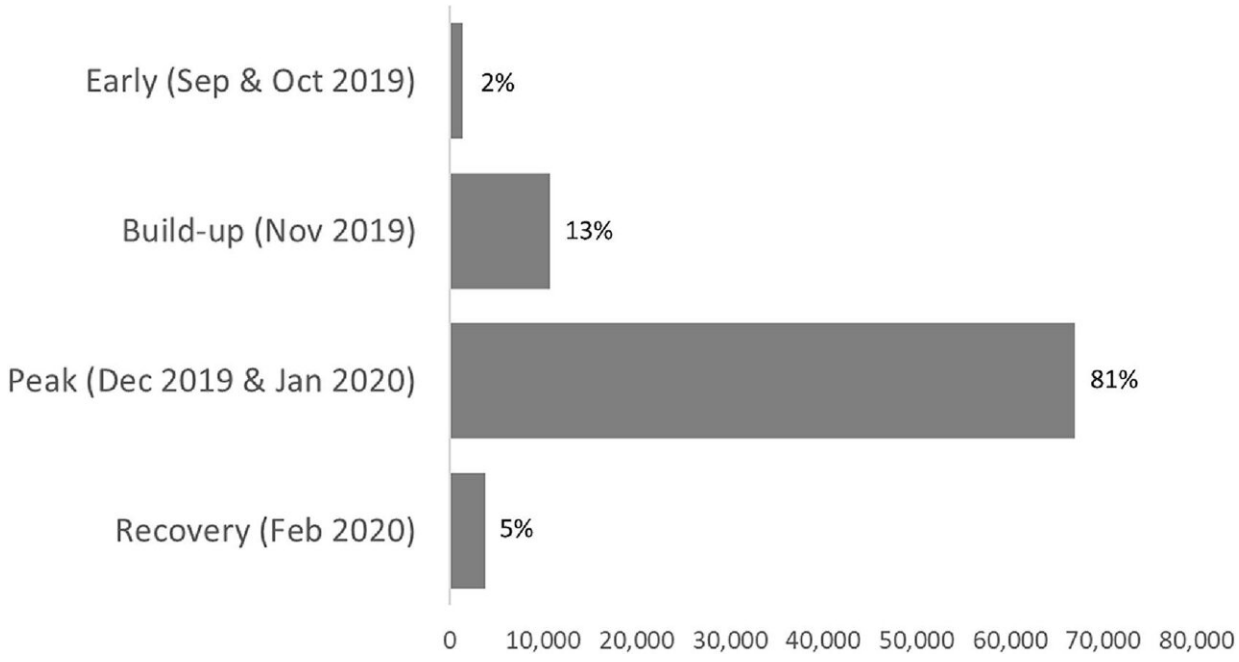

Number of tweets about the Black Summer bushfires in 2019/20 by phase. Credit: *Forest Ecology and Management* (2023). DOI: 10.1016/j.foreco.2023.121274

A study on social media activity during the Black Summer bushfires has revealed how the discussions changed through the phases of the disaster, and how critical social media is in disseminating information during natural disasters. The study was published in *Forest Ecology and Management*.

The Charles Darwin University and University of Wollongong analyzed how X, formerly known as Twitter, users discussed the 2019/20 bushfires to better understand how social media could be used to ensure the severity of natural hazards are being communicated effectively.

Trends in bushfire related tweets during the Australian "Black Summer" found that two thirds of the 82,927 tweets from users in New South Wales, the Australian Capital Territory and in Victoria came from the areas affected during Black Summer.

The tweets were collected from a search of 16 relevant hashtags such as "australiabushfire," "nswfires" and "australiaisburning" posted during September 2019 through to February 2020.

The tweets were split into four categories according to the process of the bushfires: early, build-up, peak and recovery, with most of the tweets posted during the 'peak' of the bushfires during December 2019 and January 2020.

Lead author CDU Associate Professor Kerstin Zander said of the 66,910 tweets posted during the "peak" phase, a significant 32% related to bushfire updates.

Associate Professor Zander added overall, a critical 31% of the total tweets across all four phases related to updates.

"Communication speed is one of the main reasons why so many people in Australia used Twitter in relation to the Black Summer and highlights the significance of social media for disseminating and accessing real-time information in emergency situations," Associate Professor Zander said.

"During the early phase, Twitter users were more concerned about the

social impacts of bushfires, how the bushfires impacted their lives, work and schooling. In the Build-up phase, health was the focus. In the Recovery phase, environmental impacts were more prominent."

Other results include 20% of all tweets being related to politics, while 18% surrounded donations and support.

Associate Professor Zander said analysis of social media content during emergency situations could offer valuable insights into how users respond to similar events.

"Real-time analysis of tweets could be used to ensure that the likely severity of a natural hazard is being communicated effectively by checking the extent to which evacuation is being discussed," she said.

"Similarly, understanding the focus and trend in sentiment could identify factors of greatest concern to those affected and whether responses to a natural hazard are being considered effective by those most affected.

"If analyses can be automated and conducted in real time, there could then be the opportunity to adjust the extent and location of response to meet needs. Such flexibility in response time would be unthinkable without social media, but the right tools need to be applied if that potential is to be realized."

The study was also co-authored by Professor Stephen Garnett, Associate Professor Mamoun Alazab and Andy Nguyen from Charles Darwin University, and Dr. Robert Ogie from the University of Wollongong.

More information: Kerstin K. Zander et al, Trends in bushfire related tweets during the Australian 'Black Summer' of 2019/20, *Forest Ecology and Management* (2023). DOI: 10.1016/j.foreco.2023.121274

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