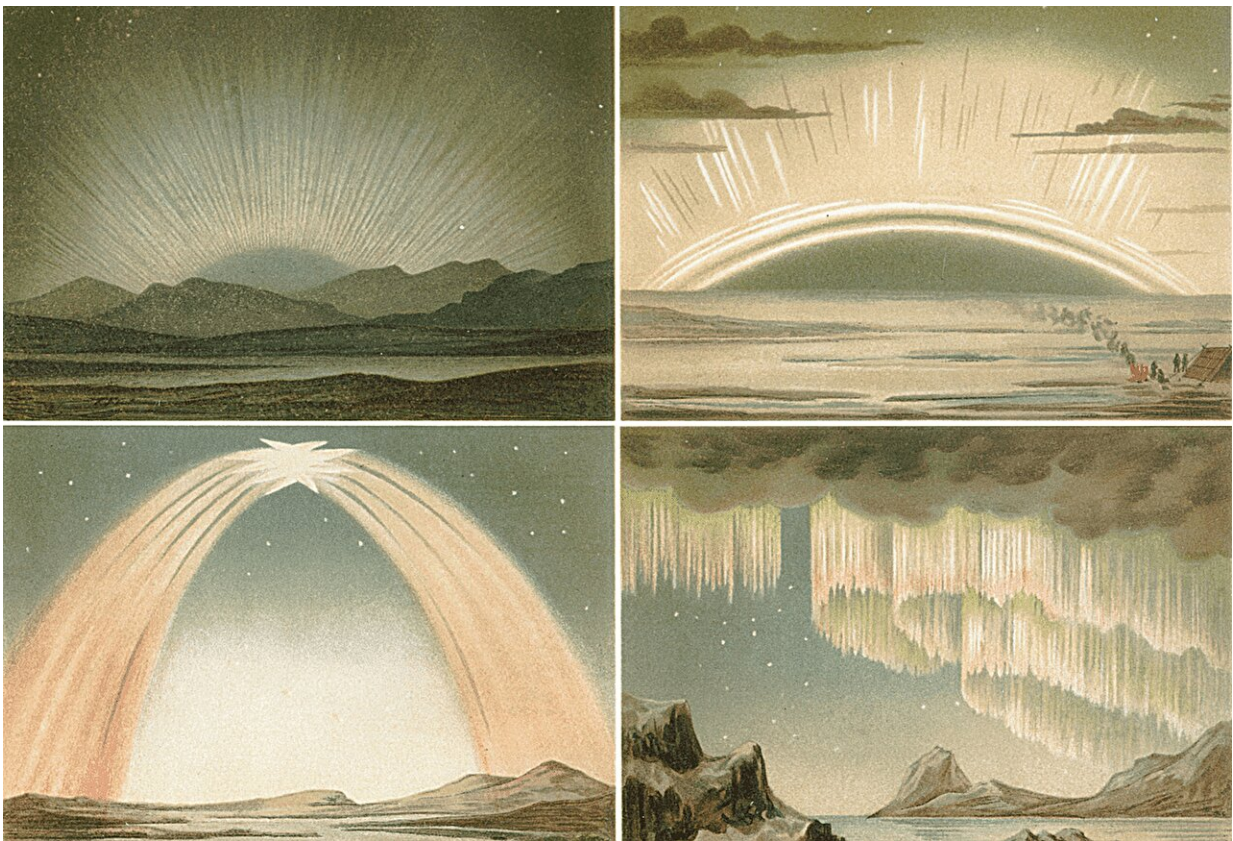


Study catalogs the most frequently used words in the archive of AGU journal article titles

July 31 2024, by Rebecca Owen



The northern lights, or the polar aurora, are depicted here in a series of lithographs from a 1908 encyclopedia. This phenomenon provided Earth scientists of the early 1900s clues about the mechanisms behind the sun's and Earth's magnetic fields and the composition of Earth's atmospheric layers.

Credit: [Meyers Konversations-Lexikon, 6th ed., vol. 16, via Wikimedia Commons](#)

Scientific studies have filled the pages of AGU journals for more than a century. These articles reveal how the study of geophysics has evolved alongside technology and societal interests and they tell the story of our expanding knowledge of Earth and space science.

To illuminate this story, a [new study](#) catalogs the most frequently repeated words in the titles of AGU journal articles published between 1896 and 2023. (AGU was established in 1919, but *Terrestrial Magnetism*, acquired by AGU as the *Journal of Geophysical Research* in 1959, was founded in 1896.)

The author grouped article titles into intervals by publication year: 1896–1949, 1950–1969, 1970–1989, 1990–2009, and 2010–2023. She also categorized words as either scientific terms or method and descriptor terms.

Among method and descriptor terms, the names of months and the word observatory were most popular prior to 1950, measurements dominated from 1950 to 1969, and variations of model (e.g., models, modeling) took the top spot from then on.

The most frequently used scientific word in the 6,397 journal article titles published from 1896 through 1949 was magnetic (counted together with instances of magnetism); it was followed distantly by Earth and water. The popularity of magnetic, magnetism, and Earth comes as no surprise given the topical focus of *Terrestrial Magnetism*; in fact, that journal's founding editor had ambitions of mapping Earth's entire magnetic field.

Most instances of water in the first half of the 20th century appeared in AGU's newsletter, "Transactions, American Geophysical Union" (now

Eos), which published many articles on water resources, especially groundwater. In subsequent years, geophysical research began to expand outward toward the sun and inward toward Earth's ocean and core.

In the period 1950–1969, wave—used most frequently in radio wave, gravity wave, and surface wave—took the top spot among scientific terms. Radio wave in particular took off in the 1960s, in tandem with the rise of satellites and sounding rockets.

Between 1970 and 1989, AGU's collection of journals grew from four to 11, and annual output increased from about 1,300 articles to more than 2,300. Wave remained the most used scientific word, and plasma and auroral made their first appearance in the top 10 thanks to the discovery of the plasmasphere in the mid-1960s.

From 1990 to 2009, the AGU collection grew to 17 journals, and in that time, the most common scientific words in article titles became ocean, sea, surface, and water. The word Southern was often associated with ocean, indicating a growing awareness of El Niño.

The years 2010 to 2023 saw the addition of three new journals (including *Perspectives of Earth and Space Scientists*, in which this analysis was published) and the publication of 89,467 articles. Wave returned to the top spot among scientific terms, with climate, temperature, and carbon also appearing in the top 10, reflecting a growing societal focus on climate.

More information: Paige Wooden, *From Earth to Space and Back Again: A Story of Geophysics Told by 130 Years of AGU Article Titles, Perspectives of Earth and Space Scientists* (2024). [DOI: 10.1029/2024CN000241](https://doi.org/10.1029/2024CN000241)

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