



APRIL 2022

Club News

From The President

Meetings

Frank has brought to my attention that the planned meeting for April 2022 falls on Good Friday. As many of you may be otherwise occupied and unable to attend we will defer the meeting to the following week **on Friday 22 April 2022 6:30 pm for a 7:00 pm start (winter hours).**

As always, we are always looking for people to step up and present something – if it’s of interest to you it’s a good bet it will be of interest to your fellow association members so don’t hesitate – volunteer!

Observatory

Funds have been transferred from the NSW government to SA. Negotiations with the University and progress towards Development Approval for construction continues in parallel. Once Owners Consent is obtained from the University the next step is to talk to the council and walk through our development application. An official announcement of the grant was made at the Shoalhaven Campus by our state member Gareth Ward with members of the Shoalhaven Astronomers and the University in attendance. John Gould briefed the South Coast Register on the event which resulted in a good article in the paper. Well done John!

Keep on watching!

**Best Regards,
Mark Town**

Contents

Out There
Bob Turnbull
Page 2

Sky Objects Eugene
O’Connor
Page 3

Astro Events Frank
Gross Pages 4-7

*Mars, Saturn and Venus
Conjunction* by Harry
Roberts Pages 8-9

More Club Information
Page 10



MOON PHASES



New Moon First Quarter Full Moon Last Quarter
May 1 May 9 start→Apr 17 Apr 23

Viewing Nights

**VIEWING NIGHTS
SUSPENDED UNTIL
FURTHER NOTICE**

Club viewing nights are selected to provide viewers with the best possible conditions for good viewing. They are held on specific Saturdays at different locations around Nowra.

*More Club Information
Including viewing site
Directions Page 10*

OUT THERE BY BOB TURNBULL OBSERVATION OFFICER

APRIL-MAY

Hi there ! When's the sky going to clear ? So we can get some serious sky viewing ?
Just look at the amount of rain in this years January to March has exceeded the years entire average for 12 month!
OK you don't want to hear any more !

It is worth surfing the latest James Webb Telescopes' progress on its progress until it reaches the position of observing into the past of our universe. I watched the open information program for over an hour which was acting as an open question and answer session and is easily found on the Web.
The continuation of this Q&A will be in a couple of months time, when the Telescope reaches its destination.

Viewing Hints April

VENUS close to **NEPTUNE** and **JUPITER** early morning in the East

MARS and **SATURN** close

JUPITER & **NEPTUNE** very close

See Astronomy 2022 page 41 for a full array of positions through to **URANUS** on page 44 in early morning sky,

On page 49 in May 5th **VENUS** and **JUPITER** very close to the **MOON**

Refer to the NIGHT SKY magazine page 49

METEOR SHOWER

Eta-aquarids: which are linked to **HALLEY'S COMET** which are visible from the 19th of April to the 28th of May, the best being between the 6th to the 7th morning of May.
The estimate is 40 or more before Sunrise

I hope you get a chance to see these (or some) before sunrise.

GOOD VIEWING and HAPPY EASTER

Kind Regards
BOB TURNBULL

This was Eugene's last contribution for the March Astro Flyer
Eugene passed away last week.



