



ASTRONOMICAL SOCIETY OF SOUTHERN AFRICA

Durban 'nDaba



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Member Submissions Disclaimer

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Chairman's Chatter

November 2022



Good day ASSA Members

It is with a heavy heart that I share this news with you. This will be my last Chairman's chat as I will be stepping down as Centre Chair due to work commitments which have placed an exponential amount of pressure on me. This has left me with little and in most cases no time to attend to the matters of the Society which I care deeply for.

I would not be doing this committee or the society justice by not putting in all the effort that it deserves. I will remain a part of the society but unfortunately, cannot see myself playing an active role in the near future.

Each one of you are doing amazing work for the Society and I know you will continue in that task. I hope that someday, once life settles back to normality for me, you would welcome me back on the committee.

In light of the above, kindly note that Debbie Abel, a long standing Committee member, is stepping in to take on the position as Chair. I wish her all the best and my gratitude for her accepting the position.

I do hope to see more submissions from our Durban members in the 'nDaba. As exciting as the international space news may be, it is always exciting to see our members progress in different aspects of astronomy. In this regard please see pictures taken from the ISS Station on page 14.

I would like to thank John and Corinne Gill for their continued assistance in producing the 'nDabas, in Fiona Khan's absence.

As can be seen by the adjacent insert, the Year End Dinner is taking place on the 14th December at the school. Please read details on page 21, and respond ASAP.

Wishing you all everything of the best and clear skies ahead.

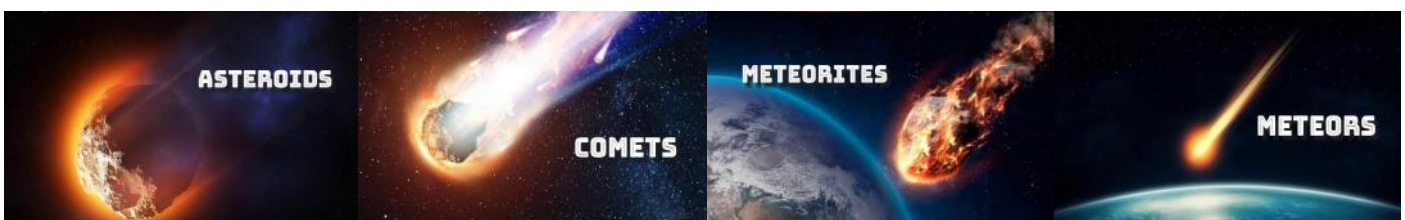
Amith Rajpal

Your invitation to our
Year end dinner

14 December 2022
19:00
St. Henry's Marist College.

RSVP to: secretary@astronomydurban.co.za
by 14 Nov.

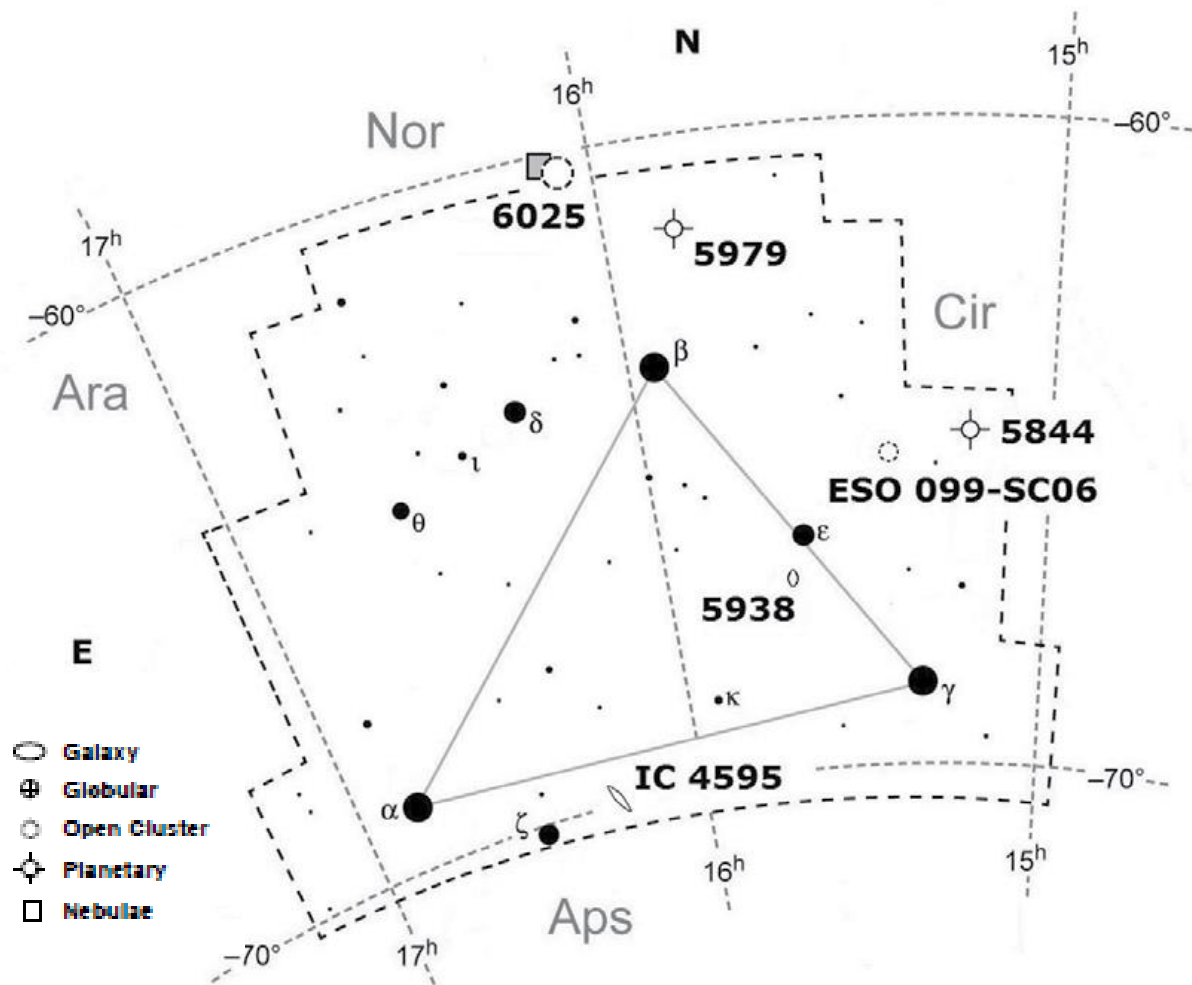
Food, fun & prizes for the best astronomy themed outfits!



Astronomy Delights - Triangulum Australe

The Useful Triangle

By Magda Streicher



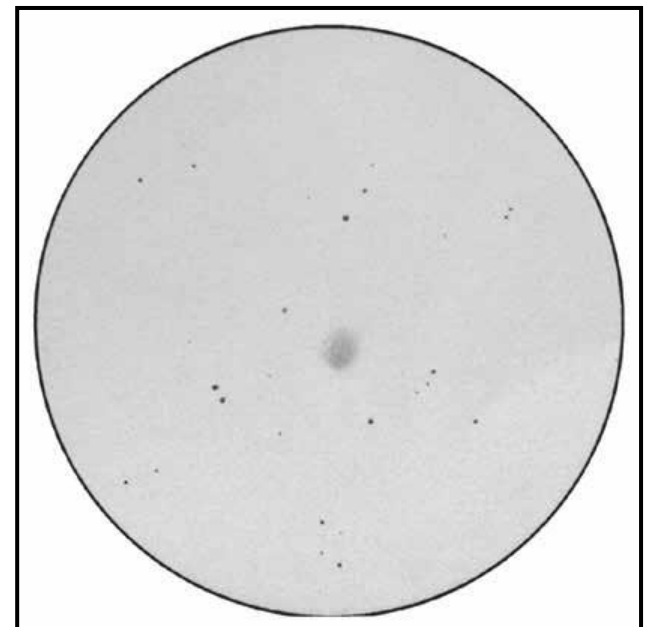
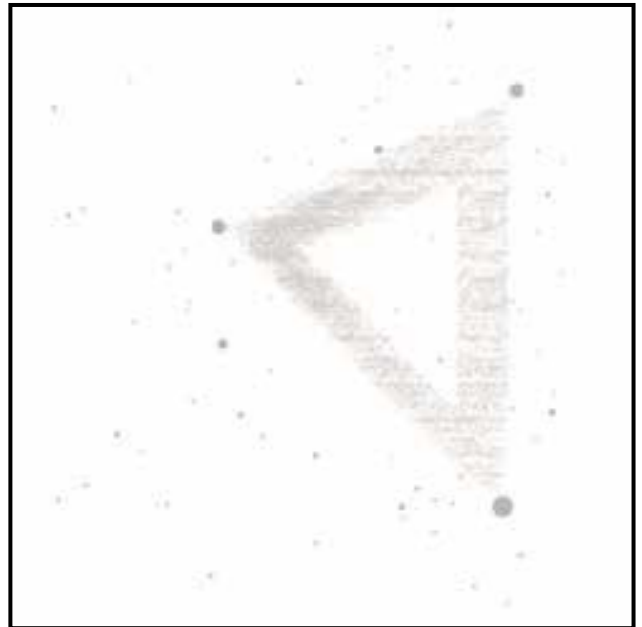
ABOVE: NGC 5844 – Photograph: Dale Liebenberg

