

Stars Over Surrey Astronomy & Spaceflight News

2nd July 2021



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NASA Announces Two Venus Missions

- **DAVINCI+**

- ‘Deep Atmosphere Venus Investigation of Noble gases, Chemistry, and Imaging’
- A ‘descent sphere’ will plunge through atmosphere measuring its composition
- it will also return high-res images of ‘tesserae’ which might be akin to continents, experiencing plate tectonics



Credit: NASA/JPL-Caltech

- **VERITAS**

- ‘Venus Emissivity, Radio science, InSAR, Topography, and Spectroscopy’
- This is an orbiter which will use synthetic aperture radar to map the surface and to chart elevations to determine whether plate tectonics and volcanism are still active
- It will also use infra-red imaging to identify the types of rock that comprise the surface and also to detect whether water vapour is being released into the atmosphere by active volcanoes.

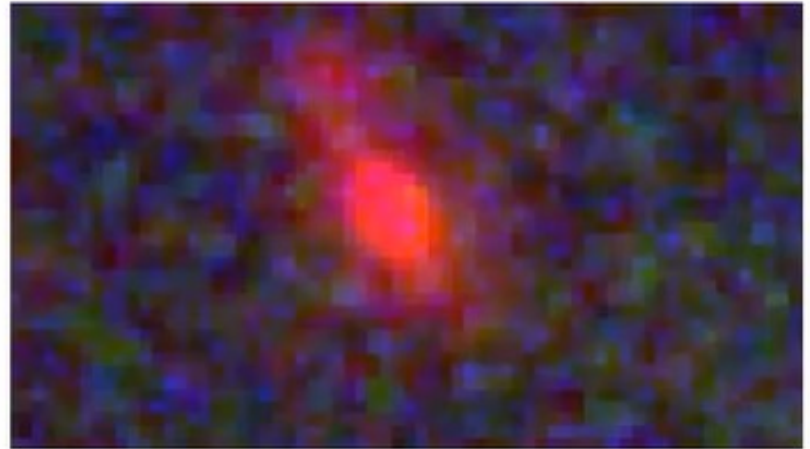
- **Both expected to launch 2028-2030**

Misc Spaceflight News

- **Hubble temporarily out of action**
 - NASA is optimistic that it can rectify a payload computer fault that forced the HST into “safe-mode”, but is deferring any action until it is absolutely sure
- **Four Space walks on ISS during June**
 - two Russian cosmonauts have conducted an EVA to prepare an old airlock/docking module (Pirs) for removal to make way for the new Nauka science module which will arrive in July
 - Pirs will be towed away by the currently docked Progress craft and both will burn up on re-entry
 - one NASA and one ESA astronaut conducted three EVAs to install two 60' long solar arrays that will supplement the ISS's original solar panels. These have been degraded by age, micrometeorites and rocket plumes from visiting manned and cargo spacecraft.

The Cosmic Dawn!

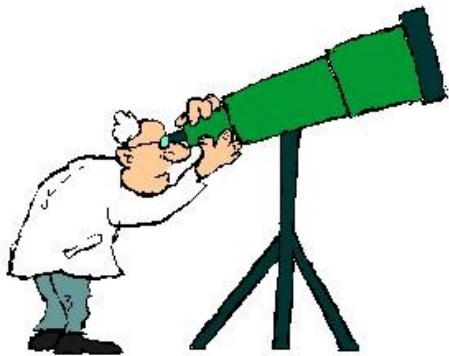
- **Researchers from UCL and Camb. Uni have calculated that the first stars shone between 250 & 350 million years after the Big Bang**
 - 13.8 billion years ago followed by a period of darkness until nuclear fusion could start and the first stars were formed.
- **They used 70 hours of observing time on four of the world's biggest telescopes studying six distant galaxies to calculate those distances**
- **They also used data from Hubble and Spitzer space telescopes to calculate how long those galaxies had been formed.**
- **They calculated the most distant to be 550 million years after the Big Bang and between 200 to 300 million years old at the time its light left to be seen by telescopes.**



