

Stars Over Surrey Astronomy & Spaceflight News

5th November 2021



Unst Spaceport Deal Signed

- **The Shetland Spaceport on Unst has rebranded itself as SaxaVord Spaceport**
 - SaxaVord is the highest hill on Unst and also the name of the former RAF station that will form the hub of the new site
 - very suitable because of its clear airspace
 - 140 jobs expected at the site with a further 70 across Shetland
- **The site already has an arrangement for Lockheed Martin UK to launch but a new deal has just been signed with Edinburgh-based Skyrora**
- **Skyrora plan to build towards 16 launches per year using their 22 metre Skylark XL 3-stage rocket, starting next year, capable of putting 315 kg into orbit**

Captain Kirk gets to the Final Frontier



NEWSTHUMP.COM

Blue Origin crew concerned by new uniforms ahead of Shatner space flight

- At 90 William Shatner became the oldest person to get to space aboard Blue Origin's 2nd manned flight

Russian Film Team Complete Mission

- Russian actress Yulia Peresild and her cameraman-director Klim Shipenko returned safely on Sunday 17th after their 12 day filming mission at the ISS
 - in the film *The Challenge* she plays the part of a surgeon sent to the ISS to treat a cosmonaut, played by the ISS commander Oleg Novitsky
 - he returned in the same capsule after a 191-day stint on the ISS
- Immediately after landing it was straight back into acting mode, with several takes shot of her treating the patient
- No definite date as yet as to when Tom Cruise will shoot his movie on ISS.
 - Crew Dragon Axiom 1 was originally schedule for October but has been rescheduled for early 2022



Credit: Roscosmos

Russian Film Team Complete Mission



New Crew Set for 6 Month Stay on Tiangong

- **On 15th October the Shenzhou 13 crew launched from the Gobi desert and docked at the Tiangong space station the same day.**
- **This is China's 8th manned spaceflight and will be its longest.**

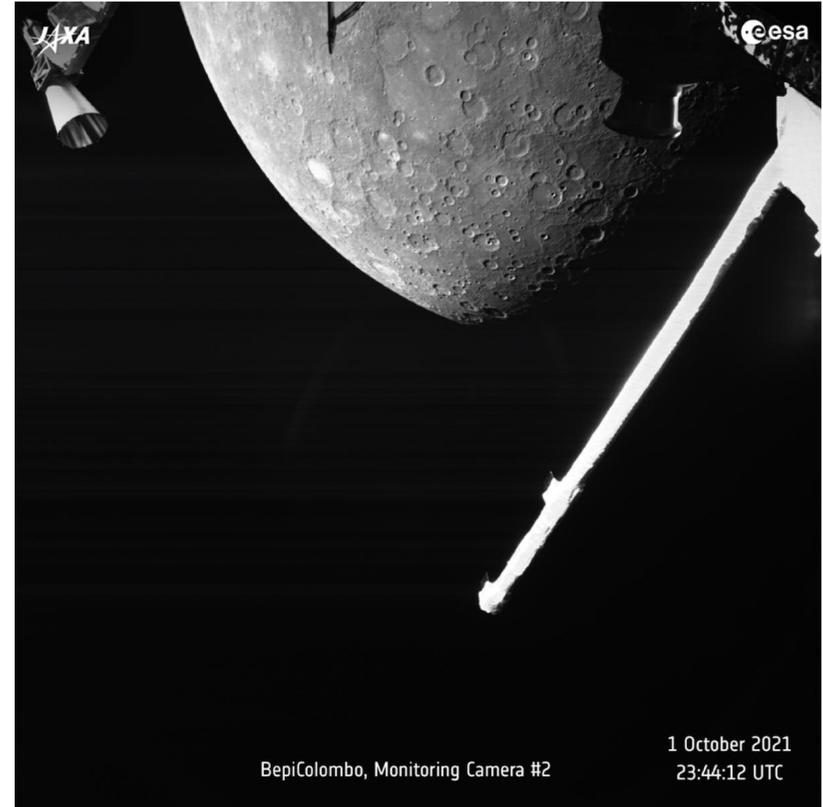


Credit: CMSA

- **The 6 month mission will involve several spacewalks and will prepare the station for the arrival of the next two large modules which will triple the station's size.**
 - these will both launch in 2022 during the Shenzhou 14 mission
- **Wang Yipen is already a veteran of 14 days in space (Shenzhou & Tiangong-1) and will become the first Chinese female taikonaut to perform a space walk.**