...Triangulum Australe

One thing that is as clear as starlight is the fact that many stars form triangles in the starry night skies. Whether the stars are faint or bright, seen with the naked eye, binoculars or through a telescope, the observer will find many triangles. The best known by far, and pre-eminently the most outstanding, is the Triangulum Australe constellation, which definitely displays the shape most excellently.

Triangulum Australe is situated between Ara, Apus, Norma and Centaurus. The three stars alpha, beta and gamma trianguli Australis are quite outstanding and vary between magnitudes 1.8 and magnitude 2.8. Bayer called these stars The Patriarchs – Abraham, Isaac, and Jacob of old (*Star Names: Their Lore and Meaning – Allen*).

In the far western side of the constellation a special planetary nebula can be found. **NGC 5844** is a somewhat strange object which may, perhaps, give the observer the impression of a strange double planetary nebula, which it is indeed with PK 317.1-05.7 situated close to the north-western edge. The relatively bright object in a north to south direction with a washed-out northern side, displays something of an hourglass shape. It is by no means even in structure, but contains knotty patches which become more concentrated towards the middle area of the nebula. Close to the north-east edge is a very faint double star with another brighter pair south-east that lends a special effect to the field of view.



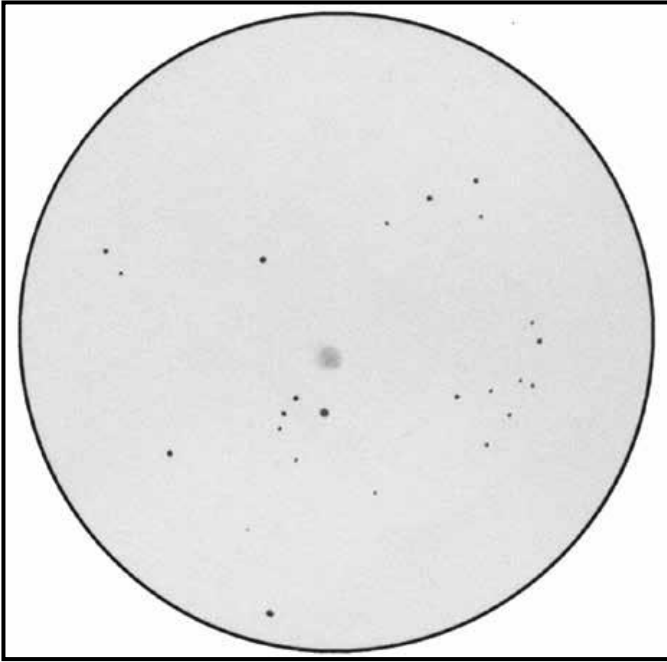
ABOVE: NGC 5844 – Planetary Nebula

About 2 degrees east a listed ESO object can be found. **ESO 099-SC06** displays a tight group of about eight stars that vary from magnitude 9 to 12 in brightness in an east-west direction. The brightest member in this tight grouping is GSC 9030 2526, the slightly yellow magnitude 9.9 star, which can be seen in the northern part of the cluster. However, brighter stars towards the east appear to increase the size of this grouping.



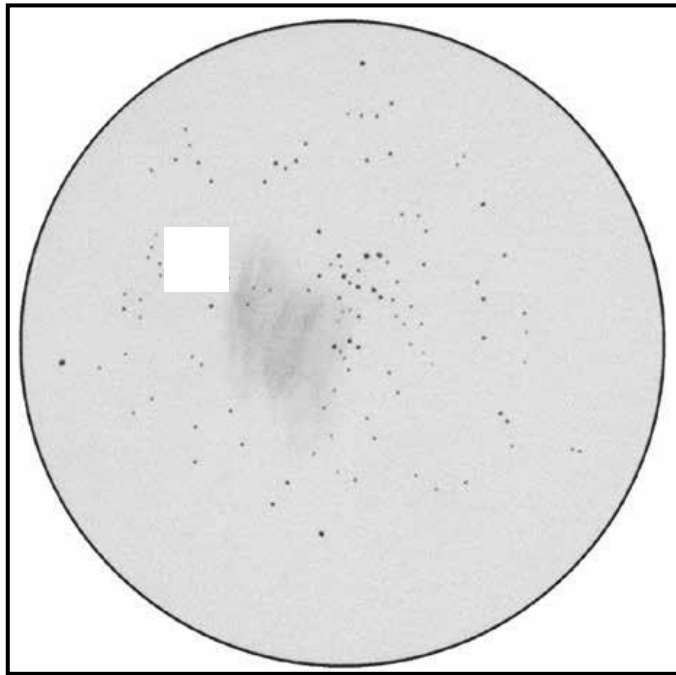
LEFT: **ESO 099-SC06**

...Triangulum Australe



The planetary nebula **NGC 5979** is situated 2.3 degrees north of the lovely yellow Beta Trianguli Australis and is visible only as a dense, fuzzy blue dot with a stellar core. Higher magnification, however, displays a very hazy, woolly edge. A few faint stars string away from the planetary nebula in a southern direction. Adding an ultra-high-contrast and oxygen filters help define this object in more detail against the busy star field.

LEFT& BELOW: NGC 5979 – Planetary Nebula



The famous open cluster because of its position close to the Great Attractor is **NGC 6025**.

ABOVE:& RIGHT: NGC 6025



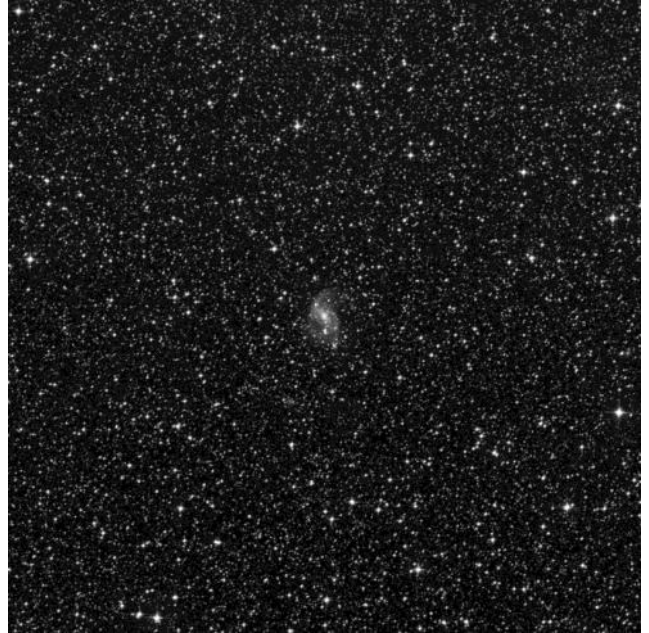
The object is situated on the border line with Norma clearly divided between both the constellations. However, it is been listed as an object in the constellation Norma. A typical stringy group with the northern part of the cluster slightly more condensed with brighter stars that display a sort of S-shape in a north to south direction. The cluster contains around 20 stars, with the outstanding Mq Trianguli Australis, a blue-white star in the southern part of the field of view. Careful observation brings to the fore a piece of dark nebulosity intervening among the eastern star members.