Credit: Nicolas Laporte

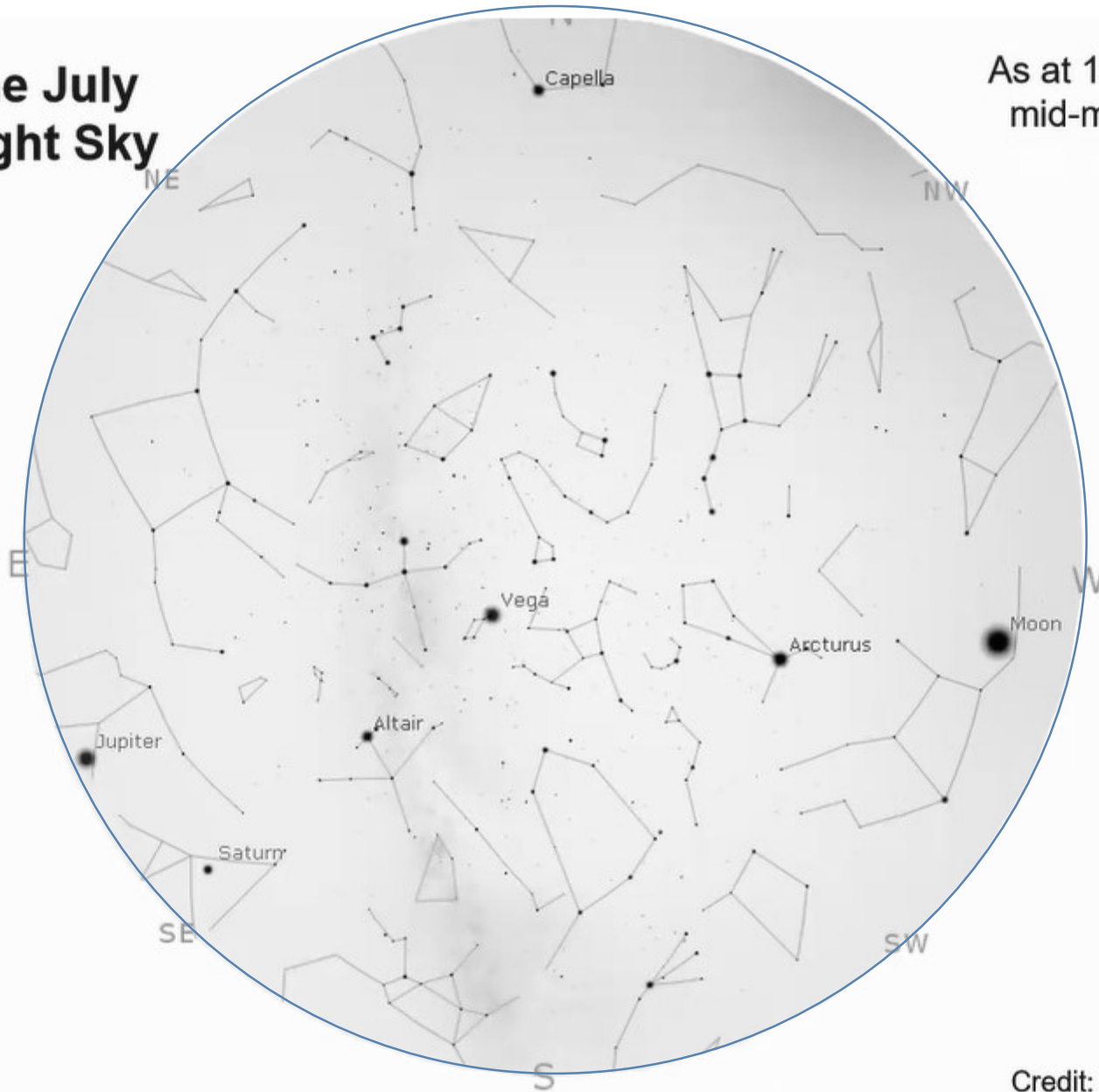
What's Up!

For July 2021



The July Night Sky

As at 11 p.m.
mid-month



Credit: Stellarium

Sun & Moon in July

- **Third Quarter** 1st
- **New Moon** 10th
- **First Quarter** 17th
- **Full Moon** 24th

		Sun	Moon
1 st	Rise	04.50	00.55
	Set	21.21	12.38
15 th	Rise	05.03	10.59
	Set	21.11	00.02*
31 st	Rise	05.25	23.58
	Set	20.50	15.01*

All times are BST

* following day

The Planets in July

Mercury

Mercury is an morning object all month, low in NE, rising about 1 hr before the Sun at the start of the month but about 30 mins by the end. It starts the month shining at mag 1, but brightens to a max of -0.6 on 27th.