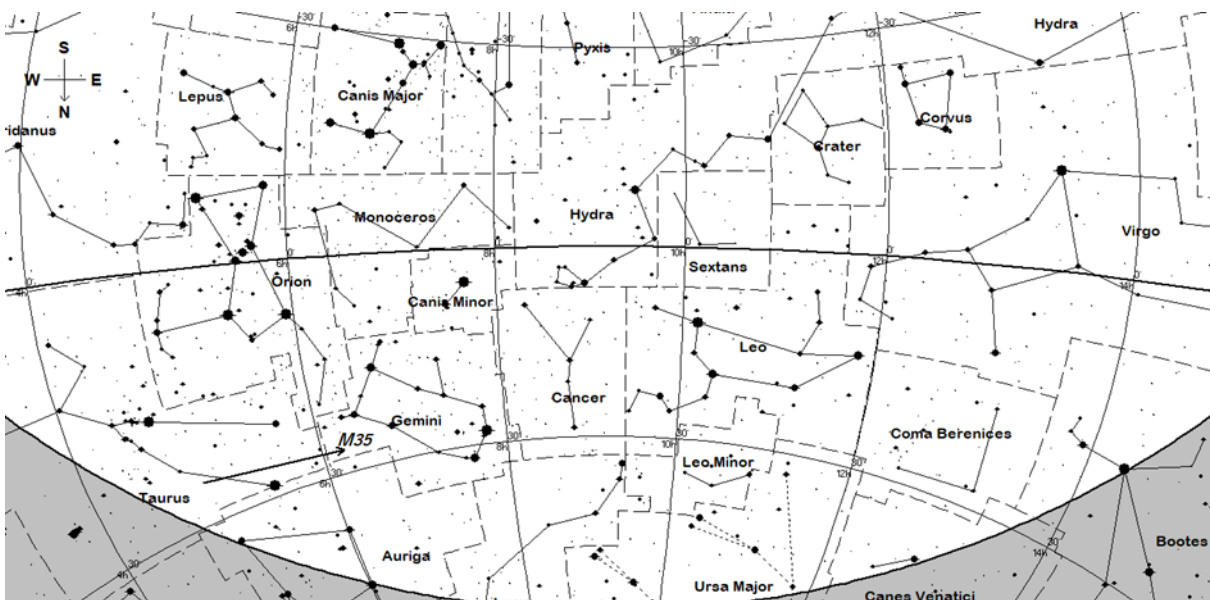
Charles
Messier
(1730-1817)

Messier of the Month

M 35 – Open Cluster in Gemini

Because the constellation Gemini is in the northern part of our sky and such objects only make brief appearances in our night sky, they tend to be neglected by southern viewers which is a shame because like our object for this month it not only is bright and easy to find but the open cluster contains two other noteworthy objects in the field, namely the oc NGC 2158 and the beautiful double star

M35. NGC2168. Shining at about mag. 5 this open cluster is the size of a full moon and is an easy binocular or small telescope object. It is about 3,000 ly away and it appears as chains of stars at the eyepiece at the feet of Gemini. One star chain runs through the centre of the cluster and the northern part is box-shaped. The much smaller and dimmer oc2158 lies about 26' SW in a low power field and is only 5' in diameter at magnitude 8.6, but lies a whopping 16,500 ly away and is estimated at about 10 times older than M35. The final treat in this field is the double star OΩ134. The double is at the end of a northern running chain. The primary stands out as a 7th magnitude orange star while the 9.1 companion star is a wide 31' distant, which make this gem an easy object in small telescopes. A worthwhile field to study under dark skies.



Astro Events from Frank Gross

Record-Setting NASA Astronaut, Crewmates Return from Space Station



NASA astronaut Mark Vande Hei is seen outside the Soyuz MS-19 spacecraft after he landed with Russian cosmonauts Anton Shkaplerov and Pyotr Dubrov in a remote area near the town of Zhezkazgan, Kazakhstan on Wednesday, March 30, 2022.

Vande Hei and Dubrov are returning to Earth after logging 355 days in space as members of Expeditions 64-66 aboard the International Space Station. For Vande Hei, his mission is the longest single spaceflight by a U.S. astronaut in history. Shkaplerov is returning after 176 days in space, serving as a Flight Engineer for Expedition 65 and commander of Expedition 66.

Credits: NASA/Bill Ingalls

After extending the record for the longest single spaceflight in history by an American to 355 days, NASA astronaut [Mark Vande Hei](#) returned to Earth on Wednesday, March 30, along with Roscosmos cosmonauts Anton Shkaplerov and Pyotr Dubrov.

The trio departed the International Space Station at 3:21 a.m. EDT and made a safe, parachute-assisted landing at 7:28 a.m. (5:28 p.m. Kazakhstan time) southeast of the remote town of Dzhezkazgan, Kazakhstan.

"Mark's mission is not only record-breaking, but also paving the way for future human explorers on the Moon, Mars, and beyond," said NASA Administrator Bill Nelson. "Our astronauts make incredible sacrifices in the name of science, exploration, and cutting-edge technology development, not least among them time away from loved ones. NASA and the nation are proud to welcome Mark home and grateful for his incredible contributions throughout his year-long stay on the International Space Station."

Astro Events from Frank Gross

Cont...2

Vande Hei's extended mission will provide researchers the opportunity to observe the effects of long-duration spaceflight on humans as the agency plans to return to the Moon under the [Artemis program](#) and prepare for exploration of Mars.

