



Newsletter January 2021

Next Meeting: **ZOOM Meeting 8pm Monday January 25th**

Topic: AAS December Meeting - Howard Parkin - 'Exploring the Red Planet'

Join Zoom Meeting

<https://us02web.zoom.us/j/88643504305?pwd=eXhkU0kyOHNFsUlsMVd6UXlTa1lyQT09> Meeting ID:

886 4350 4305 Passcode: Mars

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President's Word

A very Happy New Year to each and every one of you out there in "Astro Land" and I do hope that you are all keeping well and staying as COVID free as possible.

Over the last month there have been quite a few changes to our lives, with 'Brexit', a new 'President of the Free World', 'Covid-19' vaccines being issued, and many more terrestrial events occurring.

But what can we expect from astronomy and spaceflight in the near future?

- In October, NASA is set to launch the **Lucy Spacecraft**. Over its 12-year primary mission, Lucy will visit eight different asteroids. One target lies in the asteroid belt. The other seven are so-called Trojan asteroids that share an orbit with Jupiter, trapped in points of stability 60 degrees ahead of or behind the planet as it goes around the sun. These objects have been trapped in their locations for billions of years, probably since the time of the formation of the solar system. They contain preserved samples of water-rich and carbon-rich material in the outer solar system; some of that material formed Jupiter, while other bits moved inward to contribute to Earth's life-sustaining composition.
- This year it is highly likely to see the first successful private lander touch down on the Moon's surface. NASA has been working with two companies, Astrobotic and Intuitive Machines, to build Peregrine-1 and IM-1 which in combination will carry 16 instruments that will measure the chemistry, magnetism, radiation, and radio detection of low frequency astronomical sources. Peregrine-1 will also carry nickel disks with an encyclopedia of human knowledge etched into them, to replace a set that were lost when a previous mission failed.
- Cubesats aboard Artemis-1: NASA has been working on plans to take humans back to the Moon for some time now. The agency's huge Space Launch System (SLS) rocket has also been in development for many years. Things will be getting serious in November 2021, with the Artemis-1 mission, which will use SLS to send an un-crewed version of the new Orion capsule to the Moon. Thirteen cubes will be included in the payload featuring lunar orbiters: Lunar Flashlight, Lunar IceCube and LunaH-Map. These will study water on the Moon's surface. NEA Scout, another cubesat, will manoeuvre to a near-Earth asteroid using only its solar-powered sail to propel it, paving the way for future Sun-powered space missions.
- The James Webb Space Telescope will be launched in October 2021 (Fingers crossed). There have been many setbacks for this project causing the budget to swell to nearly \$10bn to date. We can but hope that this year will be a good one for JWST as the light gathering power will trump the Hubble Space Telescope by a minimum of 100 times allowing detailed Infrared observations of galaxy formation in the early universe as well as studying exoplanets in far greater detail.
- Solar Eclipse -10th June 2021 This will be an Annular Eclipse visible in Canada, Greenland and parts of Russia. Here in Scotland a partial eclipse will be viewable but remember not to look at the sun directly, always by projection or with the use of a dedicated solar filter.



- There will also be quite a few planetary conjunctions viewable throughout the year and below I have included a table for your convenience (next page). Use your phone's star chart to find what direction these are occurring in, or alternatively a planisphere if you are against using current technology!

Wishing you clear skies and all the best for the coming year.

Roger Harman

Date	Object 1	Object 2	Separation
09 Jan 2021 21:14 UTC	Mercury	Saturn	1°39'
10 Jan 2021 16:49 UTC	Neptune	Ceres	8°37'
11 Jan 2021 11:06 UTC	Jupiter	Mercury	1°28'
21 Jan 2021 23:34 UTC	Mars	Uranus	1°43'
29 Jan 2021 00:35 UTC	Venus	Pluto	0°44'
05 Mar 2021 06:49 UTC	Jupiter	Mercury	0°19'
29 Mar 2021 19:10 UTC	Mercury	Neptune	1°23'
28 Apr 2021 19:53 UTC	Ceres	Eris	4°54'
29 May 2021 05:20 UTC	Venus	Mercury	0°24'
04 Jun 2021 17:57 UTC	Uranus	Ceres	6°25'
13 Jul 2021 07:06 UTC	Venus	Mars	0°29'
19 Aug 2021 04:06 UTC	Mercury	Mars	0°04'
13 Dec 2021 06:43 UTC	Venus	Pluto	0°20'
22 Dec 2021 02:49 UTC	Venus	Pluto	2°09'
29 Dec 2021 01:02 UTC	Venus	Mercury	4°13'
30 Dec 2021 14:18 UTC	Mercury	Pluto	0°13'



Member Articles

Alex's Space

On the Move...

When you are sitting still on your chair, you are not! Well, hold on to your seats we are going on a white-knuckle ride!

