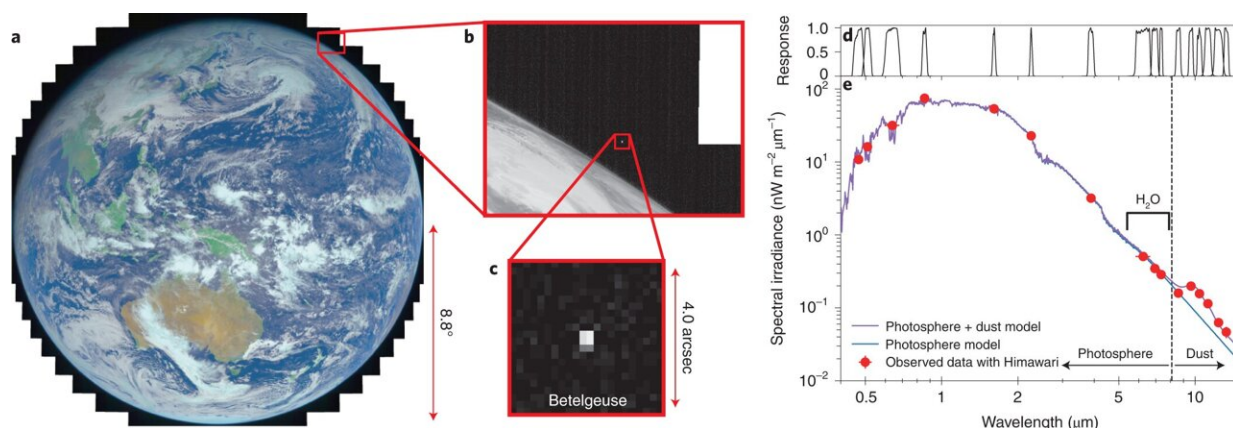


# Study of data from weather satellite confirms theories surrounding the dimming of Betelgeuse in 2019

May 31 2022, by Bob Yirka



Betelgeuse observed with the Himawari-8 meteorological satellite near the edge of the Earth's disk. a, False-color image taken by the Himawari-8 satellite on 19 January 2020. Betelgeuse is located at the top right corner of the image. b,c, Zoomed-in images of band 7. d, The response functions of Himawari-8. e, The observed SED after averaging all observations with a model spectrum fitted to it. Credit: *Nature Astronomy* (2022). DOI: 10.1038/s41550-022-01680-5

A trio of researchers at The University of Tokyo has found that data from weather satellites can be used to study the stars. In their paper published in the journal *Nature Astronomy*, Daisuke Taniguchi, Kazuya Yamazaki and Shinsuke Uno describe studying the dimming of Betelgeuse in 2019 by analyzing data from the Himawari-8 weather

satellite.

In 2019, Betelgeuse, a [red supergiant star](#), diminished in brightness, an event some in the space community dubbed the Great Dimming. The dimming lasted until early 2020. Space scientists from around the globe studied the unexpected phenomenon, and while some suggested it was an indication that Betelgeuse was about to go supernova, others disagreed, insisting it appeared more likely that while some or all of the star might have dimmed, it seemed more likely that the dimming was due to interference from a dust cloud.

In this new effort, the researchers wondered if the Japanese weather [satellite](#) Himawari-8 could provide some insight into the reason for the dimming. They noted that it records [infrared data](#) and sends it down to Earth-based stations 24 hours a day. They also noted that the satellite had been sent so far out into space that it was able to capture weather for the entire surface of the planet and also some of the [stars](#) in the background.

The researchers obtained data from the satellite for the years 2017 to 2021 and analyzed it for imagery of Betelgeuse. They discovered that they were able to obtain data regarding the star once every day for all of the years they studied. They analyzed that data to learn more about the dimming that occurred in 2019 and found evidence of the temperature of the star lessening by approximately 140 degrees Celsius. They also found evidence of dust obscuring the view and suggest their analysis confirms what many others had suspected regarding the reason behind the dimming.

Their work shows that data from [weather satellites](#) could be a valuable resource for space scientists. Not only is the data they provide more regularly collected than that from traditional ground-based telescopes, it provides a cleaner view because the satellites circle above the Earth's atmosphere.

**More information:** Daisuke Taniguchi et al, The Great Dimming of Betelgeuse seen by the Himawari-8 meteorological satellite, *Nature Astronomy* (2022). [DOI: 10.1038/s41550-022-01680-5](https://doi.org/10.1038/s41550-022-01680-5)

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Citation: Study of data from weather satellite confirms theories surrounding the dimming of Betelgeuse in 2019 (2022, May 31) retrieved 6 May 2024 from <https://phys.org/news/2022-05-weather-satellite-theories-dimming-betelgeuse.html>

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