...Triangulum Australe

The yellow coloured star delta Trianguli Australis is situated 2.2 degrees east of the northern corner star beta Trianguli Australis, which is also a double star, with magnitudes 3.9 and 11.9. The pair has a separation of 30" in a position angle (PA) of 120°.

Another double star is iota Trianguli Australis with a magnitude of 5.3, situated just 1.4 degrees further east. The double star, which shines in a beautiful dark yellow, has a plain white magnitude 10.3 companion. The separation is 19.6" in a position angle (PA) of 16°.

In line with the triangular shape of the constellation between the star's beta and Gamma Trianguli Australis, the faint galaxy **NGC 5938** takes its place in a busy star field. This object is barely seen as a roundish glow with a sharp bright nucleus. Faint stars are more evident towards the south-eastern field of view. Right: NGC 5938



Another galaxy, **IC 4595**, is situated just 40' west of the lovely deep-yellow coloured zeta Trianguli Australis, which shines with a magnitude of 4.8. The galaxy is very faint, and averted vision provides the best tool to discover its hidden qualities. Situated almost on the southern border with Apus, the galaxy displays a faint sliver of a light ray in a north-east to southwest direction. With care a few faint stars can be spotted on its surface, with one prominent on the northeastern tip. RIGHT: IC 4595



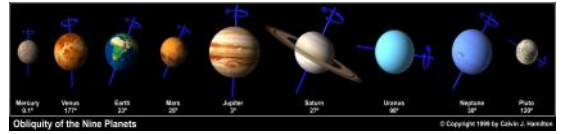
The good old triangular shape is easy to remember, and easy to describe as part of an observation with stars that splashed out in their thousands. Regard the triangle in a brand-new way and take special note of the constellation Triangulum Australe which shows off this well-known geometric shape in a very special way.

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 5844	Planetary Nebula	15h10m.6	-64°40'.4	11.5	73"
ESO 099-SC06	Open Cluster	15h29m.8	-64°52'.0	7.9	8'
NGC 5938	Galaxy	15h36m.4	-66°51'.6	11.8	2.8'×2.5'
NGC 5979	Planetary Nebula	15h47m.7	-61°13'.0	12	10"
NGC 6025	Open Cluster	16h03m.7	-60°27'.8	5.1	12'
IC 4595	Galaxy	16h20m.7	-70°08'.6	12.7	2.7'×0.5'



At the Eyepiece

November 2022 by Ray Field



The Moon is First Quarter on the 1st, Full on the 8th, Last Quarter on the 16th, New on the 24th and First Quarter again on the 30th, the Moon is at Apogee on the 14th and at Perigee on the 26th. The Moon is near Saturn on the 2nd, Neptune on the 4th, Jupiter on the 5th, Uranus on the 8th, the Pleiades on the 9th, Mars on the 11th, Pollux on the 14th, Regulus on the 17th, Spica on the 21st, Pluto on the 27th and Saturn on the 29th. Near or at First Quarter and Last Quarter, the “Straight Wall” feature is visible near the terminator of the Moon.

Mercury is not favourably placed for observation this month.

Venus is too close to the Sun for observation this month.

Mars is a bright, orange-red “starlike” object in the constellation of Taurus this month, and is at opposition next month when it will be visible nearly all night. Looking North, Mars is to the right of “Hyades” in Taurus and below the “head” of Orion. The Moon is near Mars on the 11th.

Jupiter is a very bright object and is visible easily to the naked-eye. It sets at about 01:00 at the start of the month and by just after midnight at the months end. It is in Pisces this month, which lies above and to the right of the “Square of Pegasus” over the Northern horizon. The Moon is near Jupiter on the 5th.

Saturn, the “ringed” planet, is in Capricornus all year, and is easily visible as a bright, yellowish, “star-like” object to the naked eye, in the evening sky. It sets about midnight at the beginning of the month and by 22:00 at the months end. The Moon is near Saturn on the 2nd.

Uranus, barely visible to the naked-eye under perfect conditions, is in Aries all year. It reaches opposition, when it can be seen all night, on the 9th of this month. With detailed star charts and binoculars it can be found with some effort. In my 8” Celestron telescope I used to see it as a small greenish disc under high magnification and good seeing conditions, ie. Steady air. The Full Moon is near Uranus on the 8th.

Neptune, in Aquarius all year, is fainter than Uranus and needs a telescope or big binoculars to be seen. Under a powerful magnification in my 8” Celestron, I have seen it from a dark location as a tiny bluish disk. The Moon is near Neptune on the 4th.

Comets. Per ASSA Sky Guide 2022, page 85, no bright comets, ie. Brighter than magnitude 10, will be visible this month. New comets may be discovered at any time however.

Meteors. Per ASSA Sky Guide 2022, page 86, table 3. Favourable prospects are expected for the “Alpha Monocerotids” this year. The maximum date of activity is 21st November with activity from 15th November to 25 November. Time to watch is from 23:00 to 04:00. The radiant of the shower is only 1° from the equator of the sky so observation should be visible from Durban, but glare from the city lights would be a deterrent to observation.

The starry sky from Durban. With the onset of night, the familiar Orion is rising and the Scorpion is setting. The brightest star Fomalhaut over the South is well up with the “Southern Birds” of Grus, Pavo, Phoenix and Tucana between it and the Southern horizon. Over the North, the “Square of Pegasus” is low over the horizon.

References include ASSA Sky Guide Africa South 2022, Norton’s Star Atlas and Philips Planisphere for Latitude 35° S and Stars of the Southern Skies by Sir Patrick Moore.



The Five Numbers That Explain a Telescope

by Brian Ventrudo



Before we launch into the pros and cons of the types of telescopes available to stargazers today, let's have a quick look at 5 key numbers that describe the operation and performance of every telescope, from the junk scopes in a department store to the venerable Hubble Space Telescope. Once you understand these 5 numbers, you will understand the similarities and differences between telescopes, and you will know how to choose the best scope for your own interests and budget.

LEFT: A 14" Schmidt-Cassegrain telescope (credit: Celestron).

1. Aperture – Buckets of Light

The most important specification of any telescope is the *aperture*, the diameter of the main lens or mirror of the telescope. More aperture makes for a brighter image. Aperture also influences most of the other key specifications of a telescope, including practical (but non-optical) specs like cost and weight. A good backyard telescope for us amateur stargazers has an aperture of 80 mm to 300 mm (3.15" to 12") or more. Some big billion-dollar professional telescopes have mirrors with an aperture of 10 meters (400 inches), about the size of a small trout pond.

The light collecting ability of a telescope is directly proportional to area of the lens or mirror, which is in turn related to the square of the aperture. So a telescope with an objective mirror of 200 mm aperture collects four times as much light as a scope with a 100 mm mirror. The cost and weight of a lens or mirror also go up proportionately, sometimes faster than the square of the

aperture. That's the main tradeoff, and it's one of the reasons not everyone has a 25" Dobsonian reflector sitting in their garage. They are big and heavy and expensive

The aperture of a lens or mirror is the diameter of its light collecting region. The light-collecting ability of an objective lens or mirror is related to the square of the aperture.

For reference, the aperture of a healthy and dark-adapted human eye is 7 mm. So even a modest telescope with a 100 mm aperture (about 4 inches) has $(100/7)^2 = 204$ times the light-collecting ability of the eye.

