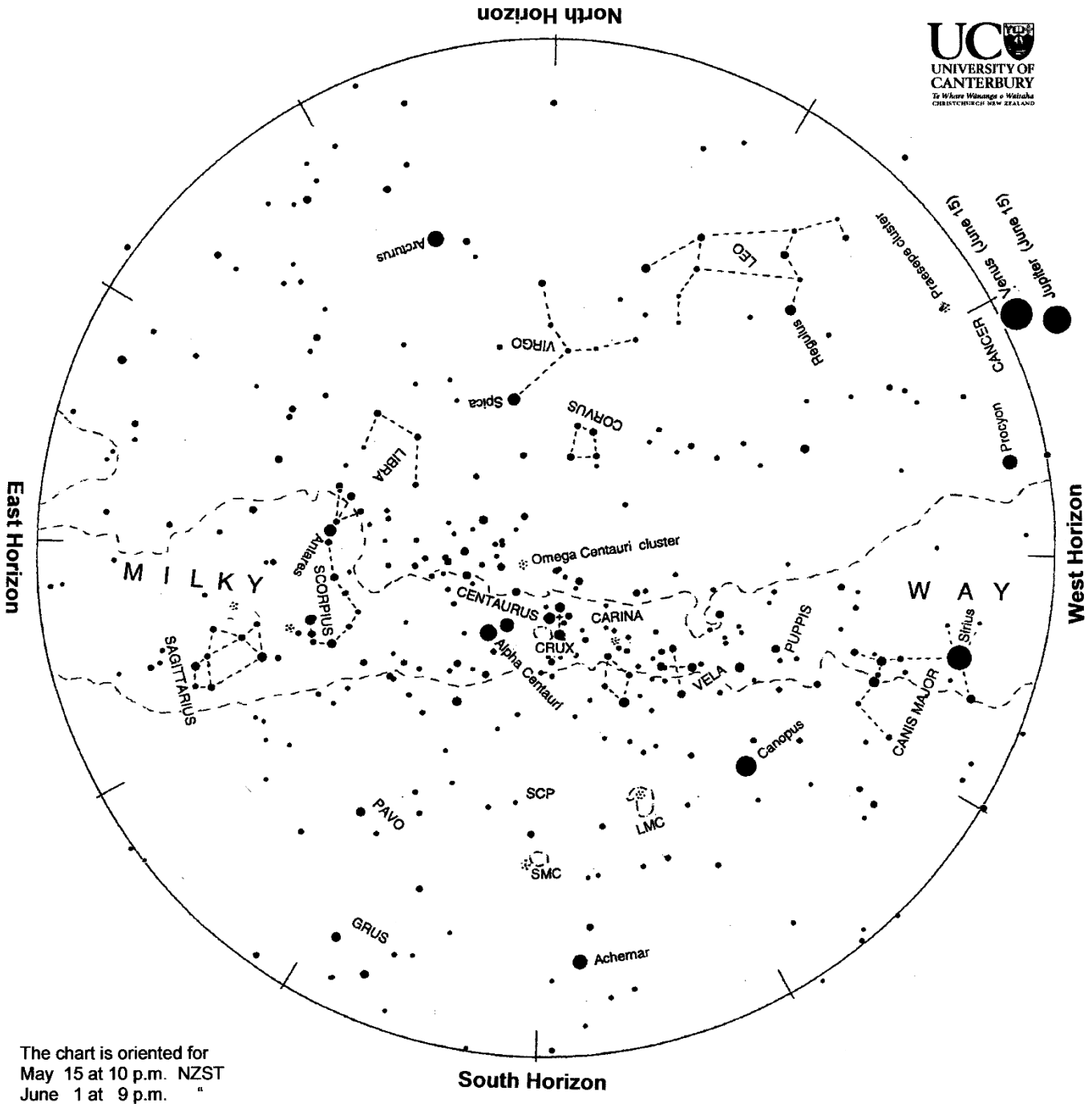


The chart is oriented for
May 15 at 10 p.m. NZST
June 1 at 9 p.m. "
June 15 at 8 p.m. "
July 1 at 7 p.m. "

Evening sky in June 2026

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole, SCP on the chart. Stars rise in the east and set in the west, just like the sun. The sky makes a small extra westward shift each night as we orbit the sun.