Bepi-Colombo sweeps past Mercury

- **ESA's Bepi-Colombo mission made the first of six flybys of Mercury on 1st Oct**
 - these are designed to slow the spacecraft and enable it to go into orbit in 2025
- **It was launched in 2018 and since then has had a slingshot around Earth and two flybys of Venus, the last just seven weeks ago.**
- **It comprises three spacecraft currently joined together**
 - Mercury Planetary Orbiter (ESA)
 - will study geology and map Mercury's surface
 - Mercury Magnetospheric Orbiter (JAXA)
 - will study Solar Wind's influence on Mercury
 - Mercury Transfer Module, deliver two probes to orbit then separate
 - large solar panels powering its ion thrusters



Credit: ESA

Two Private Space Stations Announced

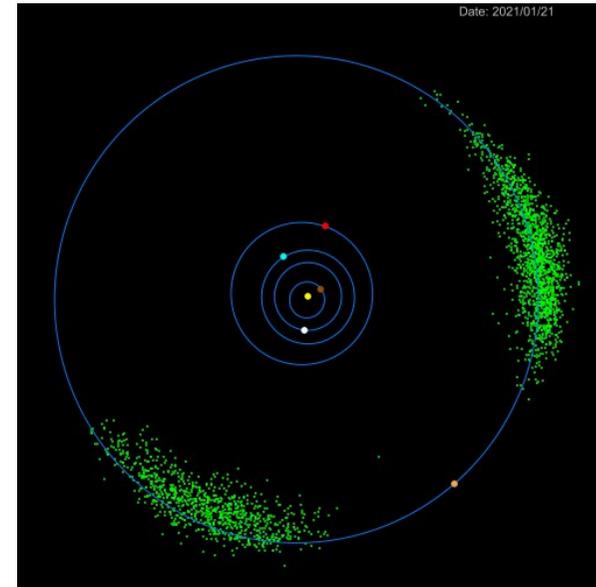
- A group headed by Blue Origin has announced a private space station will start to be built in the late 20s to be operational by 2030 (yesterday)
 - others in the group include Boeing and Sierra Space
 - Station is called Orbital Reef, clients will be national governments, private industry and space tourists
 - Boeing will use Starliner to deliver crew, passengers & cargo
 - Sierra Space will use its DreamChaser space plane for cargo and possibly crew
- Thursday 21st StarLab was announced by Nanoracks, Lockheed Martin & Voyager Space
 - to be operational in 2027, mostly for space tourists
- Previously Axiom Space has announced it would attach modules to the ISS from 2024 which would later be detached for free-flying operations.