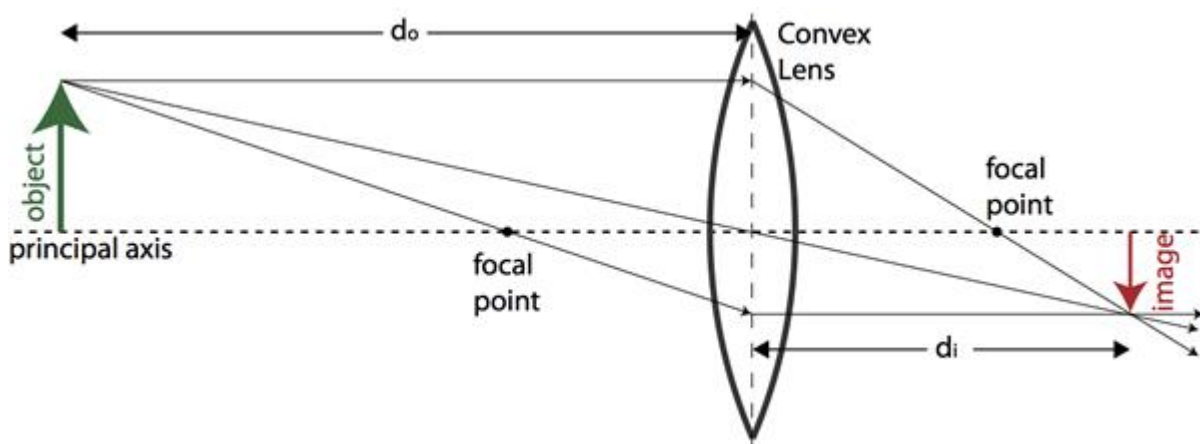


...Telescopes

2. Focal Length – Show Me the Image

Once light falls onto a mirror or through a lens, it's directed by the curvature of the optic to come to a focus at a plane some distance away. The length over which this happens is called the *focal length* of the objective. At the focal plane of a lens or mirror, you can actually see a real image of a distant object. So if a telescope with a lens is aimed at a distant tree, for example, or the Moon, an image of the tree or Moon would be visible on a screen placed at the focal plane of the lens.

The focal length of the objective lens or mirror of a telescope will influence to some degree the overall length of a telescope. This 12" telescope, which uses a large mirror to collect starlight, has a focal length of about 60". So the overall length of the scope is quite long and can be unwieldy for some. Some modern scope designs use a clever optical layout to squeeze a long focal length into a small optical tube. This telescope has an 8" (200 mm) mirror with an 80" (2000 mm) focal length, but the light folds into a tube less than 20" (500 mm) long.



The production of an image of a distant object by a lens. In astronomy, where the objects are essentially at infinity, the image comes to focus at a plane that passes through the focal point.

3. Magnification – Far and Away, Up Close



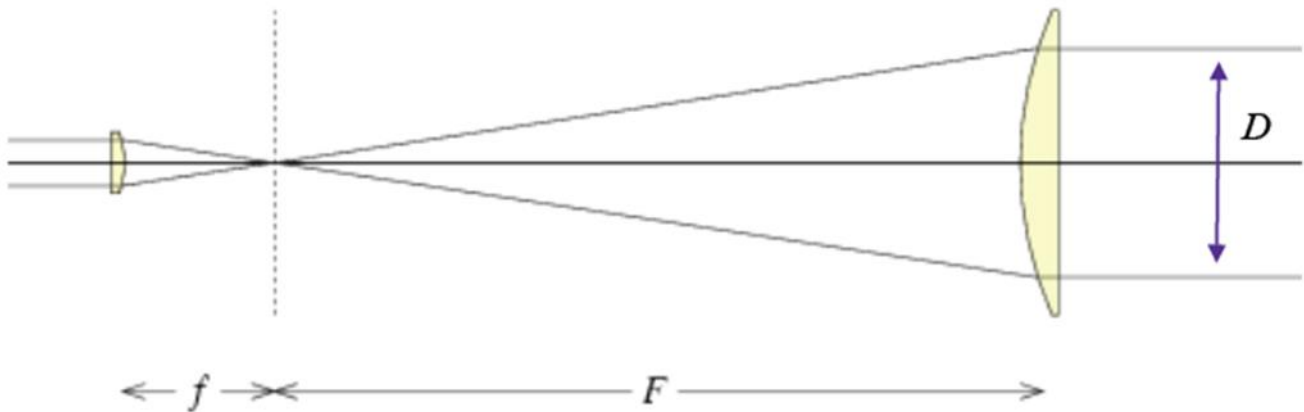
LEFT: The Moon seen through a telescope at high magnification.

To get an image suitable for observing with our eyes, a telescope uses a second lens, or collection of lenses, called an *eyepiece* at the focal plane. The eyepiece magnifies the image from the objective. The eyepiece also has a focal length. The magnification of a telescope and eyepiece is very simple to calculate. If the focal length of the objective is "F" and the focal length of the eyepiece is "f", then the magnification of the telescope/ eyepiece combination is F/f . For example, if a

telescope has an objective lens with focal length of 1200 mm (about 48") and it has an eyepiece of focal length 25 mm (about 1"), then it will have a magnification of $1200/25=48x$. Nearly all telescopes allow you to change eyepieces to get different magnifications. If you want to get a magnification of 100x with this example, you use an eyepiece with 12 mm focal length.

...Telescopes

Another rule of thumb... the maximum useful magnification of a telescope is about 50x the aperture in inches. Any higher and the image gets too dim and fuzzy to be useful. So a 4-inch scope can get you about 200x before the image gets too fuzzy and dim, a 6-inch scope gets you 300x, and so on. This is not a hard-and-fast rule. Sometimes, when the atmosphere is unsteady, you can only get to 20x or 30x per inch of aperture. With high-quality optics and steady seeing, you might get to 70x or even 100x per inch of aperture, so for example, up to 400x with a 4-inch



scope. But this is rare.

The aperture of the objective lens of this simple telescope is D . The focal length of the objective lens is F . The focal length of the eyepiece is f . So the magnification is F/f . The focal ratio is F/D .

4. Focal Ratio – Faster, Brighter, Smaller

The third key specification of a telescope is the focal ratio, which is the focal length divided by the objective diameter. A long focal ratio implies higher magnification and narrower field of view with a given eyepiece, which is great for observing the moon and planets and double stars. For such objects, a focal ratio of $f/10$ or more is ideal. But if you want to see wide views of star clusters, galaxies, and the Milky Way, a lower focal ratio is better. You get less magnification, but you see more of the sky. Wide field telescopes have a focal ratio of $f/7$ or less.

Focal ratio also influences the brightness of extended objects like a nebula or galaxy. For example, a telescope with focal ratio of $f/5$ will show an image of four times the brightness as a telescope with focal ratio of $f/10$, all other things being equal. But the image at $f/5$ will be only half as large. However, the brightness of stars, which are point sources of light, is influenced only by the telescope aperture


5. Resolving Power – Sorting One Star From Another

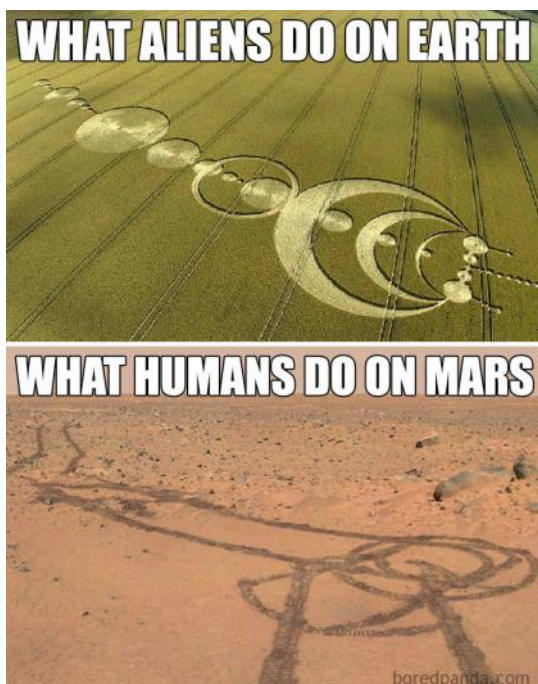
Finally, the last important number of any telescope: the resolution. The resolution of a telescope is a measure of its ability to distinguish small details of an object or to distinguish two very closely spaced objects from each other. Resolution is important when you're trying to separate two closely-spaced stars, for example, or fine detail on the Moon or a planet. The resolving power of a telescope with an objective of aperture D (in millimeters) is Resolving Power = $116/D$ (in arcseconds)

...Telescopes



The resolution of a telescope is a measure of its ability to separate closely-spaced objects. The components of the double star Porrima are separated by just 1.8".