Jupiter and Venus are the 'evening stars', appearing in the northwest soon after sunset. Mercury is below them (but not on the chart.) Sirius, the brightest true star, appears in the west at dusk and sets in the southwest twinkling like a diamond. Canopus is in the southwest, swinging down to the south skyline later, also twinkling colourfully. South of overhead are the Pointers, Alpha and Beta Centauri, with the Southern Cross, Crux, to their right. High in the eastern sky is Scorpius, upside down, with orange Antares marking the scorpion's heart. Below Scorpius's sting is the teapot pattern of Sagittarius. Orange Arcturus, low in the north, often twinkles red and green.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and words added by Alan Gilmore, University of Canterbury Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

The Night Sky in June 2026

Venus and **Jupiter** are the 'evening stars' appearing in the northwest soon after sunset. Silver Venus is below golden Jupiter at first, setting soon after 7 pm while Jupiter sets around 8. Venus moves higher in the sky night-to-night while Jupiter slips lower. Around the 10th they will be just 1.6°, three full-moon widths, apart, setting around 7:40. On the 11th they will be level. After that Venus moves higher than Jupiter. The Moon will be near Jupiter on the 17th and above Venus on the 18th.

There is a chance of seeing Venus by eye in the daytime on the afternoon of June 18. Around 3:30, Venus will be due north and about 4°, eight full-moon widths, left of the thin crescent Moon, low in the north sky.

At the beginning of the month **Mercury** begins an evening sky appearance. A line through Jupiter and Venus finds Mercury near the horizon. It is fainter than Jupiter but the brightest 'star' in that part of the sky. It sets an hour after the Sun at the beginning of the month and around 6:40 mid-month, so isn't on the chart. Mercury moves up the sky night-to-night but fades as more of its sunlit side is turned away from us. It is left of Jupiter and a bit lower in the sky till the end of the month.

Sirius, the brightest true star, appears in the west as the sky darkens. It sets in the southwest around 9 pm, mid-month, twinkling like a diamond. **Canopus**, the second brightest true star, is in the southwest. Canopus is a 'circumpolar' star. It circles the South Celestial Pole (SCP on the chart) clockwise but never sets from Aotearoa NZ except for the most northern places. Around 1 a.m. it will be near the southern horizon, twinkling colourfully.

Arcturus is the brightest star in the north sky. Its orange light is often split into red and green when it is low in the sky. It sets in the northwest in the morning hours. Arcturus is relatively close at 37 light-years* from the Sun. It appears bright because it is 170 times brighter than the Sun.

Crux, the Southern Cross, is south of the zenith. Beside it, and brighter, are Beta and **Alpha Centauri,** often called 'The Pointers' because they point at Crux. Alpha Centauri is the closest naked-eye star, 4.3 light-years away. Beta Centauri and three of the four brightest stars in Crux are hot, extremely bright blue-giant stars hundreds of light years away.

Orange **Antares**, high in the eastern sky, marks the body of Scorpius the scorpion. It is a red giant star: 600 light years away and 19 000 times brighter than the sun. The scorpion's tail, upside down, curves off to the right. Below Scorpius is **Sagittarius**, its brighter stars making 'the teapot'.

