

WEYMOUTH ASTRONOMY

Sky Watcher

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Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

**Society Meetings
cancelled until further
notice—Please check
their websites for the
latest schedule**

In the meantime, the British Astronomical Association has moved their meetings to an online format. Live streamed on release and 'catch-up' on Youtube available. These webinars are Open to All.

<https://britastro.org/>

**BAA live webinars, 7pm
every Wednesday**

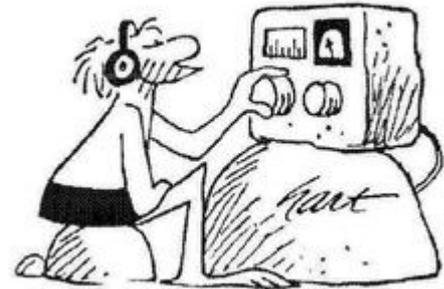
[https://
www.youtube.com/user/
britishastronomical](https://www.youtube.com/user/britishastronomical)

If you are interested in giving a talk or workshop, let the organisers know. They like to offer new titles in their programme line-up.



An interesting news article recently appeared on spaceweather.com (11 Feb) which focusses on how amateur astronomers can contribute by using ham radios. Hopefully some members might find this of interest.

HAM RADIO SPACE WEATHER NETWORK: A new article just published in EOS describes how ham radio is the new frontier in space weather research. Interested? All you need is a Personal Space Weather Station to join a global network of scientists studying how solar activity affects our planet.



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Learn more during the 2021 HamSCI Workshop, held virtually using Zoom on March 19th and 20th.

The full article can be found at: <https://eos.org/features/ham-radio-forms-a-planet-sized-space-weather-sensor-network>

Until next time...SLK



Landing on Mars: A Tricky Feat!

by David Prosper

The Perseverance rover and Ingenuity helicopter will land in Mars's Jezero crater on February 18, 2021, NASA's latest mission to explore the red planet. Landing on Mars is an incredibly difficult feat that has challenged engineers for decades: while missions like Curiosity have succeeded, its surface is littered with the wreckage of many failures as well. Why is landing on Mars so difficult?

Mars presents a unique problem to potential landers as it possesses a relatively large mass and a thin, but not insubstantial, atmosphere. The atmosphere is thick enough that spacecraft are stuffed inside a streamlined aeroshell sporting a protective heat shield to prevent burning up upon entry - but that same atmosphere is not thick enough to rely on parachutes alone for a safe landing, since they can't catch sufficient air to slow down quickly enough. This is even worse for larger explorers like Perseverance, weighing in at 2,260 lbs (1,025 kg). Fortunately, engineers have crafted some ingenious landing methods over the decades to allow their spacecraft to

survive what is called *Entry, Descent, and Landing (EDL)*.

The Viking landers touched down on Mars in 1976 using heat shields, parachutes, and retrorockets. Despite using large parachutes, the large Viking landers fired retrorockets at the end to land at a safe speed. This complex combination has been followed by almost every mission since, but subsequent missions have innovated in the landing segment. The 1997 Mars Pathfinder mission added airbags in conjunction with parachutes and retrorockets to safely bounce its way to a landing on the Martian surface. Then three sturdy "petals" ensured the lander was pushed into an upright position after landing on an ancient floodplain. The Opportunity and Spirit missions used a very similar method to place their rovers on the Martian surface in 2004. Phoenix (2008) and Insight (2018) actually utilized Viking-style landings. The large and heavy Curiosity rover required extra power at the end to safely land the car-sized rover, and so the daring "Sky Crane"