Resolution is directly proportional to the aperture of a telescope. A 200 mm scope can resolve details as close as 0.58 arcseconds, twice as well as a 100 mm scope, all other things being equal. (One arcsecond is 1/3600 of a degree). But the motion and instabilities in the Earth's atmosphere often limit the practical resolution of any telescope to 1" or more. 



Cover Image

by John Gill



NGC 2442 and NGC 2443 are two parts of a single intermediate spiral galaxy, commonly known as the Meathook Galaxy or the Cobra and Mouse.

It is about 50 million light-years away in the constellation Volans.

It was discovered by Sir John Herschel on December 23, 1834 during his survey of southern skies with a 18.25 inch diameter reflecting telescope (his "20-foot telescope") from an observatory he set up in Cape Town, South Africa.

Associated with this galaxy is HIPASS J0731-69, a cloud of gas devoid of any stars. It is likely that the cloud was torn loose from NGC 2442 by a companion.

When John Louis Emil Dreyer compiled the *New General Catalogue of Nebulae and Clusters of Stars* he used William Herschel's earlier observations that described two objects in a "double nebula", giving the northern most the designation NGC 2443 and the southernmost most the designation NGC 2442. Herschel's later observations noted that the two objects were actually a single large nebula.

Gaia16cfr was a supernova imposter that occurred in NGC 2442 on 1 December 2016. It reached a Gaia apparent magnitude of 19.3 and absolute magnitude of about -12 .

Mike Selby kindly gave me the data and I processed it using PixInsight.

Tech Specs:

Imaged in LRGB and H alpha OTA CDK 1000 Luminance, RGB and H alpha. Additional RGB RiDK 500.

Imaged at Observatorio El Sauce, Chile

Integration time: 47 hours

Data Acquisition: Mike Selby

Index Image

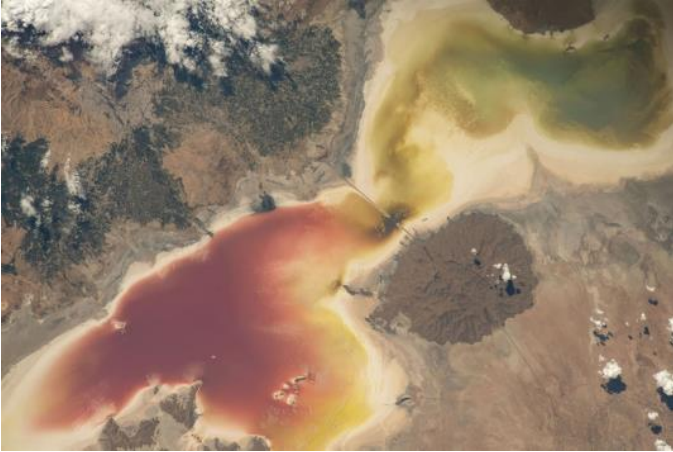


James Webb Telescope has yet again left people astonished with a stunning view of the vibrant Orion Nebulae.



Astronauts' Stunning Photos from International Space Station show Earth's Triumphs, Tragedies in 2022

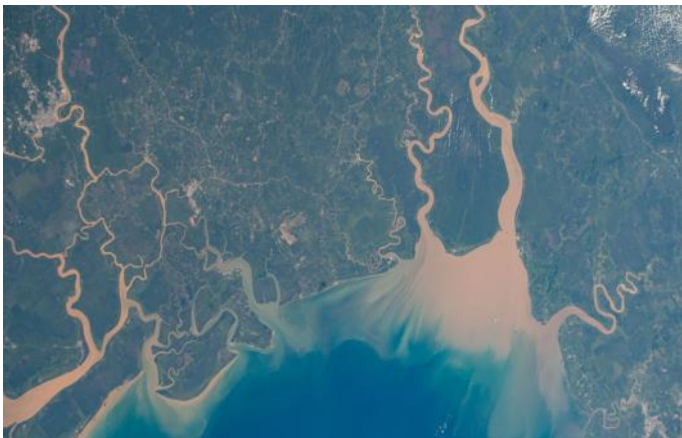
Astronauts on the International Space Station share stunning images of Earth from 400 kilometers up. From sunsets and moonrises to spewing volcanos and breathtaking deserts, life in space is gorgeous. The best astronaut photos of 2022 reveal surreal beauty alongside extreme weather and war. They can see both beauty and destruction on the planet below.



LEFT: Lake Urmia in northwest Iran, once one of the biggest saltwater lakes in the world, on July 30, 2022.



RIGHT: European Space Agency (ESA) Astronaut Samantha Cristoforetti looks at the Earth through the cupola, the ISS's "window to the world," while orbiting above the Pacific Ocean off the coast of Peru, on October 1, 2022.

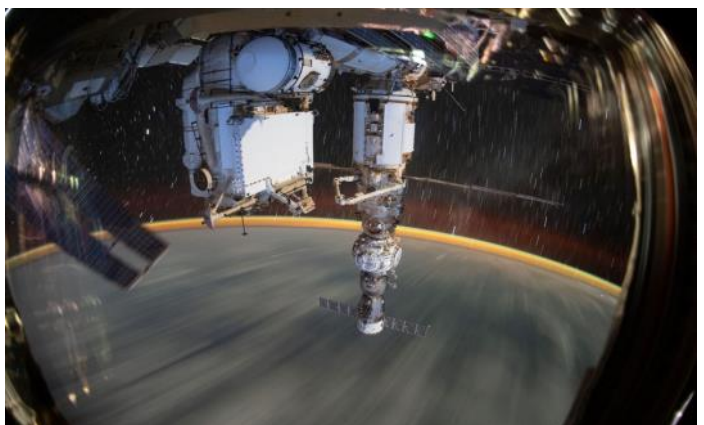


"It's difficult to explain because the emotions are absolutely overwhelming. It is an incredible scene of colour, of clouds, and land, It's difficult not to stay in the cupola all day," NASA astronaut Nicole Mann told the Associated Press in October.

LEFT: Maludam National Park in East Malaysia is composed of low-lying forests and several rivers that empty into the South China Sea, on June 7, 2022.

RIGHT: The ISS careens around the planet, completing an orbit every 90 minutes. This long duration photograph shows the Earth 259 miles below a soaring ISS, on September 19, 2022.

That means astronauts see 16 sunrises and sunsets every day.



...ISS Astronauts' photos



LEFT: Orbital sunrises are stunning. The colours spill across the horizon, cutting through the darkness of night time Earth and the blackness of space above.

BELOW: The sun's rays begin to illuminate the atmosphere as the ISS flies into an orbital sunrise 261 miles above Texas, on July 16, 2022.



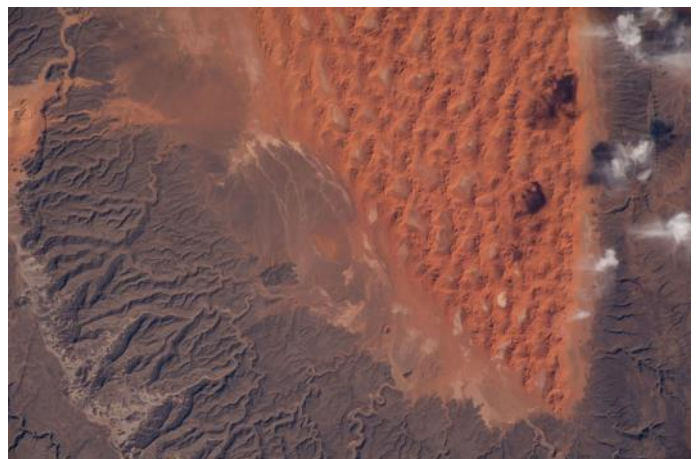
RIGHT: Astronauts also get to see the moon rising and setting above the curvature of the Earth.

Astronauts also get to see the moon rising and setting above the curvature of the Earth.

