

Stars Over Surrey Astronomy & Spaceflight News

4th March 2022



War in Ukraine - Effects (1)

- **International Space Station**

- Sanctions will greatly limit Russia's import of hi-tech equipment. Head of Roscosmos has said knock on effect might be that Soyuz no longer flies. At present Soyuz & Progress capsules provide fuel and thrusters for periodic station-keeping firings. He said USA would be responsible for an uncontrolled ISS re-entry on perhaps US, Europe, India or China.
- Elon Musk immediately tweeted that SpaceX could perform this task with its Dragon resupply vessel
 - as probably so could Northrop Grumman with its Cygnus
- No news has emerged about relations between current crew
 - two Russian Cosmonauts, four US Astronauts, one German Astronaut
- NASA says “nothing's changed”, launch schedule will continue
 - 18th March - three more Russian Cosmonauts will arrive
 - 30th March - two Russians plus one NASA astronaut with depart
 - 30th March - Axiom/SpaceX mission will launch four private crew to ISS

War in Ukraine - Effects (2)

- **ESA/Roscosmos ExoMars2 unlikely to launch this year**
 - ESA's Rosalind Franklin Mars Rover was due to launch to Mars in September on a Russian rocket from Russia.
 - The lander (Kazachok) that transports the rover down to the surface is also Russian
 - ESA has just stated that the launch is extremely unlikely
- **Russia suspends all co-operation with ESA at Kourou launch site in French Guiana**
 - Russian has ordered all its technicians and other personnel to return to Russia, halting all planned launches using Soyuz rockets
- **A Soyuz rocket was scheduled to launch One Web broadband satellites from Baikonur on Friday 4th**
 - UK Government owns 50% of One Web, Russia demanded that UK Gov't relinquishes its share as condition of launch. Refused by Gov't, so One Web has now suspended all use of Soyuz launchers.

War in Ukraine - Effects (3)

- **Rocket Engines**

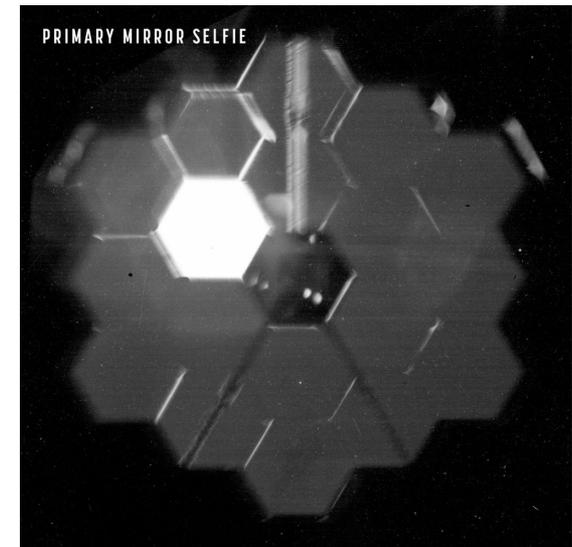
- Both Russia and Ukraine build excellent rocket engines and sell them to USA. Some of the Ukraine builds are under license from Russia, some are of its own design.
- United Launch Alliance's Atlas V launches using Russian RD-180 engines, but ULA has sufficient stocks of these to last until it retires
- Northrop Grumman's Antares rocket's 1st stage is built in Ukraine using Russian engines - may have to develop something in house.

- **Miscellaneous**

- SpaceX has sent large quantities of Starlink antennae terminals to Ukraine to help maintain broadband services given Russian strikes have taken out some broadband capability. Starlink satellites can relay signals, there's nothing Russia can do about it.
- Western commercial companies operating orbiting spacecraft have been sharing photographic images with Ukraine to help with military operations , Ukraine now asking for satellite radar data

James Webb ST Latest

- JWST returns a “selfie”
- The spacecraft’s instrument section is now cold enough for one of its cameras to work, allowing calibration to begin
- The 18 different segments each returned image of a faint star
 - The images show that the telescope came through launch with all its mirrors correctly in the expected initial coarse alignment (within 1 mm)
- **Actuators will now adjust the mirror segment positions so that all 18 focus at the same point, equating to a 6.5 metre diameter mirror**



Space X Miscellaneous

- **At start of Feb Space X launched three Falcon 9s in three days**
 - two from Florida, one from California
 - one launch had been delayed following cancellation by cruise ship incursion
- **Solar storm brings down Starlinks**
 - Particles originating in a violent solar flare caused a geomagnetic storm at Earth
 - This resulted in the Earth's atmosphere swelling, increasing drag on Starlinks that had recently been launched into low orbit, 40 out of 49 have begun to come down
- **Mechzilla arms used for first time, holding the stacked Starship, then lowering Starship from Super Heavy**
 - first orbital launch in March?