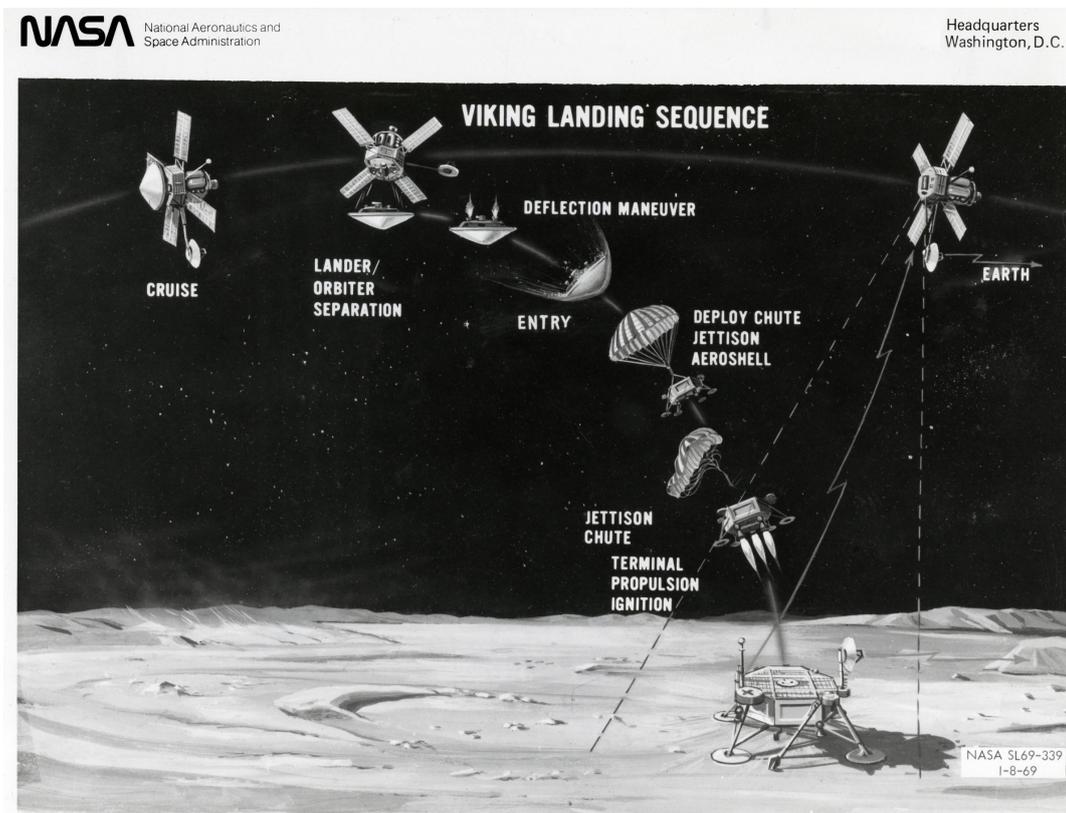
WAC Upcoming Events:

	Watch website for online options.
12 Mar	Mark Radice - Observing the Moon
9 Apr	Dr Claire Davies - The Formation of Stars and Planets
14 May	AGM and James Fradgley - Astronomical Causes of Climate Change

Mars (more!)

deployment system was successfully used in 2012. After an initial descent using a massive heat shield and parachute, powerful retrorockets finished slowing down the spacecraft to about 2 miles per hour. The Sky Crane then safely lowered the rover down to the Martian surface using a strong cable. Its job done, the Sky Crane then flew off and crash-landed a safe distance away. Having proved the efficacy of the Sky Crane system, NASA will use this same method to attempt a safe landing for Perseverance this month!

You can watch coverage of the Mars Perseverance landing starting at 11:00 AM PST (2:00 PM EST) on February 18 at nasa.gov/nasalive. Touchdown is expected around 12:55 PM PST (3:55 PM EST). NASA has great resources about the Perseverance Rover and accompanying Ingenuity helicopter on mars.nasa.gov/mars2020. And of course, find out how we plan to land on many different worlds at nasa.gov.