Our Earth is rotating on its axis at 600 mph and orbiting the sun at 67,000 mph and if that wasn't enough the Sun and its siblings are speeding through the galaxy, while the galaxy is travelling through space, and by the time you have read this short article you will have travelled 6000 miles through space, so if anyone asks you to "sit still" you can confidently reply – "that's impossible!"

How Big is Big?

Our Sun is very big – very big, it contains 99.9% of all the matter in our solar system, but it is a dwarf if put beside the star 'Uyscuti.' This star which is 9,500 light-years away in our galaxy and is the largest star known. Here are some facts which will put it in context with our Sun. Scale-wise, if Planet Earth was reduced to just 10 inches in width, our Sun would be 31 yards across, but Uyscuti would be a staggering 35 miles in width, that is B-I-G.

Finally: When does a woman most a man's company? When he owes it!

Alex Baille
January 2021



January / February Observing

General

The winter constellations dominate over this period, with Perseus, Auriga and Gemini high in the sky over Taurus, Orion and Monoceros. This area has numerous open clusters, particularly in Auriga, with M36, 37 and 38 easily in reach of anyone with a pair of binoculars. The Orion nebula is well placed for viewing and on moonless nights it may be possible to capture the Horsehead and Rosetta nebulas, though they may be too faint to be seen with most amateur optics (the open cluster at the heart of the Rosetta, however, is easily spotted). And speaking of open clusters M44 in Cancer is not too far to the left of Gemini and M41 in Canis Major is also well placed for viewing, if a bit low in the sky from Scotland. Other objects to observe include the double star Castor is easily split with a small telescope, though it is actually a sextuple system with three spectroscopic binaries. Later into the evenings Ursa Major and Leo rise higher in the sky marking the beginning of galaxy season.

Planets

Venus and Mercury: Mercury reaches its greatest eastern elongation in the evening sky on the 24th of January, (highest on the 29th) before swinging round to reach its greatest western elongation in the morning sky on 19th of February. Venus while nominally in the morning sky is too close to the sun for observation during this period.

Mars: continues to be well placed for observation in Ares moving to Tauris at the end of February, but is small shrinking from 8 to 7 arcseconds in angular diameter over this period.

Jupiter and Saturn: are moving towards the sun in the sky and will be hard or impossible to observe over this period.

Uranus and Neptune: Uranus remains in Ares and is close to Mars over this period, so is well placed for observing. Neptune is not too far away in Aquarius, but is low in the sky for observing from Scotland, though it still can be seen in late January to early February before being lost in the glare of the sun.

Meteor Showers

There are no major meteor showers until the Lyrids in April.

Comets

There are no easily observable comets visible present during this period.

ISS

The ISS will be visible in the evenings 20th of January until the 7th of February, returning in the morning on the 21st of February. Consult <https://www.heavens-above.com> for specific times and locations.



Member Images

Marc Charron

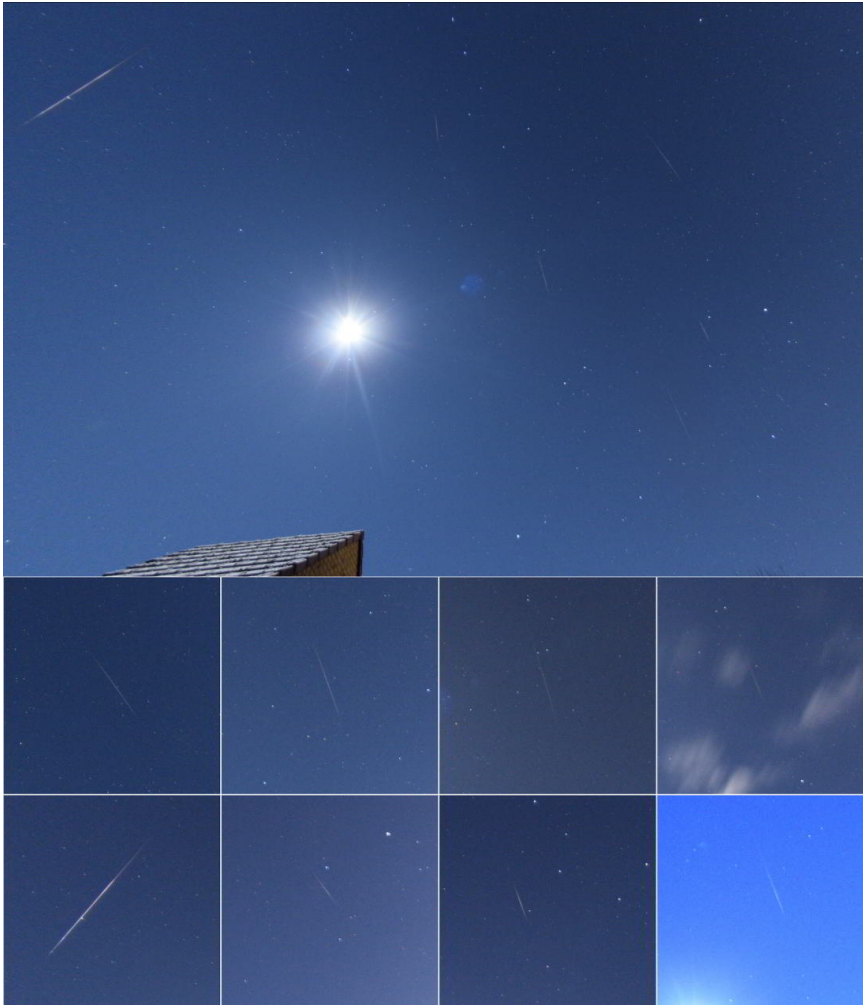
Sword of Orion with Orion & Running Man Nebulas