Massive Coronal Mass Ejection imaged by ESA Solar Orbiter



Recent Hubble Image

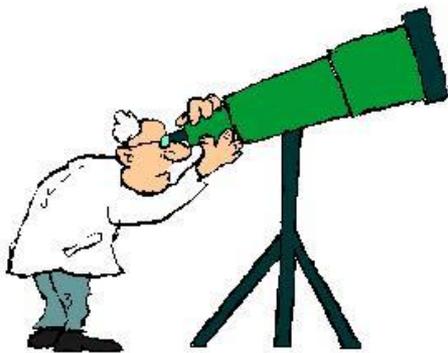


Three interacting galaxies tearing each other apart but eventually will merge Credit: NASA

Stars Over Surrey

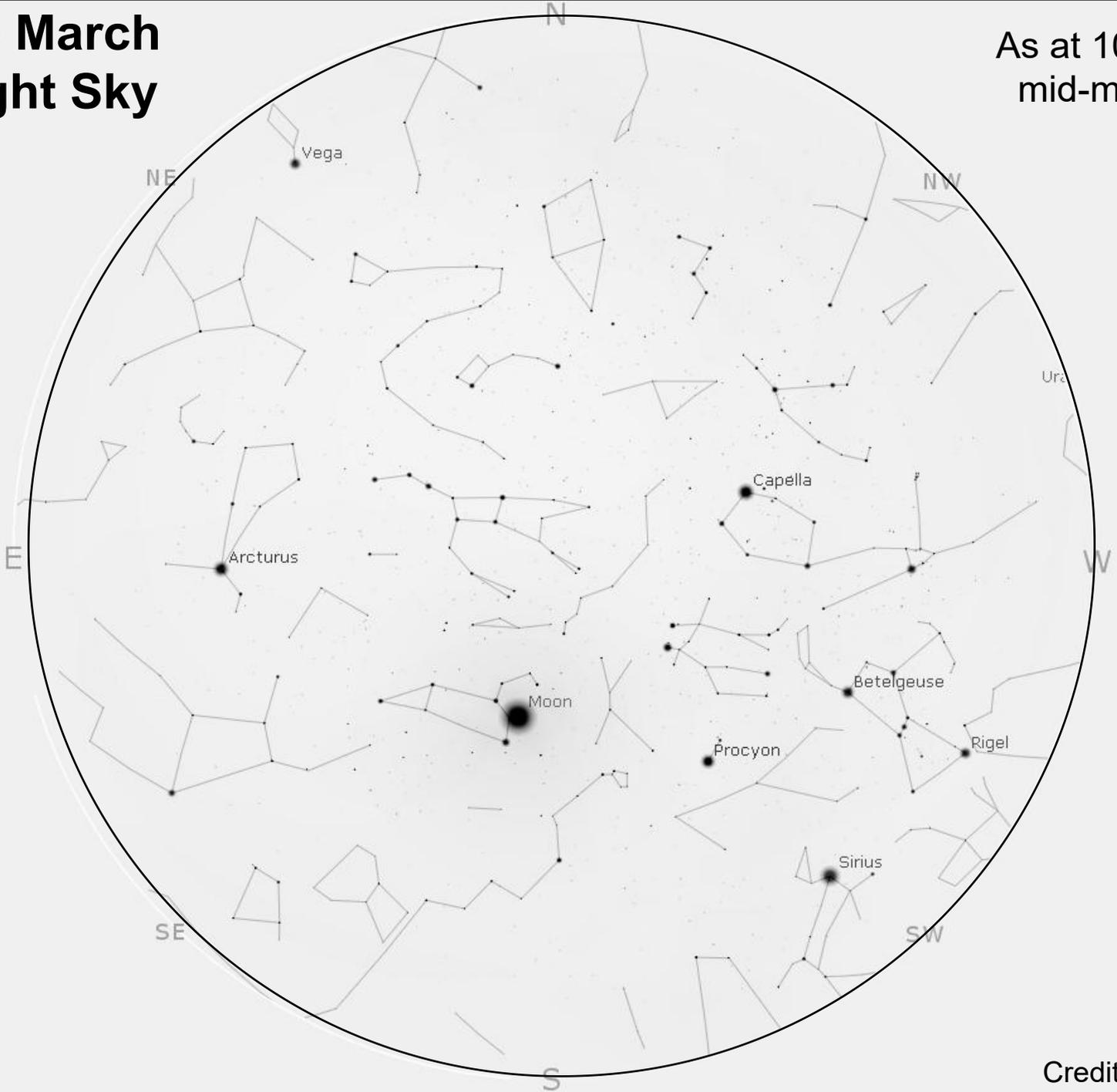
What's Up!

