## Astronomy Targets for the End of March

Some object in the sky around 8pm around the end of March (or a month either side). The darker, and less light pollution affected the night sky, the easier it will be to locate and observe these objects. Many objects are only readily visible from locations well away from city light pollution and on Moonless (or nearly Moonless nights.


Success in finding these objects requires the finder scope and main telescope optics to be co-aligned and both pointing to the same point. Follow the telescope set-up instruction provided with your telescope. For all targets, it is highly recommended that you start your search using a low-power eyepiece, probably around 25 mm .

| Southern Sky | What You Might See | Visibility from Within the City |
| :---: | :---: | :---: |
| Carina Nebula | Faint wispy patches of milky light | Difficult to detect |
| Southern Pleiades | Lots of bright stars | Readily visible |
| NGC 3532 Star Cluster | Lots of bright stars | Readily visible |
| NGC 5139 Omega Nebula | Fuzzy circular patch | Can be difficult to detect |
| NGC 4755 Jewel Box Cluster | Small group of bright small stars | Readily visible |
| NGC 10447 Tucanae Globular Cluster | Small fuzzy circular patch | Can be difficult to detect |
| NGC 2070 Tarantula Nebula | Small milky patch of faint light | Difficult to detect |
| NGC 5128 Centaurus A Galaxy | Faint roundish patch of light, darker band across middle | Difficult to detect |
| Messier 83 Galaxy in Hydra | Faint circular milky patch of light | Difficult to detect |
| North Western Sky |  |  |
| Messier 44 Beehive Cluster | Lots of bright stars | Readily visible |
| M 42 Orion Nebula | Large milky patch of light | Can be difficult to detect |
| NGC 2237 Rosette Nebula | Small group of bright stars, misty light halo surrounding | Only central stars visible |
| Messier 37 Open Cluster in Auriga | Lots of small bright stars | Readily visible |
| Western Sky |  |  |
| Messier 79 Globular Cluster | Small circular patch of light | Small. Can be difficult. |
| Stars: |  |  |
| Southern Sky |  |  |
| Alpha Centauri | Bright double stars close together | Readily detectable |
| Acrux | Bright double stars close together | Readily detectable |
| North Western Sky |  |  |
| Sirius | Very bright single star | Readily detectable |
| Betelgeuse | Bright orange star | Readily detectable |

## Carina Nebula

The Carina Nebula (catalogued as NGC 3372) is a large, complex area of bright and dark nebulosity in the constellation Carina, located in the Carina-Sagittarius Arm of the Milky Way galaxy. The nebula is approximately 8,500 light-years from Earth. More information:
https://en.wikipedia.org/wiki/Carina Nebula


Where to find: Close to the Southern Cross

## Southern Pleiades

The Southern Pleiades is an open cluster in the constellation Carina. Discovered by Abbe Lacaille in 1751 from South Africa, the cluster is easily visible to the unaided eye, and is one of the nearest star clusters, centred about 486 light-years away from Earth. More information:
https://en.wikipedia.org/wiki/IC 2602

IC 2602 - The Southern Pleiades - Open Cluster


Where to find: Close to the Southern Cross

## NGC 3532 - The Wishing Well Cluster

NGC 3532 commonly known as the Wishing Well Cluster, is an open cluster some 1,321 light years from Earth[2] in the constellation Carina. Its population of approximately 150 stars of 7th magnitude or fainter includes seven red giants[15] and seven white dwarfs. More Information:
https://en.wikipedia.org/wiki/NGC 3532


Where to find: Close to the Southern Cross

## NGC 5139 Omega Centaurus Nebula

Omega Centauri is a globular cluster in the constellation of Centaurus that was first identified as a non-stellar object by Edmond Halley in 1677. Located at a distance of 17,090 light-years it is the largest-known globular cluster in the Milky Way at a diameter of roughly 150 light-years.[10] It is estimated to contain approximately 10 million stars, and a total mass equivalent to 4 million solar masses,[11] making it the most massive-known globular cluster in the Milky Way. More information: https://en.wikipedia.org/wiki/Omega Centauri


Where to find: Close to the Southern Cross

## NGC 4755 Jewel Box Cluster

The Jewel Box is an open cluster in the constellation Crux, originally discovered by Nicolas Louis de Lacaille in 1751-1752. This cluster was later named the Jewel Box by John Herschel when he described its telescopic appearance as "...a superb piece of fancy jewellery". It is visible to the naked eye as a hazy star some $1.0^{\circ}$ southeast of the first-magnitude star Mimosa (Beta Crucis). More Information: https://en.wikipedia.org/wiki/Jewel Box (star cluster)