Vande Hei [launched](#) April 9, 2021, alongside Russian cosmonauts Oleg Novitskiy and Pyotr Dubrov. His second journey into space of 355 days is the longest single spaceflight by a U.S. astronaut, previously held at 340 days, and gives him a lifetime total of 523 days in space. Dubrov also remained onboard for 355 days on his first spaceflight.

Supporting NASA's goals for future human landings on the Moon, Vande Hei completed approximately 5,680 orbits of the Earth and a journey of more than 150 million miles, roughly the equivalent of 312 trips to the Moon and back. He witnessed the arrival of 15 visiting spacecraft and new modules, and the departure of 14 visiting spacecraft.

Following post-landing medical checks, the crew will return to the recovery staging city in Karaganda, Kazakhstan, aboard Russian helicopters. Vande Hei will board a NASA plane bound for Cologne, Germany, for refueling prior to his return home. Shkaplerov and Dubrov will board a Gagarin Cosmonaut Training Center aircraft to return to their home in Star City, Russia.

During his record mission, Vande Hei spent many hours on [scientific activities aboard the space station](#), conducting everything from plant research to physical sciences studies.

With the undocking of the Soyuz MS-19 spacecraft with Vande Hei, Shkaplerov, and Dubrov aboard, Expedition 67 officially began aboard the station. NASA astronaut [Tom Marshburn](#) recently took over as station commander, and is joined by NASA astronauts [Raja Chari](#) and [Kayla Barron](#), ESA (European Space Agency) astronaut [Matthias Maurer](#), and Roscosmos cosmonauts Oleg Artemyev, Denis Matveev, and Sergey Korsakov.

Marshburn, Chari, Barron and Maurer will remain onboard until late April, when NASA astronauts [Kjell Lindgren](#), [Bob Hines](#), and [Jessica Watkins](#), as well as ESA astronaut [Samantha Cristoforetti](#) launch to the station as part of [NASA's SpaceX Crew-4 mission](#).

Learn more about space station activities by following [@space_station](#), and [@ISS_Research](#) on Twitter, as well as the [ISS Facebook](#) and [ISS Instagram](#) accounts and the [space station blog](#).

Cont...3

Astronomers Identify Nearby Planetary System Likely to Host Life as We Know It

Ivan Petricevic Posted on July 9, 2020



The very same star system was picked by scientists back in 2017 to send an intergalactic message to, in hopes that an alien civilization inhabiting one of the planets would receive and decipher the message.

Astronomers have identified a nearby planetary system that is likely to harbor life as we know it. The star system is home to Luyten's star, a red dwarf in the constellation Canis Minor, located approximately 12.23 light-years from Earth.

Scientists from the University of Granada (UGR) have discovered that the star GJ 273, one of the closest to planet Earth and known as Luyten, houses a planetary system as complex as the Solar System itself and could have the capacity to harbor life.

In an article published in the international journal Astronomy & Astrophysics, the researchers show the complexity of the planetary system orbiting Luyten's star, which is likely made up of multiple planets and reservoirs of smaller bodies (asteroids and comets.)