For March 2022



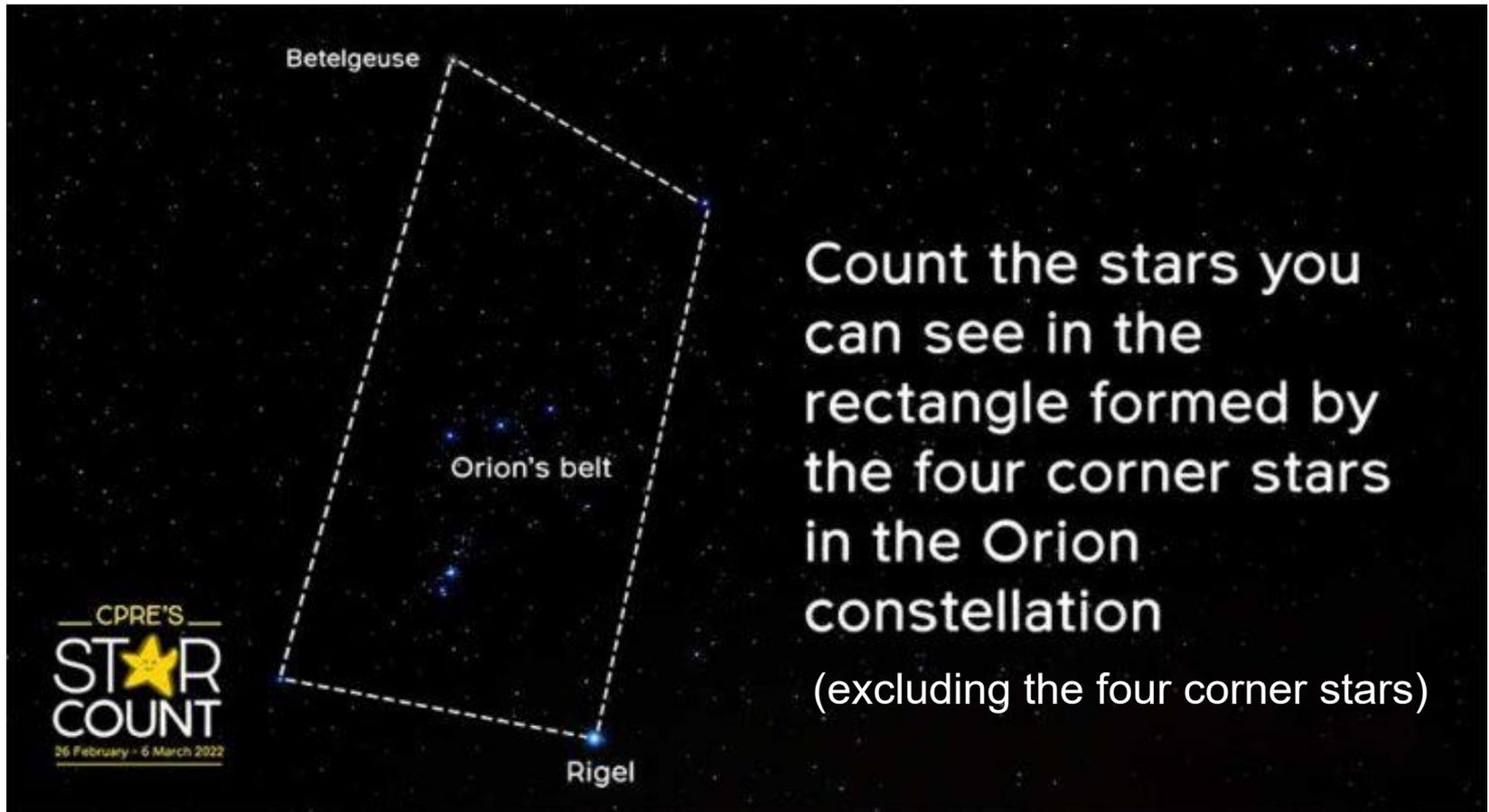
The March Night Sky

As at 10 p.m.
mid-month



Credit: Stellarium

Join in the CPRE Star Count



- **26th Feb to 6th March**
- **www.cpre.org.uk**

Sun & Moon in March

- **New Moon** **2nd**
- **First Quarter** **10th**
- **Full Moon** **18th**
- **Third Quarter** **25th**

		Sun	Moon
1 st	Rise	07.45	06.52
	Set	18.30	15.56
15 th	Rise	08.09	14.35
	Set	18.59	06.08*
31 st	Rise	06.51	06.23
	Set	18.39	14.30

We move from GMT
to BST on 27th

* following day

The Planets in March

Mercury

Best seen in the first week of the month, poorly placed and only rising 30 mins before sunrise in the SE. Lost after that.

Venus

Venus is a brilliant but low morning object in the SE, rising approx 2 hours before the Sun at start of month, but only 80 mins by month end.

Mars

Another morning object but low in the SE; at start of the month it rises about 1½ hrs before the Sun, slightly less than that by month end.

The Planets in March

Jupiter

Not visible this month.

Saturn

A difficult morning object, very low in South East

Uranus

Still the best placed of the planets, but this is our last chance for a while. It's 30° high in the WSW at the start of the month, decreasing to 8° by month end

Neptune

Not visible this month.

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Astronomical Phenomena in March

2nd	Mercury and Saturn approx 1° apart, rising 30 mins before sunrise - but a difficult spot.
8th	The Moon will be 4° south of the Pleiades
10th	Venus and Mars are just 4° apart about 1 hr before sunrise.
24th	Saturn, Venus & Mars and the waning crescent moon form a triangular group 1 gr before sunrise in SSE.
28th	Above trio of planets are joined by the waning crescent Moon, again about 1 gr before sunrise in SSE.