Where to find: Adjacent to the Southern Cross

## NGC 10447 Tucanae Globular Cluster

47 Tucanae or 47 Tuc is a globular cluster located in the constellation Tucana. It is about $15,000 \pm 33$ light years away from Earth, and 120 light years in diameter. 47 Tuc can be seen with the naked eye, with an apparent magnitude of 4.1. It appears about 44 arcminutes across including its far outreaches. Due to its far southern location, $18^{\circ}$ from the south celestial pole, it was not catalogued by European astronomers until the 1750s, when the cluster was first identified by Nicolas-Louis de Lacaille from South Africa.

47 Tucanae is the second brightest globular cluster after Omega Centauri, and telescopically reveals about ten thousand stars, many appearing within a small dense central core. The cluster may contain an intermediate-mass black hole. More Information:
https://en.wikipedia.org/wiki/47_Tucanae

47 Tucanae - NGC 104 - Globular Cluster


Where to find: Nearby the Small Magellanic Cloud and the southern triangle.

## NGC 2070 Tarantula Nebula

NGC 2070 is a large open star cluster forming the heart of the bright region in the centre-south-east of the Large Magellanic Cloud. The surrounding gaseous nebula is also known as the Tarantula Nebula. The light energy from the central stars that makes the nebula gas and dust visible. It is located about 157,000 light years from Earth. More information:
https://en.wikipedia.org/wiki/NGC 2070


Where to find: In a dark sky, look for the smudge of light that is the Large Magellanic Cloud near the kite-shape group of Volans stars.

## NGC 5128 Centaurus A Galaxy

NGC 5128 also known as Centaurus A, is a galaxy in the constellation of Centaurus. It was discovered in 1826 by Scottish astronomer James Dunlop from his home in Parramatta, in New South Wales, Australia. It is at a distance 11-13 million light-years from Earth. NGC 5128 is one of the closest radio galaxies to Earth. The galaxy is also the fifth-brightest in the sky, and is believed to be the result of an on-going merger of two galaxies. More information: https://en.wikipedia.org/wiki/Centaurus A


Where to find: Not far from the Southern Cross

## Messier 83 Galaxy in Hydra

Messier 83, also known as the Southern Pinwheel Galaxy and NGC 5236, is a barred spiral galaxy approximately 15 million light-years away from Earth in the constellation borders of Hydra and Centaurus. Nicolas-Louis de Lacaille discovered M83 on 23 February 1752 at the Cape of Good Hope. Charles Messier added it to his catalogue of nebulous objects (now known as the Messier Catalogue) in March 1781.

It is one of the closest and brightest barred spiral galaxies in the sky, and is visible with binoculars. It has a diameter at about 118,000 light-years. Its nickname of the Southern Pinwheel derives from its resemblance to the Pinwheel Galaxy (M101) in the northern sky. More information:
https://en.wikipedia.org/wiki/Messier 83


Where to find: Not far from Omega Centaurus and Centaurus A galaxy

## Messier 44 Beehive Cluster

The Beehive Cluster, also known as M44, is an open cluster in the constellation Cancer. One of the nearest open clusters to Earth, it contains a larger population of stars than other nearby bright open clusters holding around 1,000 stars. Under dark skies, the Beehive Cluster looks like a small nebulous object to the naked eye, and has been known since ancient times. Classical astronomer Ptolemy described it as a "nebulous mass in the breast of Cancer". It was among the first objects that Galileo studied with his telescope. More Information: https://en.wikipedia.org/wiki/Beehive Cluster


Where to find: Start by locating the curved loop of stars that form the head of Leo the lion. The bright star, Regulus, is a useful starting point. (In the southern hemisphere, the stars in the chart above will be upside down.)

## M 42 Orion Nebula

The Orion Nebula, also known as Messier 42, is a diffuse nebula situated in the Milky Way, being south of Orion's Belt in the constellation of Orion, and is known as the middle "star" in the "sword" of Orion. It is one of the brightest nebulae. It is $1,344 \pm 20$ light-years away from Earth and is the closest region of massive star formation. The M42 nebula is estimated to be 24 light-years across. More Information: https://en.wikipedia.org/wiki/Orion Nebula


Where to find: Start by finding the three bright stars in a row that form the Belt of Orion. The M42 nebula is the area surrounding the central "star" in the three stars that form the Sword of Orion.

