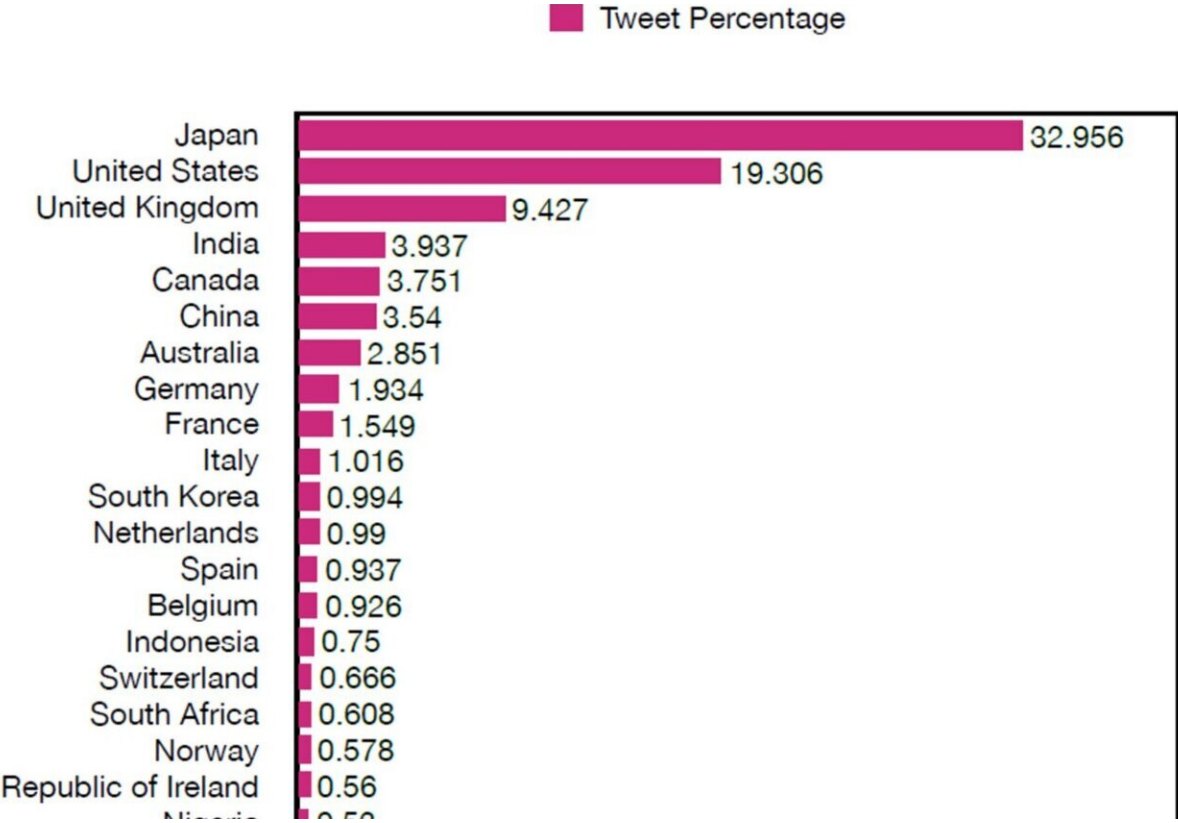


Global analysis of 30M hydrogen energy tweets shows increase from 2015 Paris Agreement

May 10 2024



Credit: *Social Network Analysis and Mining* (2024). DOI: 10.1007/s13278-023-01194-6

Australia's hydrogen energy-related discussion on Twitter (now X) is

now ranked seventh globally, according to an analysis of 30.7 million tweets conducted by QUT researchers.

The multi-lingual study's first author Ph.D. researcher Deepak Uniyal, who conducted the study with Professor Richi Nayak from the School of Computer Science, said analyzing [public discourse](#) on [hydrogen energy](#) was essential for understanding the public's behavior and acceptance of hydrogen technology. "[Twitter's pulse on hydrogen energy in 280 characters: a data perspective](#)" was published in *Social Network Analysis and Mining*.

Mr. Uniyal said an analysis of tweet geolocation found that Australia ranked seventh among the top 35 countries engaged in discussions about hydrogen energy on Twitter from 2013 to 2022.

"Japan led the distribution of discussion across the top countries with 33% of the tweets followed by the U.S. (19.3%), UK (9.4%), India (3.9%), Canada (3.8%), China (3.5%), and Australia (2.9%)," Mr. Uniyal said.

"Hydrogen energy has gained global attention as an alternative energy source, particularly for [industrial use](#), thanks to its potential for net-zero emissions.

"Our study used the Academic and Research Twitter API to extract a vast dataset comprising 30.7 million tweets.

"We downloaded the dataset using hydrogen energy-related keywords in four languages—English, Japanese, Korean, and Hindi—to achieve a more inclusive and diverse dataset.

"The analysis showed that Japanese and English were the dominant languages in the dataset, constituting around 9% of tweets, indicating a

possible bias towards these languages due to keyword choices.

"Further analysis revealed patterns in online discussions over time, with significant spikes in May 2016 (94% Japanese tweets) and subsequent smaller spikes.

"These spikes, including in 2017, 2018, 2019, and 2021, mostly feature Japanese tweets with some English contributions. The key discussion topics included fuel cells, hydrogen stations, hydrogen batteries and hydrogen-powered cars.

"Japan's sustained dominance from 2013–2022 is likely due to its clean energy commitment, and world-first pioneering hydrogen strategy in 2017.

The spikes coincided with major developments such as:

- North Korea's missile tests and claim of a successful hydrogen bomb test sparked global concerns and Twitter discussions in September 2017 and again in April 2018.
- The September 2018 spike coincided with the launch of the world's first hydrogen-powered passenger train in Germany and sparked a slew of hashtags including #hydrogen, #fuelcell, #germany, #energy #environment, #transport, #renewable energy and #hydrogentrain.
- Australia and India both showed notable rises in hydrogen energy-related topics since 2016 which aligned with the Paris Agreement, Australia's 2019 National Hydrogen Energy Strategy, and India's 2020 National Green Hydrogen Mission.

"Also, we found widespread sharing of Yahoo News articles on hydrogen water and fuel cells."

Professor Nayak said the analysis of hashtags revealed some interesting patterns.

"In July 2019 hashtags such as #fuelcell, #climatechange, #zero-emission and #greenhydrogen appeared," Professor Nayak said.

"In April 2021, several hashtags related to hydrogen, environmental initiatives, and a collaboration between Hyundai and BTS (a popular South Korean music group) were trending.

"An interesting observation was the presence of certain hashtags that consistently increased in usage over time. Hashtags like #fuelcell, #greenhydrogen, #hydrogen, #renewableenergy, #hydrogennow, #h2, #cleanenergy, #solar, #netzero, and #hydrogeneconomy, reflected a growing awareness and engagement.

"This study is one of the first studies on this large multifaceted data, and there remains many directions to be further explored."

More information: Deepak Uniyal et al, Twitter's pulse on hydrogen energy in 280 characters: a data perspective, *Social Network Analysis and Mining* (2024). [DOI: 10.1007/s13278-023-01194-6](https://doi.org/10.1007/s13278-023-01194-6)

Provided by Queensland University of Technology

Citation: Global analysis of 30M hydrogen energy tweets shows increase from 2015 Paris Agreement (2024, May 10) retrieved 20 July 2024 from <https://techxplore.com/news/2024-05-global-analysis-30m-hydrogen-energy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.