	NB Clocks go forward to BST on 27 th

Meetings at Local Societies

- Given the current Covid-19 situation, most physical meetings at our local astronomical societies have been cancelled until further notice, some continue via Zoom for paid-up members, but some are now returning to physical meetings.
- 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.waltonastrogroun.co.uk/>

Meetings at Local Societies

- **Ewell AS** *Nonsuch High School for Girls, Cheam*
 - Friday 11th March, 20.00 hrs
 - *“Hunting Down Exoplanets
- or How Long is a Piece of String?”*
John Murrell

Free Meetings & Talks On-line

- **British Astronomical Association:**
 - Webinar “*The history of silvering telescope mirrors*”
 - Wednesday 16th March, 7.00 - 8.00 p.m. via Zoom
 - Howard Banich, Sky and Telescope Magazine contributing editor

<https://www.britastro.org/meetings>

(will also be viewable via BAA'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)
 - *“Prestwick Spaceport.”*
 - Wednesday 2nd March, 7.30 - 9.30 pm
 - Mick O’Connor (Programme Director, Prestwick Spaceport)
 - *“Space Weather and the ESA SMILE Mission.”*
 - Wednesday 16th March, 7.30 - 9.30 pm
 - Dr Jenny Carter (Uni of Leicester)

www.gospacewatch.co.uk

Meetings & Talks on-line

- More on-line talks run by **GoSpaceWatch**:
 - *“Designing and manufacturing high volume, cost-efficient habitable space structures for Low-Earth-Orbit and beyond”*
 - Wednesday 23rd March, 7.30 - 9.30 pm
 - Sebastian Asprella and Vojtech Holub (Think Orbital)
 - *“Extra Galactic Astronomy”*
 - Wednesday 30th March, 7.30 - 9.30 pm
 - Dr Anna Mcloud (Uni of Durham)

Astronomy on TV

The Sky at Night

....takes a break in February
and March, but returns in April



That's all Folks!