## NGC 2237 Rosette Nebula

The Rosette Nebula is a gasseous nebulous region surrounding the open cluster of stars NGC 2244. The central stars are visible from within a city but the nebula requires a good dark rural sky to be visible in a telescope. More Information: https://en.wikipedia.org/wiki/Rosette Nebula


Where to find: Nearby the Orion Constellation. (In the southern hemisphere, the stars in the chart above will be upside down.)

## Messier 37 Open Cluster in Auriga

Messier 37, also known as the Salt and Pepper Cluster, is the brightest and richest open cluster in the constellation Auriga. More Information: https://en.wikipedia.org/wiki/Messier 37


Where to find: Easiest to start by finding the bright y-shaped cluster of stars that form the Taurus Constellation, and its bright orange-ish star Aldebaran. Follow the cavity on the v-shape away from Taurus and past the bright star Elnath.

## Messier 79 Globular Cluster

Messier 79, also known as NGC 1904, is a globular cluster in the southern constellation Lepus. It was discovered by Pierre Méchain in 1780 and is about 42,000 light-years away from Earth and 60,000 light years from the Galactic Center. More Information: https://en.wikipedia.org/wiki/Messier 79


Where to find: Start by locating the brightest stars in the western sky, Sirius. In the Southern Hemisphere, the chart above may be upside down. But follow the "front leg" of Sirius the dog towards the stars that form the constellation Lepus, nearby.

## Star - Alpha Centauri - The Pointers

Alpha Centauri is a triple star system in the southern constellation of Centaurus. It is the brightest of the two "Pointer Stars" that point towards the Southern Cross. It consists of three stars: Rigil Kentaurus (Alpha Centauri A), Toliman (B) and Proxima Centauri (C). Proxima Centauri is the closest star to the Sun at 4.2465 light-years.

Alpha Centauri A and B are Sun-like stars that together form the binary star system Alpha Centauri $A B$. To the naked eye, these two main components appear to be a single star with an apparent magnitude of -0.27 . It is the brightest star in the constellation and the third-brightest in the night sky, outshone by only Sirius and Canopus. More Information: v


Where to find: The brightest of the "Two Pointers" pointing toward the Southern Cross.

## Star - Acrux in the Southern Cross

Acrux is the brightest star in the southern constellation of Crux - Southern Cross. With a combined visual magnitude of +0.76 , it is the 13 th-brightest star in the night sky. It is the most southerly star of the asterism known as the Southern Cross and is the southernmost first-magnitude star, 2.3 degrees more southerly than Alpha Centauri. This system is located at a distance of 321 light-years from the Sun. More Information: https://en.wikipedia.org/wiki/Acrux


Where to Find: The brightest star at the end of the Southern Cross group.

## Star - Sirius in Canis Major Constellation

Sirius is the brightest star in the night sky. Its name is derived from the Greek word Seirios, meaning 'glowing' or 'scorching'. The star is designated $\alpha$ Canis Majoris, Latinized to Alpha Canis Majoris, and abbreviated $\alpha$ CMa or Alpha CMa. With a visual apparent magnitude of -1.46 , Sirius is almost twice as bright as Canopus, the next brightest star. Sirius is a binary star consisting of a main-sequence star of spectral type AO or A1, termed Sirius A, and a faint white dwarf companion of spectral type DA2, termed Sirius B. The distance between the two varies between 8.2 and 31.5 astronomical units as they orbit every 50 years. More Information: https://en.wikipedia.org/wiki/Sirius


Where to find: Look for the brightest star in the western sky and the constellation Canis Major.

## Star - Betelgeuse in the Orion Constellation

Betelgeuse is a red supergiant star in the constellation of Orion. It is usually the tenth-brightest star in the night sky and, after Rigel, the second-brightest in its constellation. It is a distinctly reddish, semiregular variable star whose apparent magnitude, varying between +0.0 and +1.6 , has the widest range displayed by any first-magnitude star. At near-infrared wavelengths, Betelgeuse is the brightest star in the night sky. Betelgeuse is currently unstable and varies significantly in brightness. More Information: https://en.wikipedia.org/wiki/Betelgeuse


Where to Find: Look for the orange-tinged star near the Orion belt stars.