Credit: Blue Origin

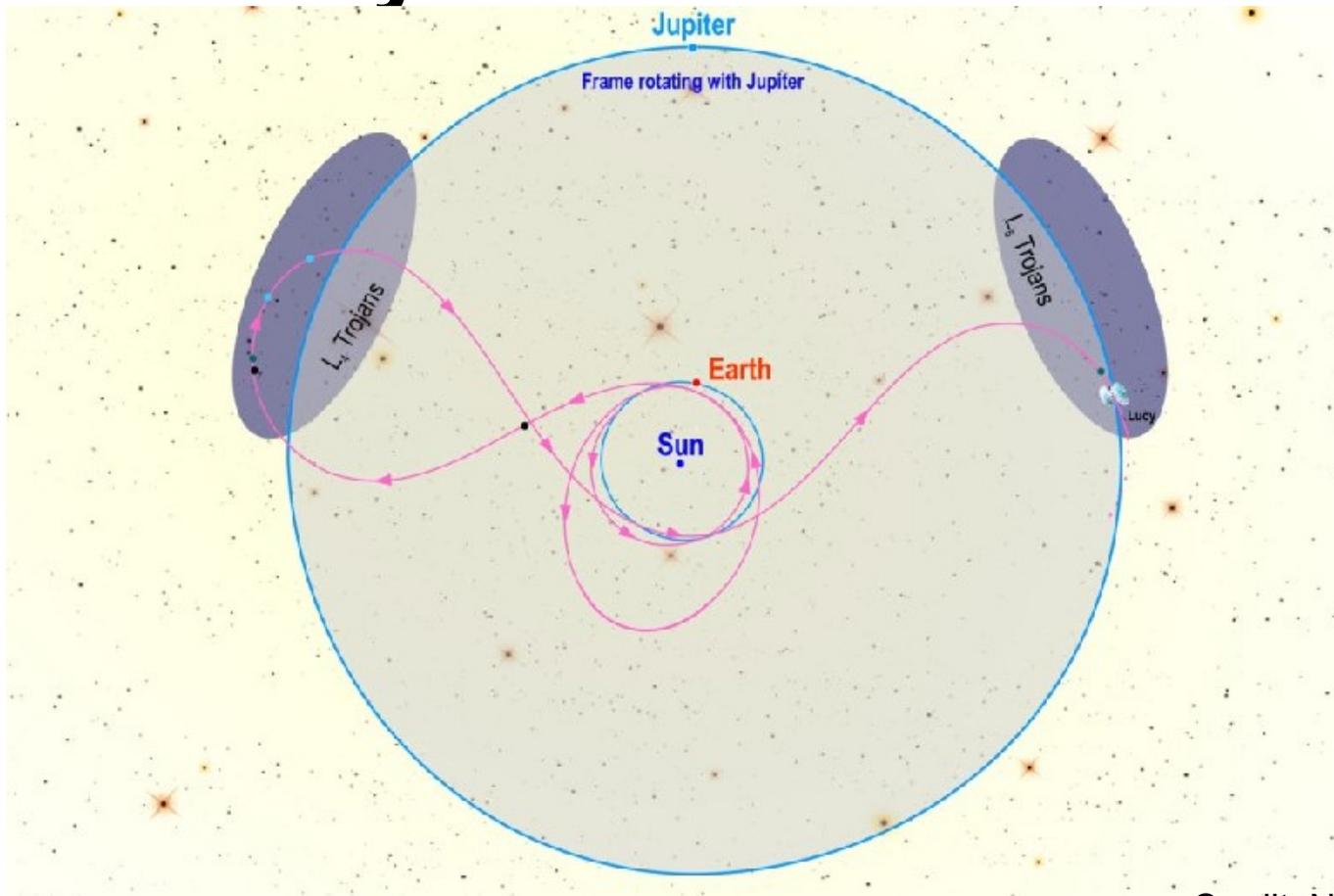
Lucy Mission Launched

- This NASA asteroid mission is named Lucy after the famous ancient (3.2MY) fossil discovered in Ethiopia - Australopithicus
- The ancient fossils this will study are Jupiter's Trojan Asteroids
 - remnants from Solar System formation, held in place in Jupiter's Lagrange points L_4 & L_5
 - number of Trojans so far discovered is 9,800 but it's thought that one million might exist >1k
- The mission will make two flybys of Earth gradually changing its orbit before heading out to Jupiter's orbit, which it will reach in 2027 for a 15 month study
- It will then return for another slingshot around Earth before heading off to the other swarm of Trojans.



Credit: Astronomical Institute of CAS

Lucy Mission Launched



Credit: NASA/SWRI

- **Half of the spacecraft's mass is fuel, because of the fine orbital changes it will need to make while it passes the 8 target asteroids at a relative avge speed of 15,000 mph**
- **Its solar panels are 16 metres across and will be the largest sent into the far solar system**

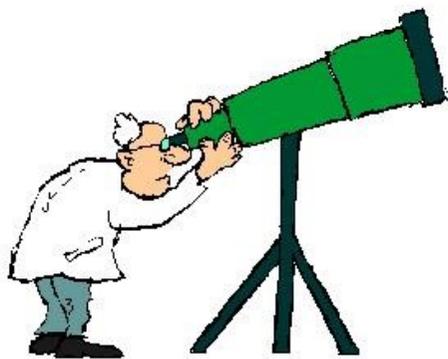
Miscellaneous News

- **Musk states first orbital flight of Starship could take place next month**
- **Crew-3 astronauts name their brand new Crew Dragon capsule “Endurance”**
 - due to launch to ISS on Thursday November 4th
- **First exoplanet possibly found in another galaxy**
 - usually exoplanets are found by dips in optical light as a planet transits across its parent star
 - researchers have used the Chandra X-Ray Observatory to study The Whirlpool Galaxy M51 and have witnessed a drop in X-rays from a star (a binary system believed to orbit a neutron star).
 - the 3 hour length of the transit suggests a Saturn sized planet taking 70 years to orbit

