

Parched Venus

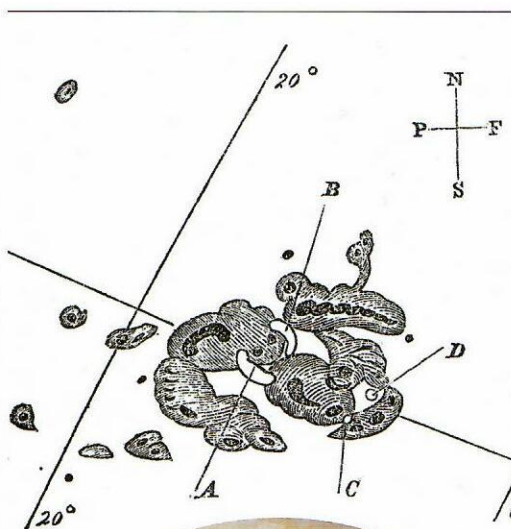
Michael Chaffin (University of Colorado, Boulder) and team have found that HCO^+ ions high in Venus's atmosphere may be the culprit behind the planet's water loss. This ion forms from water and carbon dioxide but free electrons soon split the ion, releasing hydrogen atoms which escape to space. Unfortunately, no space missions have yet been equipped to detect the HCO^+ ion. The research appears in *Nature*. tinyurl.com/4ypp6bpt (Aurore Simonnet/LASP/CU Boulder)

Ryugu under the weather

Yuki Kimura (Hokkaido University) and colleagues have found clear evidence of space weathering in Hayabusa2 samples of asteroid Ryugu. One particularly interesting finding was that small mineral grains called 'framboids', composed of magnetite, had completely lost their normal magnetic properties. Reporting in *Nature Communications*, the researchers suggest this is due to collision with high-velocity micrometeoroids. tinyurl.com/3trv7c66

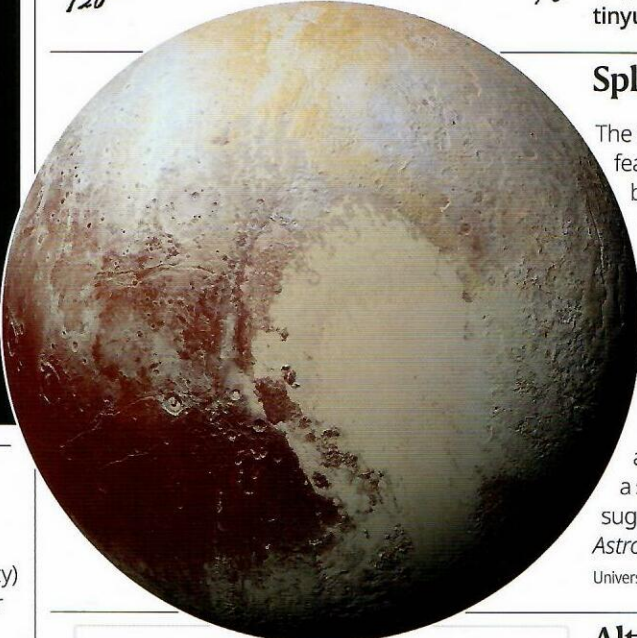
Rock drops in clouds

Using JWST, astronomers have constructed a global temperature map of tidally-locked exoplanet WASP-43b. The temperature contrast between the dayside and night-side was found to be stronger than one would expect for a cloud-free atmosphere. Publishing in *Nature Astronomy*, Taylor Bell (NASA Ames Research Center) and team suggest clouds made of liquid rock droplets are more likely to be present on the exoplanet's night-side. tinyurl.com/3rfzj4vu



Size doesn't matter for sunspots

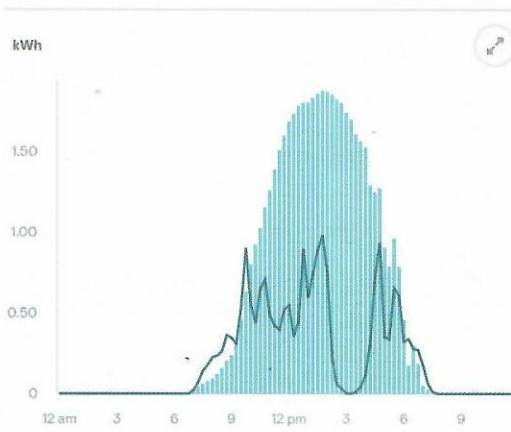
How big was the sunspot group that produced the Carrington event in 1859? Not that big, according to a new analysis of the records made by Carrington himself. Peter Meadows has measured the area of the sunspot group recorded by Carrington. He found that it was just over half the size of the largest recorded group (from 1947), and would sit in 25th place in a league table of large sunspot groups since the start of the Greenwich Sunspot catalogue in 1874. Meadows noted that the size of the sunspot group cannot, therefore, be a key factor in formation of such large flares, or we would have seen far more of them. The work is published in the *Journal of the British Astronomical Association*. tinyurl.com/agBritAstro (RAS/Science Photo Library)



Splat went Pluto's heart

The mystery of how Pluto got a giant heart-shaped feature (Tombaugh Regio) on its surface has been solved. Harry Ballantyne (University of Bern) and colleagues used particle hydrodynamics modelling to conclude that Pluto's early history was marked by a cataclysmic collision with a planetary body about 700km in diameter. The impact was at an oblique angle and the impactor did not sink into Pluto's core, but remained essentially intact. Their work also suggests that Pluto does not have a subsurface ocean, as some analysis had suggested. The results are presented in *Nature Astronomy*. tinyurl.com/yc6jxtk7 (NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute)

50.4 kWh April 09, 2024	19.9 kWh April 08, 2024	55.4 kWh April 09, 2023
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Alternative eclipse records

Unable to view the April eclipse from his home in New York State because of cloudy weather, RAS Fellow David Meisel found a different measure: the power generated by the solar panels on his roof. "Our 23 panel rooftop solar array was running in spite of the clouds and registered the eclipse," said David. "The solar array is highly calibrated energy-wise but I have no idea what is the effective wavelength or bandwidth of the array. However for future eclipses such solar arrays might provide as valid information about the solar oblateness as does optical measurements of contact times." David's wife Carolyn C Meisel found that the clouds did not change bird response to the event – but squirrels were a different story: "Birds responded to the changing light levels, but squirrels did not, and feasted throughout totality."

Major merger of quasars

The existence of merging quasars in the Epoch of Reionisation has been confirmed. Yoshiaki Matsuoka (Ehime University) and colleagues describe two black holes, each 100 million times the mass of the Sun, 900 million years after the Big Bang. A bridge of gas stretching between the two quasars suggests they and their host galaxies are undergoing a major merger. The research appears in *The Astrophysical Journal Letters*. tinyurl.com/68jsdkpj (International Gemini Observatory/NOIRLab/NSF/AURA/M; Garlick)

