

Weather associated with sentiments expressed on social media

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Credit: George Hodan/public domain

Sentiments expressed on Facebook and Twitter may be associated with certain weather patterns, according to a study published April 25, 2018 in the open-access journal *PLOS ONE* by Patrick Baylis from the

Vancouver School of Economics, Canada, Nick Obradovich from the Massachusetts Institute of Technology, and colleagues.

Previous research has identified a potential link between [weather](#) and people's emotional states, but which specific weather conditions trigger positive or [negative emotions](#) and how to measure these sentiments in an accurate and consistent way require further investigation.

To examine the association between weather conditions and expressed sentiments, the authors of the present study gathered 2.4 billion posts from Facebook and 1.1 billion from Twitter between the years 2009 and 2016. They analyzed the sentiment for each post using a special tool that categorizes posts based on keywords as positive or negative.

The researchers found that temperature, precipitation, humidity, and cloud cover each were strongly associated with an [expression](#) of sentiment, whether positive or negative. Positive expressions increase up to 20 degrees Celsius and decline as the temperature goes over 30 degrees Celsius. They also found that precipitation was associated with more negative expressed sentiment. Days with a humidity level of 80% or higher were associated with negative expressions, as were days with a high amount of cloud cover.

While the sentiment analysis tool used is imperfect, this study can help provide insight into how weather conditions might impact sentiments expressed via social media, which can act as a proxy for underlying human emotional states. Understanding the potential impact of weather on our emotions is important considering our constant exposure to weather conditions.

"We find that how we express ourselves is shaped by the weather outside," says Nick Obradovich. "Adverse [weather conditions](#)—hot and cold temperatures, precipitation, added humidity, and increased cloud

cover—reduce the sentiment of human expressions across billions of [social media](#) posts drawn from millions of US residents."

More information: Baylis P, Obradovich N, Kryvasheyeu Y, Chen H, Coviello L, Moro E, et al. (2018) Weather impacts expressed sentiment. *PLoS ONE* 13(4): e0195750. doi.org/10.1371/journal.pone.0195750

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