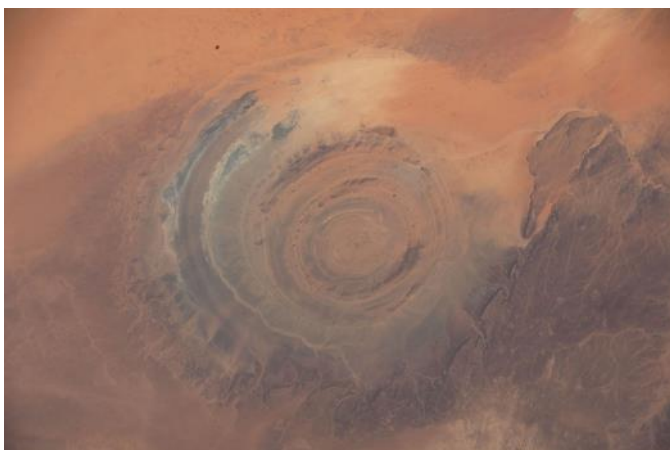


RIGHT: As the moon sets below Earth's horizon, the atmosphere refracts, or bends its light, making it appear flatter in this photograph taken from the ISS above the Himalayas near Kathmandu, Nepal, on June 15, 2022.

Looking down at Earth, astronauts can see even more colours in the mind-bending diversity of our planet's landscapes.



RIGHT: A portion of the Sahara Desert in Algeria, with sand dunes, rocky platforms, and sandstone plateaus, on February 7, 2022.



LEFT: Prominent natural features, like this circular rocky uplift in the Sahara desert, often catch astronauts' eyes. The Richat Structure, also known as the "Eye of the Sahara," an eroded geological dome in Mauritania, on August 21, 2022. NASA

...ISS Astronauts' photos



LEFT: Some of the best sights come at night. Astronauts can catch a stunning view of the Milky Way stretching above them. In this photo, a lightning bolt flashes on Earth below.

This time-lapse of the Milky Way galaxy also captured a lightning strike on Earth so bright that it lit up the space station's solar panels.

RIGHT: Some of the best sights come at night. Curitiba, a city of nearly 2 million people in Brazil, lit up at night on July 4, 2022.



LEFT: Astronauts also enjoy regular, stunning shows of the aurora dancing across the north and south poles. A brilliant aurora streams across Earth's horizon above the Indian Ocean northeast of the French Southern and Antarctic Lands, on August 17, 2022.

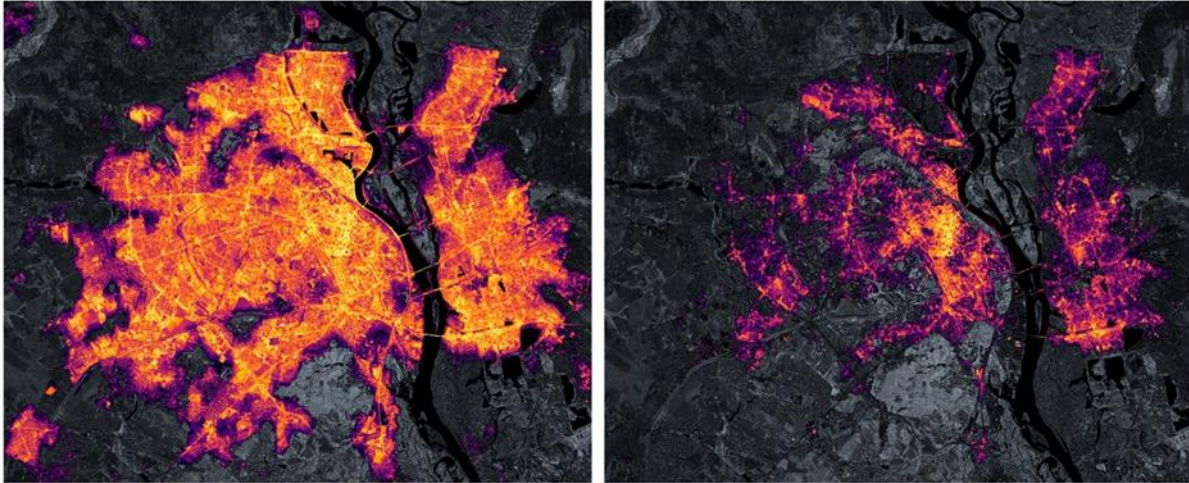
But 2022 wasn't all pretty sunsets and stunning landscapes. Astronauts on the ISS said they could see war unfolding in Ukraine, though they didn't post photos of it.

RIGHT: Satellite imagery of night lights across Europe on February 27, 2022, shows a darkened Ukraine after Russia's invasion.

"At the beginning of the war, the whole country went dark at night," German astronaut Matthias Maurer said in May, adding, "People actually only recognized Kyiv."



...ISS Astronauts' photos



ABOVE: Kyiv, Ukraine, as seen by satellite in January 2022, left, and March 2022, right. That's what astronaut Matthias told German broadcaster ARD's "Morgenmagazin" program, according to a translation in Newsweek. "Then you could also see the impacts in the first days of the war. In Kyiv, you could see lightning at night," as well as the "rockets that hit," he added, according to Newsweek.

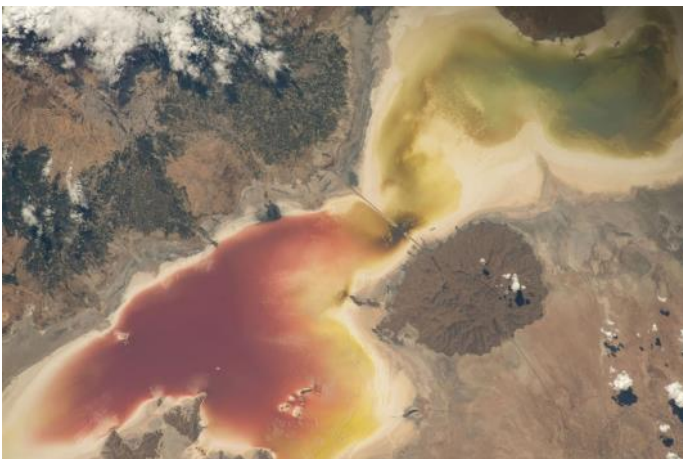


Extreme weather battered the world — like Hurricane Ian, which the ISS flew above as it approached Florida.

LEFT: Hurricane Ian, just south of Cuba, builds strength in warm waters, on September 26, 2022.

BELOW: The ISS often gets a unique view into the eye of a storm. The station also flew over Hurricane Fiona just days after it took out Puerto Rico's power.

Astronauts can also see long-term damage humans have caused. This lake is overrun with red algae because dams and agriculture have drawn so much water from it, and drought has further depleted it.



LEFT: Lake Urmia in northwest Iran, once one of the biggest saltwater lakes in the world, on July 30, 2022

...ISS Astronauts' photos



Astronauts don't spend all day looking out the window, though. They're busy working on experiments and maintenance...

LEFT: Astronaut Matthias Maurer of ESA is pictured on the ISS's truss structure during a spacewalk, on March 23, 2022.

Also welcoming new spaceships full of astronauts or cargo to the ISS...

LEFT: The SpaceX Dragon Endurance ship approaches the ISS with the waxing gibbous moon in the background, on October 6, 2022.

Also saying goodbye to other spaceships...



LEFT: The ISS Progress 79 resupply ship leaves a plasma trail as it reenters Earth's atmosphere for a fiery, but safe demise above the Pacific Ocean, on June 1, 2022

RIGHT: The astronauts sometime like to simply have fun. NASA astronaut Frank Rubio observes the behavior of a free-flying water bubble inside the ISS Kibo laboratory module, on October 1, 2022.



But they still take time to appreciate the view from 400 kilometres up.

LEFT: The Namib Desert on Namibia's Atlantic coast, on July 14, 2022.



<https://www.businessinsider.co.za/best-astronaut-photos-from-the-international-space-station-this-year-2022-11>



Webb Telescope Captures 'Breathtaking' Images of Orion Nebula

BELOW: This handout photo provided by NASA on September 12, 2022 shows the inner region of the Orion Nebula as seen by the James Webb Space Telescope's NIRCam instrument. An international research team revealed the first images of the Orion Nebula captured with the James Webb Space Telescope, leaving astronomers (AFP/NASA)



The wall of dense gas and dust resembles a massive winged creature, its glowing maw lit by a bright star as it soars through cosmic filaments.

An international research team on Monday revealed the first images of the Orion Nebula captured with the James Webb Space Telescope, leaving astronomers "blown away."