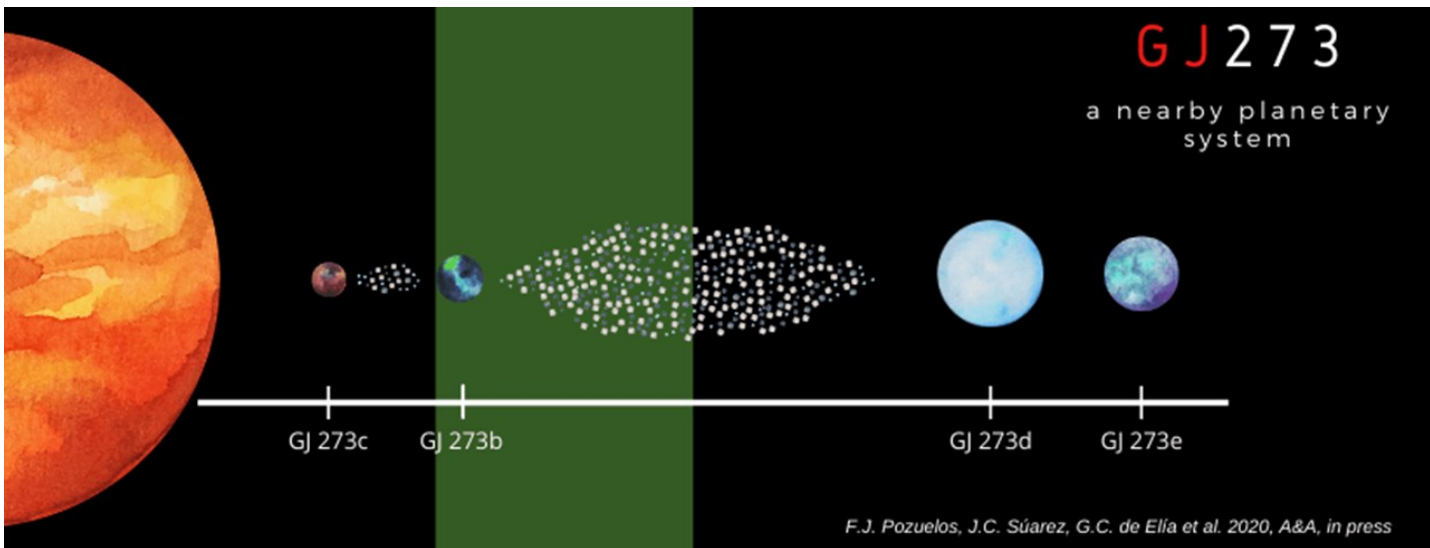
Astronomers say that one of the world's orbiting Luyten's Star could even harbor life as we know it. "It could even harbor water, due to the statistics and simulations we have carried out, although we do not yet have other direct evidence," explains Francisco J. Pozuelos, a researcher at the University of Liege (Belgium) and lead author of the publication. (Bottom of form)

This complexity of the Luyten planetary system, similar to that of the Solar System, makes it an excellent candidate for searching for traces of life with future space missions.

The Luyten star planetary system is of special interest. The fourth closest planetary system to the Sun orbits around a dwarf star at a distance of 12.23 light-years away and houses a planet in the habitable zone. In terms of proximity to Earth, Luyten's Star is just behind Proxima Centauri (about 4.24 light-years), Ross-128 (at 10.99 light-years), and GJ 1061 (at 11.96 light-years).

Astro Events from Frank Gross

Cont...4



An illustration of Luyten's star. Image Credit: F.J. Pozuelos / J.C. Suarez / G.C. de Elia et al. 2020.

The system has two confirmed planets (named GJ 273b and GJ 273c) and two others to be confirmed (whose names are GJ 273d and GJ 273e). The latter have been analyzed in the [new study](#). According to the authors, the global dynamic analysis, including these two candidate planets, makes the system highly stable and highly probable. In this scenario, the authors predict that these two candidates would have somewhat smaller masses than Neptune, ranging between 9 and 12 times the mass of Earth, known as [mini-Neptunes](#) in astrophysical jargon.

Of the already confirmed planets, GJ 273c has a mass similar to that of Earth, while GJ 273b is considered a super-Earth. The latter is interesting. Its orbit is near the inner edge of its host star's habitable zone. It is under the effects of tidal warming (the same phenomenon that tides exist on Earth due to gravitational interaction between our planet, the Moon, and the Sun).

As scientist Juan Carlos Suárez at the UGR and co-author of this work, explains, "Tidal warming makes GJ 273b an exciting planet since this makes it compatible with the development and existence of a biosphere." Another similarity with the Solar System's complexity is the presence of deposits of smaller bodies, as the researchers predict. These are asteroids such as those found in the asteroid belt (between Mars and Jupiter) or the Kuiper belt (beyond Neptune) in the Solar System, whose impact on the presence of water or the production of organic compounds could be important, as it is for the Solar System.

Scientists predict such deposits around Luyten, which, if confirmed, could play an important role in the emergence and maintenance of life in GJ 273b. Interestingly, back in October 2017, scientists picked the Luyten Star System to send [an intergalactic message](#) to. Researchers beamed a signal to Luyten's Star, including a scientific and mathematical tutorial, as well as 33 short musical compositions, to contact possible alien beings inhabiting the system and capable of decoding our message. Whether or not someone is there, we don't know. If, by chance, someone did get our message, it would take around 25 years for us to hear back from any potential alien civilization in the star system.