Stars Over Surrey

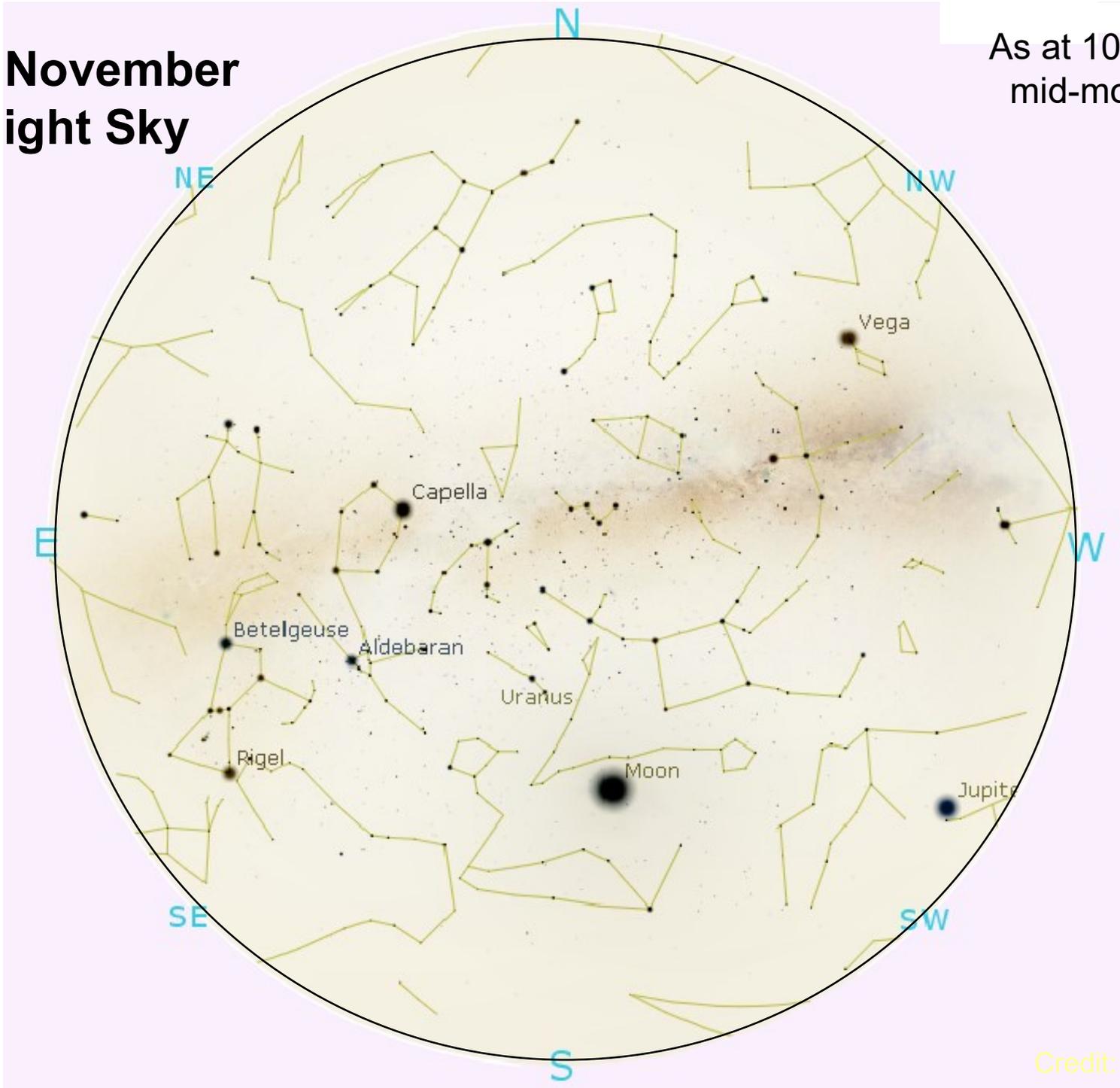
What's Up!

For November 2021



The November Night Sky

As at 10 p.m.
mid-month



Credit: Stellarium

Sun & Moon in November

- **New Moon** **4th**
- **First Quarter** **11th**
- **Full Moon** **19th**
- **Third Quarter** **27th**

		Sun	Moon
1 st	Rise	06.55	01.55
	Set	16.35	13.39
15 th	Rise	07.19	15.08
	Set	16.13	03.53*
30 th	Rise	07.43	02.09
	Set	15.58	14.14

All times are GMT

* following day

The Planets in November

Mercury

Mercury is a morning object low in ESE, rising about 1.5 hrs before sunrise. Brightens from magnitude -0.8 to -1.2 as month progresses.

Venus

Venus is a brilliant but low evening object, shining at mag -4.7 in SSW all month, setting about 1.5 hrs after sunset at start, 2.5 hrs by month end

Mars

Starting mid month to become visible again in SE shortly before sunrise, but difficult to separate from the twilight at mag +1.6

The Planets in November

Jupiter

A brilliant object at mag -2.5, visible at its highest early evening in the South and ideal for observing, but moving into the twilight by month's end.