The stellar nursery is situated in the constellation Orion, 1,350 light-years away from Earth, in a similar setting in which our own solar system was birthed more than 4.5 billion years ago.

Astronomers are interested in the region to better understand what happened during the first million years of our planetary evolution.

The images were obtained as part of the Early Release Science program and involved more than 100 scientists in 18 countries, with institutions including the French National Centre for Scientific Research (CNRS), Western University in Canada, and the University of Michigan. "We are blown away by the breathtaking images of the Orion Nebula," Western University astrophysicist Els Peeters said in a statement. "These new observations allow us to better understand how massive stars transform the gas and dust cloud in which they are born," she added.

Nebulas are obscured by large amounts of dust that made it impossible to observe with visible light telescopes, such as the Hubble Space Telescope, Webb's predecessor. Webb however operates primarily in the infrared spectrum, penetrating the dust. This revealed numerous spectacular structures, down to the scale of 40 astronomical units, or the size of our solar system.

These include dense filaments of matter, which could birth new generations of stars, as well as forming stellar systems that consist of a central proto-star surrounded by a disc of dust and gas, in which planets form. "We hope to gain understanding about the entire cycle of star birth," said Edwin Bergin, University of Michigan chair of astronomy and a member of the international research team. "In this image we are looking at this cycle where the first generation of stars is essentially irradiating the material for the next generation. The incredible structures we observe will detail how the feedback cycle of stellar birth occurs in our galaxy and beyond." Webb is the most powerful space telescope ever built, boasting a primary mirror measuring 6.5 meters (more than 21 feet) that is made up of 18 hexagonal, gold-coated segments, as well as a five-layer sunshield the size of a tennis court.

<https://www.thejakartapost.com/culture/2022/09/14/webb-telescope-captures-breathtaking-images-of-orion-nebula.html>



ASSA Durban School Presentation at St Henry's Marist College

by Piet Strauss



Three of ASSA Durban members did a presentation to the Grade 6 Science students at St Henry's Marist College on Monday, 31 October. Moya O'Donoghue, Sihle Kunene and Piet Strauss met with the two classes and their class teachers on a cool and rainy day.

The solar system is part of their curriculum. The ASSA members were impressed with their knowledge and questions.

One student asked if the presenters believed Einstein's statement that gravity is a distortion of space time!

Aspects of earth, moon, planets and the sun were highlighted with models and interesting facts.

Artificial satellites such as the ISS, HST and JWST and the functioning of telescopes were discussed.

They were also taken into deeper space with illustrations of some well-known constellations. A similar presentation was done in 2019 when they were in Grade 3. There may well be some future astronomers in this group.

St Henry's Marist College houses ASSA Durban's dome and telescope and provide us, ASSA, with meeting venues. It is always a pleasure to assist the school.



ASSA Durban 2022 - Year End Dinner

Dear Durban ASSA members

You are cordially invited to our Year End Dinner!

Please be sure to RSVP to

Secretary@astronomydurban.co.za by no later than **14th November**.



(We will not be able to add catering for late replies.)

Kindly indicate whether you would prefer the **vegan or meat** option.



Please bring your own drinks and glasses if you would like.

Tea and coffee will be provided.

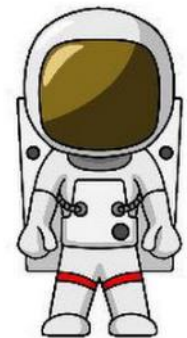
If you have a family membership, this will include 2 people.

Additional non members +1's or children can be accommodated for:

- R80 - Children under 12
- R150- Adults & older kids

Kindly RSVP for these as well.

As always, a prize for the best astronomy/space themed outfit/ costume will be up for grabs, so bring your A-game!



In addition please bring some cash for fines and some fun.

If anyone has any photos from this past year (outreach, events, astrophotography, stargazing etc) that we could included in our yearly slideshow, please forward to:

Piet@astronomydurban.co.za

Looking forward to seeing everyone once again!



ASSA Durban Minutes of General Meeting

12 October - 19:30 via Zoom



1. Welcome

- x Amith Rajpal welcomed members in Durban meeting. Meeting started at 19:40 to allow others to join from JHB meeting.

2. Guest Speaker

- x A misunderstanding with JHB resulted in no main presentation being given.

3. Present and Apologies (Durban Meeting)

- x Present: Gerald de Beer, Amith Rajpal, Piet Strauss, Francois Zinserling, Debbie Abel, Michel Benet, Claire Odhav, Mike Hadlow, Graham Alston, Mike Caine, Murray Mackenzie, Yesen Govender, Rowena Baldew, Chanu Chetty, Peter Foster, Ooma Rambilas
- x Apologies: Alan Marnitz, Fiona Khan, Mike Watkey

4. Confirmation of previous meeting minutes

- x Proposed: Gerald de Beer
- x Seconded: Debbie Abel

5. Treasurer's Report

- x Prepared by Corinne Gill, presented by Francois

ASSA DURBAN FINANCIALS

2022/10/12



Financials Meeting	Month	Current	Investment	Petty Cash
General Meeting	2022-10-12	R 35 194,87	R62 953.07	R 1 000,00

ASSA DURBAN - MEMBERS

Date	No off	Paid Members	Honoury	Unpaid
2022-10-12	139	91	4	44

ASSA DURBAN - RESIGNED

SURNAME	First Name	Date	Type	No off
Ainsworth / Alder	Howard & Laurienne	2022-07-11	Family	2
Subramoney	Avril	2022-10-11	Ordinary	1

...Minutes of the Meeting

6. Library

- x Claire made some changes to the library. 10 new books in the online library. A link will be shared on WhatsApp chat.
- x Any other contributions, please share with Claire

7. Events

- x Sheryl Venter will be stepping down from the committee. Handover to Rowena will happen in the coming weeks.
- x Sutherland Trip
 - Hermanus hotel changed management and communication is difficult.
 - People who are awaiting refunds should please contact Piet Strauss and give bank details.
 - 31 October Piet and Sihle will give a talk to kids at the school.
 - June/July next year an event is at Sani Pass
 - Long weekend in June 2023 – Astronomy/Geology group outing.
 - Amith is arranging talk for less privileged kids at various schools.

8. Return of NASA/ESO/Sky at a Glance (volunteers)

- x Claire suggested the 5-minute slot should be reinstated. A volunteer is needed to present updates at the monthly general meeting.

9. In Person Meetings

- x Debbie Abel took over chairing of the meeting.
- x Some members voiced unhappiness to lack of in-person meetings. Due to Covid and ongoing school activities, access to school venues have been troublesome. ASSA has a standing agreement with the school for 2 meetings per month – committee and general – which should be discussed with the school. In-person meetings are essential. Plans are afoot to have a hybrid meeting in future, with face-to-face meetings regularly.

10. Year-End Function

- x ASSA Durban did secure the school for the Christmas function.
- x 2nd Wednesday of December at the school, 19:30.
- x Claire is forming a committee to arrange the function.

11. General

- x Gerald suggested we build up a list of venues that offer good clear skies where you can safely set up a telescope. Gerald will compile the list. Gerald's number is available from ASSA Durban WhatsApp group. People can message suggestions directly to Gerald.

Meeting closed at 20:15

ASSA DURBAN ZOOM MEETING

Durban members meeting continues.

<https://us02web.zoom.us/j/88037701479?pwd=UU5xMUJFibWlVWUzMWtMd1Y1I2ZDNQdz09>

Meeting ID: **880 3770 1479**

Passcode: **297674**





Public Viewing Roster ASSA Durban



Dome Master	Email	Assistant	Telescope Volunteer	Public Viewing
TBC				

PUBLIC VIEWING:

Public viewing is on site at the Marist Brothers St Henry's School in the dome and around the pool area; usually the first Friday evening closest to the New Moon.

Please note there is a roster with a booking system. Once the number of telescopes are confirmed, Individuals will be contacted to confirm dates and times. Please book your place!!!