Mars, Saturn and Venus Conjunction by Harry Roberts

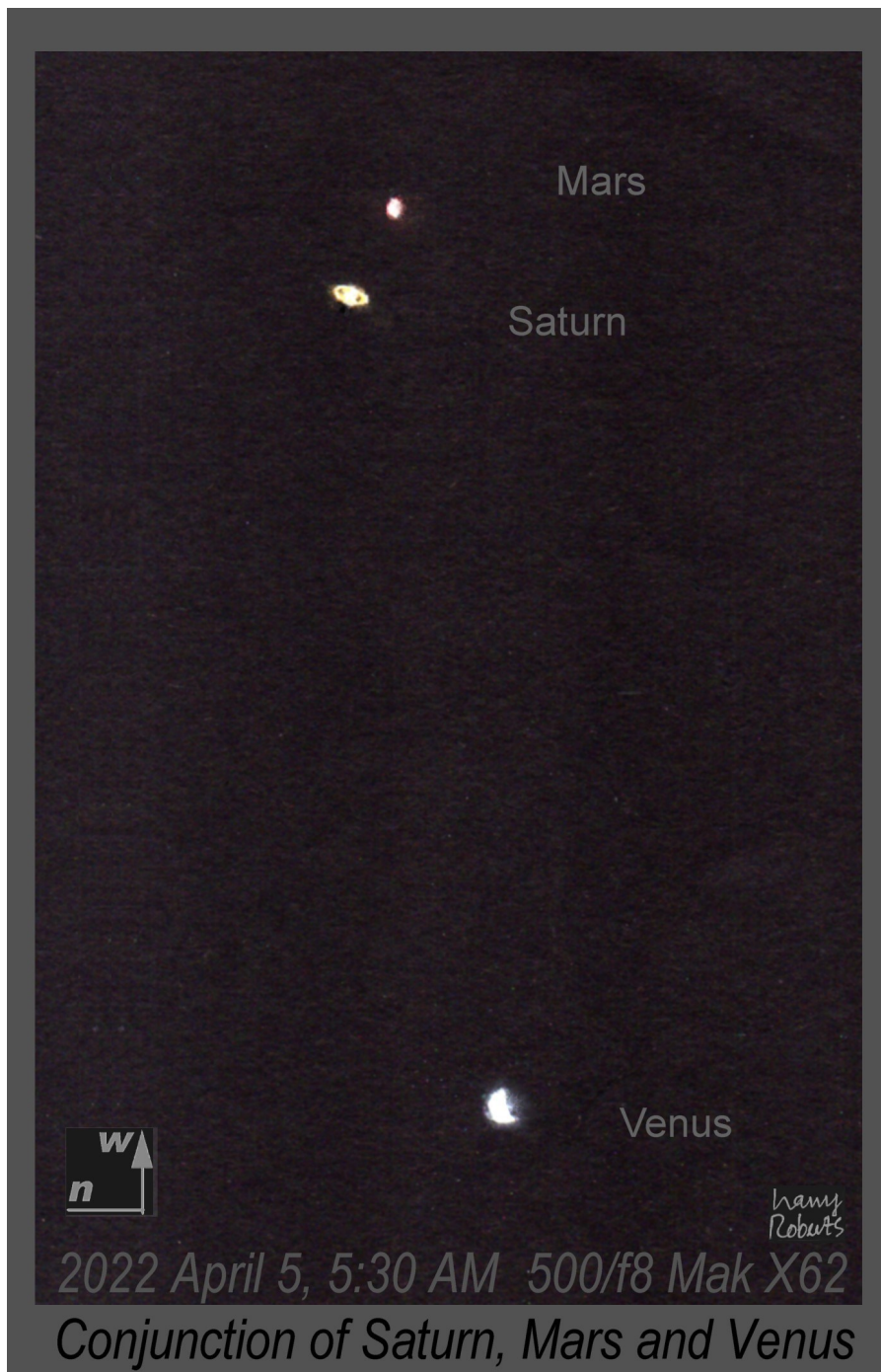
Mars, Saturn and Venus Conjunction April 5, 2022

When a glimpse of the pre-dawn sky showed an amazing conjunction through the bedroom window, the 3inch Maksutov was whizzed into the yard for quick views of a rare event: a close conjunction of Mars and Saturn with a dazzling crescent Venus just 3 or so degrees to the East. The small Mak has great optics and with a 4.8 Nagler gives sharp views at 104X. Mars seemed a 70% disc, while Saturn was its usual self. Its biggest moon Titan was seen. The rings seemed fully open. The two were so close they fitted easily into the FOV of the high power e.p. An amazing sight!