Horsehead Nebula



Qaudrantid Meteor Shower on the morning of the 3rd of January.
Six in the combined image, 8 captured in total































Moon with Earthshine on the 16th of January



All telescope images taken with a 70mm f6 triplet refactor mounted on a Sky Watcher Star Adventurer, with various camera configurations.

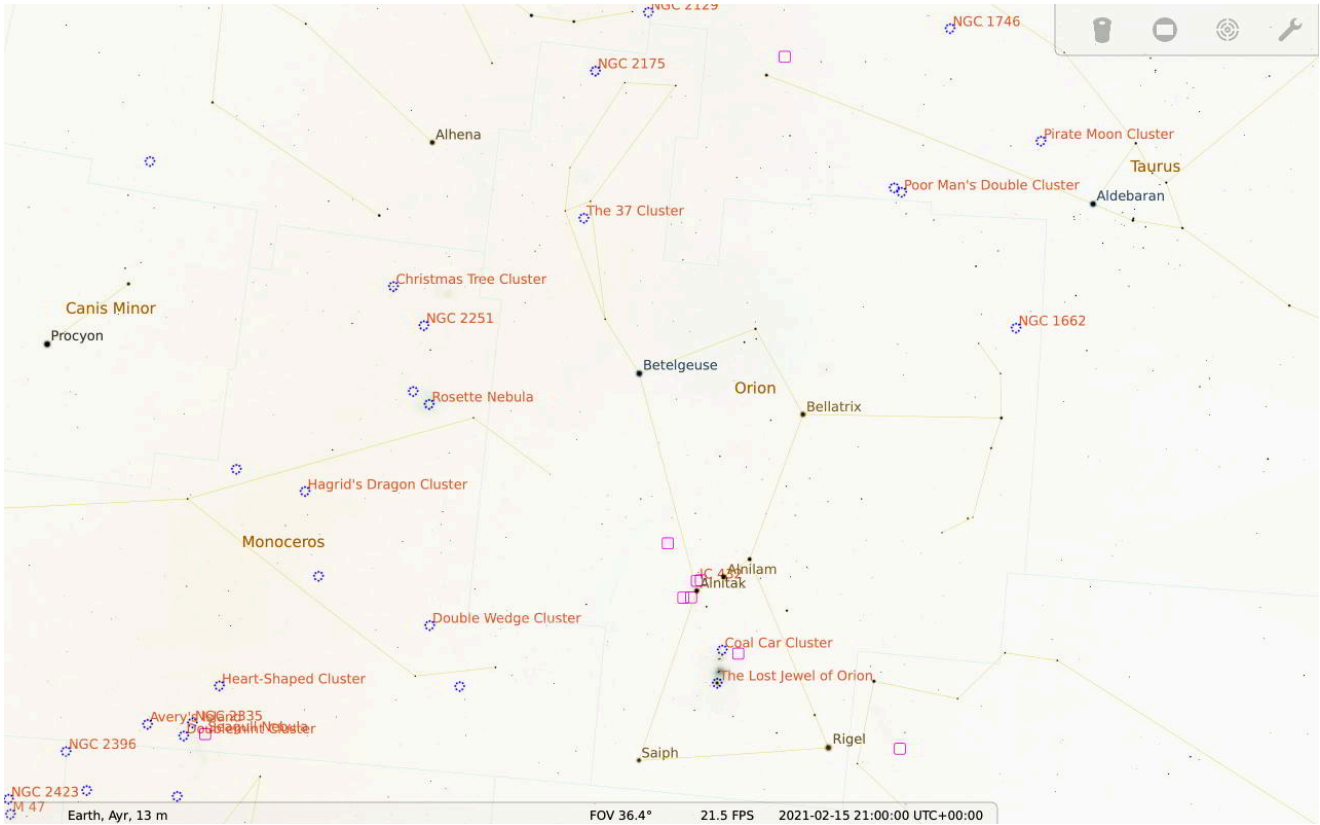
Moon Phases

FEBRUARY

Mo	Tu	We	Th	Fr	Sa	Su
1 	2 	3 	4 	5 	6 	7 
8 	9 	10 	11 	12 	13 	14 
15 	16 	17 	18 	19 	20 	21 
22 	23 	24 	25 	26 	27 	28 



Orion, Monoceros and Canis Minor



Canis Major showin M41