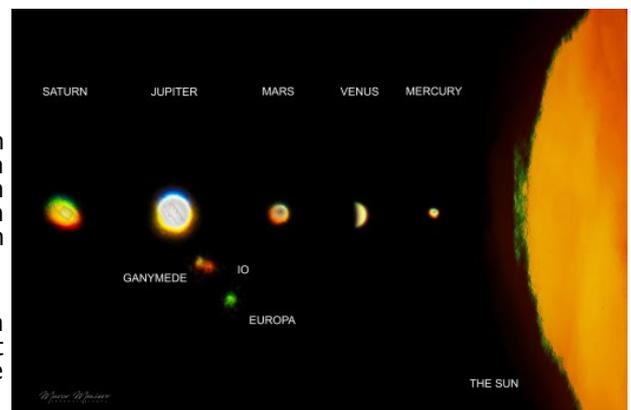
A Green Flash on Jupiter

Spaceweather.com on 5 February 2021

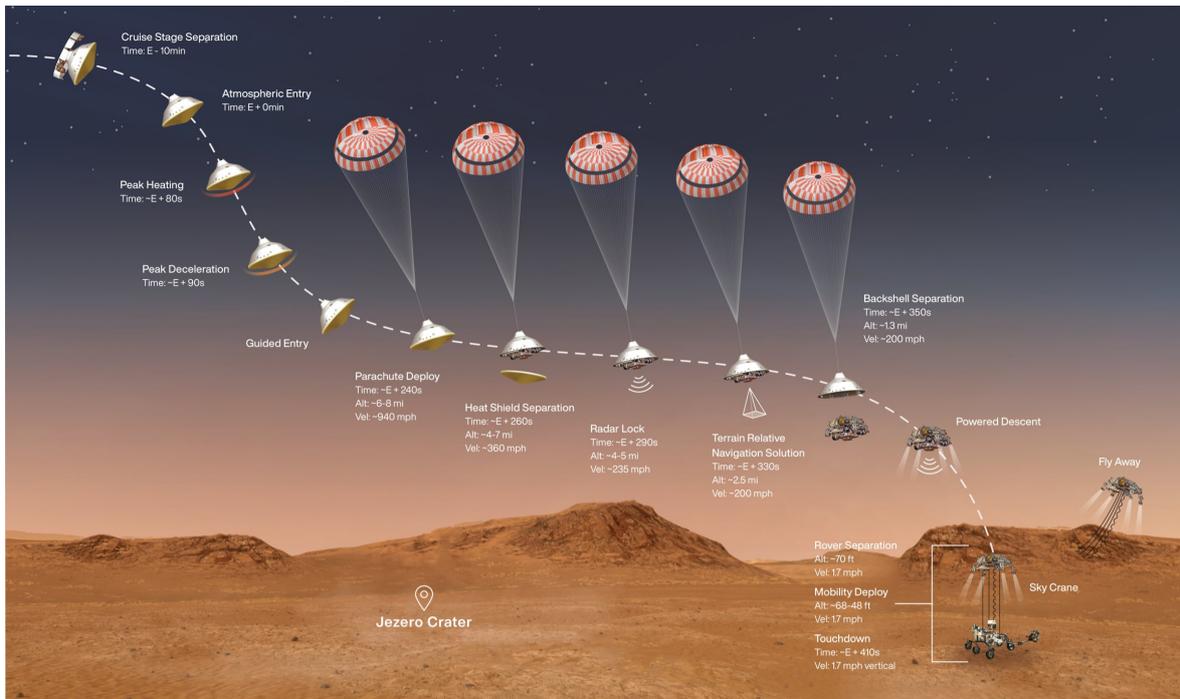
SOLAR SYSTEM GREEN FLASH: Seeing a green flash from the sun is special. Now imagine seeing a green flash from *the whole Solar System*. "I am pleased to present just such a picture," says Italian photographer [Marco Meniero](#), who assembled this montage of green and other colors from the sun to Saturn:

"I took these pictures between Oct. 28th and Nov. 10th, 2020, from my home in Civitavecchia, Roma, Italy," says Meniero. "Each planet was near the horizon where the prismatic action of the low atmosphere could produce [green rims](#) and [green flashes](#)."

"When I photographed Jupiter, I got twenty good shots in which the green ray was present, but only one with Europa turning green," he recalls. "I decided to insert that one because it was the rarest of all. Later, I added high-resolution images of the planetary disks taken by my friend Alessandro Bianconi to clearly show the normal size of each planet with respect to the atmospheric optical deformation."



<https://spaceweather.com/archive.php?view=1&day=05&month=02&year=2021>



Illustrations of the Entry, Descent, and Landing (EDL) sequences for Viking in 1976 (left), and Perseverance in 2021 (above). Despite the wide gap between these missions in terms of technology, they both performed their landing maneuvers automatically, since our planets are too far apart to allow Earth-based engineers to control them in real time! (NASA/JPL/Caltech)

UK Engineering on the ISS:

BBC 27 January 2021

Two astronauts have taken part in a spacewalk outside the International Space Station (ISS) on Wednesday to install new technology.

It was an epic seven hour mission, but only part of it was successful.

NASA's Mike Hopkins and Victor Glover installed a new antenna on Columbus - the European Space Agency module on the ISS.

However, only four of the six cables were able to be attached - the other two will be attached on a future space walk. It means the new system is partially operational.

Once it's fully operational, the new communication system will help scientists get their results from space back to Earth much quicker. Currently, it takes months for results to be returned to Earth because they use a hard drive to send the results back and sometimes data can be lost if corrupted.

This new technology will mean results can be delivered to scientists in just a day or two which means they get faster results and can change experiments quickly if there are any problems.

It's called ColKa which is short for 'Columbus Ka-band Terminal' and it is funded by the UK Space Agency.

It's the UK's first major industrial contribution to the ISS spacecraft.

More at: <https://www.bbc.co.uk/newsround/55823296>