Dazzling Venus seemed to be less than a 50% crescent. A few faint stars were strewn across the field of view. There was no attempt to plot of them as dawn was rapidly brightening. The separation of the two outer planets was well under half a degree, the apparent size of both the Sun and the Moon: perhaps it was $\frac{1}{4}$ of a degree? But the two lay thirteen times their separation, or 3.5 degrees, west of Venus. It was a bewitching sight! One I have never before seen.

A Great Event? This event is not a so-called 'Great Conjunction', for which Jupiter needs to be involved. Jupiter was just visible, close to the eastern horizon. But it was a most impressive sight nonetheless!

Telescopes can be rather 'magical' things. Since obtaining the first, Christmas 1956, several have accompanied me over the decades. The oldest, a one inch refractor forms a crucial part of the solar spectroscope, built in 1961; it still works fine! It is currently helping to test components for a PST conversion.



Mars, Saturn and Venus Conjunction by Harry Roberts

Cont...2

3 inch Maksutov. This is a rarity. It was 'given' to me by a client who was 'short of cash' in 1971 (or 2?) for work done. He had purchased it from what became News Limited, the "Adelaide Advertiser", (then) recently 'taken-over' by a little known Rupert Murdoch.

The Russian lens was used to image British Blue Streak and Black Knight missile launches at Woomera Rocket Range, or so I was told. I recalled some pixs in the papers at that time. Engraved on its side are the words: "GRAND PRIX, Brussels 1958. Made in USSR".

I recall Maksutov was working on the Mak design as he was aboard the 'last train' out of besieged Leningrad in 1942? This Mak was a great 'teelens' for a 35mm camera and now makes a fine telescope when we need something light but with a good focal length when the 'bigger' 'scopes would sink into the 'bog' that is my current back yard.

Clear skies! (Ha ha! We wish.)

More Club News continued from page 1

Club/Social Viewing Nights

Club/Social Viewing Nights are on Saturday evenings "just" Before Sunset. Viewing nights are for members and invited guests. The contingency plan for poor weather on the proposed viewing night is to meet the next night (a Sunday night) .

Woncur Road, South Nowra (Head South down The Princes Highway, turn right at BTU Road, Woncur Road is the street first on the left).

University Viewing site. On the way to the university on George Evans Road go straight ahead through the second turning circle to the new viewing site.

Bring your scopes and or binoculars and a small folding chair, a decision on the day planned, depending on viewing conditions, by the club president and his deputy.

Email information if details are changed, to all, or contact Frank for changes.

Solar viewing BBQ lunches (BYO) may be held and these will be advised ahead of these events. Special events such as Comets, eclipses etc. may also warrant members night viewings.

The AGM was held at the July 2019 monthly meeting. Elected officials for 2019- 2021

The 2021 AGM has been postponed due to Covid.

President: Mark Town

Vice President: John Gould

Secretary/Treasurer: Frank Gross

Public Officer; Frank Gross

Observation Officer: Robert Turnbull

Editor: Kaye Johnston

Librarian: Chris O'Hanlon

The Committee: Robert Turnbull, Rudolf Henssen, Robert Spruyt, Chris O'Hanlon, John Gould, Ernest Royston, Anthony Peters

Check out the Astro Flyer on the web site: www.shoalhavenastronomers.asn.au

Shoalhaven
Astronomers
PO BOX 1053
Nowra NSW 2541

The deadline for Articles for the Astro Flyer is The First Friday of the Month.

Editor Kaye Johnston

Club Video Projector Rental

The Video Projector is available for club members for a small rental fee. If a club member would like to project a football game, cricket game onto a wall for a party this is the way to go. You will get up to a 100 inch diagonal picture on a light coloured wall with the Epson video projector. The projector has an inbuilt speaker but you can add your own speaker units if necessary. The unit s very easy to use and instruction would be given before the borrowing (2 days) occurs. The rental price is set at present at \$15 for two days.