Venus

Venus is an evening object, shining at mag -3.9 in WNW setting 1½ hrs after the Sun at start, reducing to 1hr 10 mins at month end.

Mars

Close to the twilight but visible as an evening object at mag +1.8 low in WNW

The Planets in July

Jupiter

Rising in the ESE a little before midnight on the 1st but before 10pm by month end. Bright at mag -2.7 and peaking at 25° high, Jupiter will be splendid in the Summer & Autumn skies.

Saturn

Saturn is still a morning object, low in the South, at mag +0.4 rising about an hour before Jupiter

Uranus

Lost in the morning twilight at the start of the month but becomes visible in the East by month end.

Neptune

Becomes visible in the SSE in the early hours by the end of the month.

Astronomical Phenomena in July

6th	Waning crescent Moon just below The Pleiades cluster
8th	Very thin waning crescent Moon (3% lit) approx 3° from Mercury, one hour before sunrise
11th &12th	Crescent Moon and Venus make a nice pair in WNW, approx 7° apart. Moon to right of Venus on 11 th , to left on 12 th
13th	Mars and Venus are at their closest, in WNW, just 30' apart.
16th	Try to find the Lunar X and Lunar V (clair-obscur effect) on the Moon's terminator around 22.50 BST
24th	Saturn can be found above and to right of full Moon
25th	Jupiter 6° from the Moon around midnight
28th	Saturn approaches opposition so its rings are at their brightest for next week or so (Seeliger effect)
all month	Watch out for Noctilucent clouds - NW horizon 1½ to 2 hrs after sunset or similar time at NE horizon before sunrise

Meetings at Local Societies

- Given the current Covid-19 situation, all physical meetings at our local astronomical societies have been cancelled until further notice, some continue via Zoom for paid-up members.
- You might like however to see their websites for items of interest:
 - **Guildford AS** <http://www.guildfordas.org/>
 - **Farnham AS** <https://www.farnham-as.co.uk/>
 - **Croydon AS** <http://www.croydonastro.org.uk/>
 - **Ewell AS** <https://ewellastronomy.org/>
 - **Walton AG** <http://www.waltonastrogroupp.co.uk/>

Free Meetings & Talks On-line

- **British Astronomical Association:** Zoom webinars
 - *“Jupiter Rising”*
 - Wednesday 17th July, 7.00 - 8.30 p.m.
 - Dr John Rodgers (Dir BAA Jupiter Section)
- <https://www.britastro.org/meetings>
(will also be viewable via BAA's YouTube Channel)

Free Meetings & Talks On-line

- **Society for Popular Astronomy:**
 - *“The Gaia Revolution”*
 - Saturday 31st July, 2.00 - 3.30 p.m.
 - Dr George Seabroke (UCL, MSSL)
 - *Friday Night Live with Vicky Video*
 - Weekly on SPA's FaceBook page at 8.00 - 9.00 p.m.
 - Chat show rather than meeting
 - https://www.popastro.com/main_spa1/meetings-and-events/forthcoming-meetings/
- (will also be viewable via SPA's YouTube Channel)

Meetings & talks on-line

- You can also pay £3.00 to watch these on-line talks run by **GoSpaceWatch**: (book via Eventbrite)
 - *“Mars Society: We’re Half Way To Mars!”*
 - Wednesday 7th July, 7.30 - 9.30 pm
 - Igor Brobek, Croatia
 - *“How to Photograph a Black Hole”*
 - Wednesday 21st July 7.30 - 9.30 pm
 - Andy Briggs (Author & Broadcaster)

www.gospacewatch.co.uk/

Astronomy on TV

The Sky at Night

“ET and the BBC”

Could we be the only planet in the Universe to support life, or might there be some other form of life - be it extra-terrestrial sentience or micro organisms and bacteria - to be found even within our own Galaxy? In this one hour special Maggie and Chris delve into the archives and take a look at how the BBC has reported the search for life in the Universe over six decades.

Sunday 11th July BBC 4, 10.00 pm

Thursday 15th July BBC 4, 7.30 pm



That's all Folks!