Saturn

Saturn too is similarly well placed for observing in the South, shining at mag +0.7, but also moving towards the twilight

Uranus

Visible throughout the night, but binoculars must be used to find this mag +5.7 evening object, nicely placed around 50° high in the South

Neptune

Visible all month in the South, but at mag +7.9 a telescope is needed

Astronomical Phenomena in November

3rd	Mercury will be just 3° from the 3% lit waning crescent Moon before sunrise in ENE
7/8th	Two opportunities to see brilliant Venus close to the thin waxing crescent Moon, low in the West. Venus will be to left of the Moon on 7 th and to right on following day.
9th	Jupiter's largest moon Ganymede casts its shadow on the planet. The transit is already in progress as night falls but lasts until 18.36 hrs
10th	The waxing crescent Moon sits just 5° below Saturn
11th	Moon sits about 5° below Jupiter. Also tonight you can see the Lunar X & Lunar Y, best about 22.30 hrs
17th	Peak of the Leonids meteor shower but the fainter trails will be washed out by the near full Moon
19th	There's a partial eclipse of the Moon at dawn. The fainter penumbral stage begins at 06.02 and the darker umbral phase at 07.18, but that's about 20 mins before the Moon sets

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.waltonastrogroup.co.uk/>

Meetings at Local Societies

- **Ewell AS** *Nonsuch High School for Girls, Cheam*
 - Friday 12th November, 20.00 hrs
 - *“Sputnik In Context”*
 - » John Axtell FRAS

Meetings at Local Societies

- **Croydon AS** *Sandison Room, Trinity School*
 - Friday 12th November, 19.30 hrs
 - *“Mindfull Stargazing”*
 - » Mark Westmoquette
 - Friday 26th November, 19.30 hrs
 - *“The Moon”*
 - » Janet Taylor

Free Meetings & Talks On-line

- **British Astronomical Association:** Zoom webinars
 - *“The Fall, Recovery, and Initial Analysis of the Winchcombe Meteorite”*
 - Wednesday 17th November, 7.00 - 8.30 p.m.
 - Jim Rowe & Ashley King

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

(will also be viewable via BAA's YouTube Channel)

Free Meetings & Talks On-line

– *Pop Astro Live with Vicky Video*

- Weekly on SPA's FaceBook page at 8.00 - 9.00 p.m.
 - Chat show rather than meeting
 - The day varies, often a Thursday but check the FaceBook page
- https://www.popastro.com/main_spa1/meetings-and-events/forthcoming-meetings/
- (will also be viewable via SPA's YouTube Channel)

Free Meetings & Talks On-line

- **British Interplanetary Society:**
 - *“The Wormship: A Dark Energy Ramjet”*
by Stehen Baxter
 - Saturday 20th November via Zoom
 - 13.15 to 17.30: *Short Talks*

<https://www.bis-space.com/events//>



Meetings & talks on-line

- You can also pay £3.00 to watch these on-line talks run by **GoSpaceWatch**: (book via Eventbrite)
 - *“Voyager: From Planetary Spacecraft to Interstellar Probe”*
 - Wednesday 17th November, 7.30 - 9.30 pm
 - Lou Mayo, NASA Goddard Spaceflight Centre
 - *“Spaceport Cornwall: Countdown To Launch”*
 - Wednesday 24th November, 7.30 - 9.30 pm
 - Ross Hulbert, Spaceport Cornwall

www.gospacewatch.co.uk/

Astronomy on TV

The Sky at Night

“Looking Ahead To The JWST”

As the much anticipated James Webb Space Telescope (JWST) nears its launch date, Maggie and Chris look back at some of the incredible telescopes throughout history that have redefined our understanding of the cosmos. The team also looks at how the JWST could enable astronomers to unravel some of the biggest secrets of the universe

Sunday	14 th	Nov	BBC 4, 10.00 pm
Thursday	17 th	Nov	BBC 4, 7.30 pm

Astronomy on TV

“Universe - Series 1: 5 episodes”

Professor Brian Cox journeys across the vastness of time and space revealing epic moments of sheer drama that changed the universe forever.

Episodes

1. *The Sun: God Star*
2. *Alien Worlds: The Search For Second Earth*
3. *The Milky Way: Island of Light*
4. *Black Holes: Heart of Darkness*
5. *Big Bang: Before The Dawn*

Wednesdays starting Weds 27th Oct, BBC2 9pm
repeated Saturdays at 6.55pm BBC2



That's all Folks!