NOTIFY OBSERVATORY MANAGER:

Members interested in attending the above viewing evenings and/or becoming involved in assisting with the viewing evenings, please send your names to Alan Marnitz on cell number 082 305 9600, or via email: alan@astronomydurban.co.za

VOLUNTEERS REQUIRED:

Volunteers to please identify which role you are willing to assist with, Dome Master, Viewing Assistant or a Telescope Volunteer. After which, attendance will be confirmed and viewing dates will be announced.

Viewing Assistant - Learning about the new telescope, assisting with the viewing evenings, assisting viewing members as required.

Telescope Volunteers - Members willing to bring their telescopes to the viewing evenings to set up around the pool for public viewing.

VOLUNTEERS TUTORIAL:

Mike Hadlow to organise an afternoon / evening to train volunteers as Dome Masters and the use of the large telescope. Date to be confirmed and viewing dates will be announced ASAP.

Viewing Contact:	Phone	Email
Alan Marnitz	082 305 9600	alan@astronomydurban.co.za

Notice Board

MEETINGS:

- GENERAL MEETING to be held on **9th November 2022** via Zoom <https://us02web.zoom.us/j/88037701479?pwd=UU5xMUJFjbWlVWUtd1Y1I2ZDNQdz09> @ **7:30pm**.
- PUBLIC VIEWING MEETINGS - please refer to website under the tab "Viewing and Events" for any updates with regards dates & public viewing, please click here: <https://astronomydurban.co.za/events-viewing/>

MNASSA:

- Monthly Notes of the Astronomical Society of Southern Africa.
- Available at www.mnassa.org.za to download your free monthly copy.

NIGHTFALL:

- Fantastic astronomy magazine. Check it out.
- Available from the ASSA website assa.sao.ac.za/about/publications/nightfall/

MEMBERSHIP FEES & BANKING:

- **Membership Subscriptions were due on the 2022-07-01 for the 2022-2023 financial year. PLEASE pay outstanding subscriptions.**
- **Please pay Subscription fees via EFT.**



Membership fees indicated below:

- Single Members: **R 190:00**
- Family Membership: **R 230:00** for family membership.
- Under 18 members: **Free to join meetings**
- Cash/Cheques: **Please note: NO cheques or cash will be accepted - Cash deposits incur bank charges**
- Account Name: **ASSA Natal Centre**
- Bank: **Nedbank**
- Account No. **1352 027 674**
- Branch: **Nedbank Durban North**
- Code: **135 226**
- Reference: **SUBS 22-23 SURNAME and FIRST NAME**
- Proof of Payment: treasurer@astronomydurban.co.za

SKY GUIDE 2023 - Limited number will be available !!!

- SKY GUIDES

RESIGNATIONS from ASSA:

Please send an email immediately notifying the Secretary at secretary@astronomydurban.co.za stating your wish to resign from the society.

COMMITTEE POSITIONS & CONTACTS:

• Chairman	Debbie Abel	Debbie@astronomydurban.co.za
• Vice Chair	TBC	
• Secretary	Francois Zinserling	Secretary@astronomydurban.co.za
• Treasurer	Corinne Gill	Treasurer@astronomydurban.co.za
• Guest Speaker Liaison	Piet Strauss	Piet@astronomydurban.co.za
• Observatory & Equipment	Alan Marnitz	Alan@astronomydurban.co.za
• Observatory Assistant	TBC	
• Publicity & Librarian	Claire Odhav	Claire@astronomydurban.co.za
• Out-Reach - Public	Rowena Baldew	Rowena@astronomydurban.co.za
• Out-Reach - Schools	Sihle Kunene	Sihle@astronomydurban.co.za
• St. Henry's Marist College Liaison	Moya O'Donoghue	Moya@astronomydurban.co.za
• 'nDaba Editor	John & Corinne Gill	John@astronomydurban.co.za
• Website & Facebook	John Gill	John@astronomydurban.co.za

ELECTRONIC DETAILS:

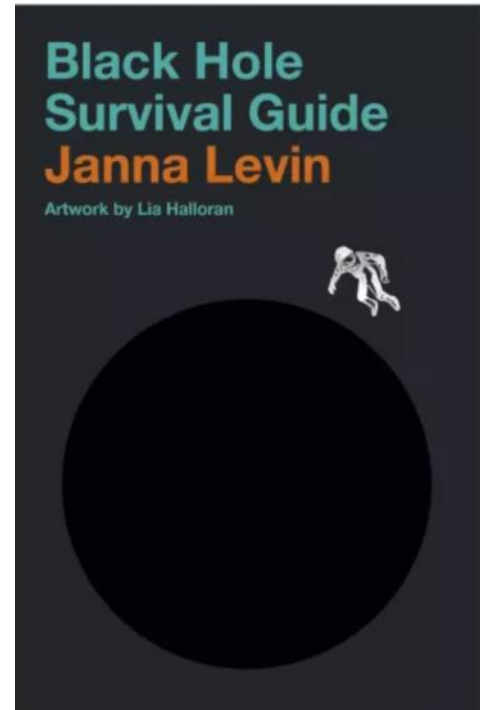
- Website: www.astronomydurban.co.za
- Emails : AstronomyDurban@gmail.com
- Instagram: <https://www.instagram.com/astronomydurban/>
- Facebook: <https://www.facebook.com/groups/376497599210326>

Librarian's Choice

Black Hole Survival Guide.

By Janna Levin.

Through her writing, astrophysicist Janna Levin has focused on making the science she studies not just comprehensible but also, and perhaps more important, intriguing to the nonscientist. In this book, she helps us to understand and find delight in the black hole—perhaps the most opaque theoretical construct ever imagined by physicists—illustrated with original artwork by American painter and photographer Lia Halloran. Levin takes us on an evocative exploration of black holes, provoking us to imagine the visceral experience of a black hole encounter. She reveals the influence of black holes as they populate the universe, sculpt galaxies, and even infuse the whole expanse of reality that we inhabit. Lively, engaging, and utterly unique, *Black Hole Survival Guide* is not just informative—it is, as well, a wonderful read from first to last. (PenguinRandomhouse.com)



JANNA LEVIN is a professor of physics and astronomy at Barnard College. She is also director of sciences at Pioneer Works, a center for arts and sciences in Brooklyn. Her previous books include *Black Hole Blues and Other Songs from Outer Space*, *How the Universe Got Its Spots*, and a novel, *A Madman Dreams of Turing Machines*, which won the PEN/Bingham Prize. She was recently named a Guggenheim Fellow. She lives in New York.

Astronomy books for sale:

(Combination of new and pre-loved)
For teens, adults, and amateurs:



Space, black holes and stuff - By Glen Murphy - R 60:00

Super Geek - By Glen Murphy - R 50:00

First Space Book - Miles Kelly - Large, Hardcover, beautifully illustrated for young children. R 120:00



For these and a full list of books, posters and puzzles on space, contact Claire, on 083 395 5160

FOR SALE:

Used Sky-Watcher 200mm (8") F/1200 Parabolic Truss-Tube Dobsonian

Price: R8 500:00

Specifications:

- Magnifications (with Eyepieces supplied): x48 & x120
- Highest Practical Power (Potential): x400
- Diameter of Primary Mirror: 200mm
- Telescope Focal Length: 1200mm (f/6)
- Eyepieces Supplied (1.25"): 10mm & 25mm
- Crayford Focuser
- Parabolic Primary Mirror
- 0.5mm Ultra-Thin Secondary Mirror Supports
- 9x50 Finderscope
- 3-Point tube locking system
- Wooden Alt-Azimuth Mount with Accessory Tray
- 77% more Light Gathering than 150mm

This used telescope has some rub marks on the one side of the lower tube. The optics are in perfect condition and are currently 100% collimated. It has been used very occasionally.

Featuring large apertures and easy functionality, Sky-Watcher's Classic Dobsonian is the ideal beginner scope. Often referred to as 'light buckets', Dobsonians provide users with the highest possible aperture for their money when compared to telescopes of a similar size.

With an 8-inch aperture, the Classic 200P Dobsonian is 816 times brighter than the human eye! This simple yet effective design is perfect for visual observation of faint objects, such as nebulae, star clusters, and galaxies.

R8 500:00 - Delivery for the buyer's cost.

Please contact: **Gerald de Beer**

Contact Number: **082 781 3888**