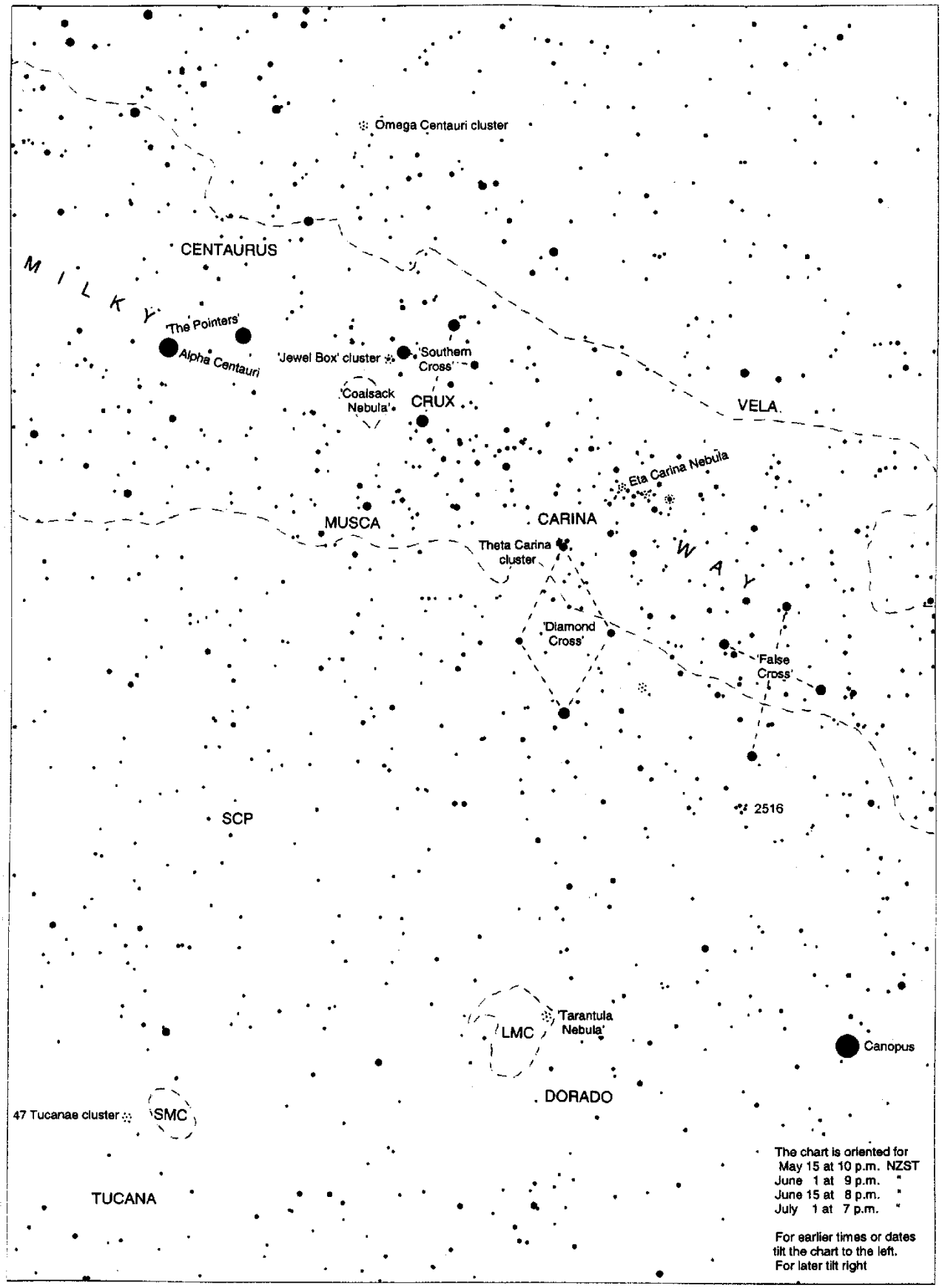
The **Milky Way** is brightest and broadest in the southeast toward Scorpius and Sagittarius. It remains bright but narrower through Crux and Carina then fades in the western sky. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 27 000 light years away, is in Sagittarius. A scan along the Milky Way with binoculars will find many clusters of stars and some glowing gas clouds. Relatively nearby dark clouds of dust and gas look like holes and slots in the Milky Way. The dust, more like smoke, mostly comes from red-giant stars like Antares. These clouds eventually coalesce into new stars.

The Clouds of Magellan, **LMC** and **SMC**, in the lower southern sky, are luminous patches easily seen by eye in a dark sky. They are two small galaxies about 160 000 and 200 000 light years away. They are much smaller than our galaxy but still contain billions of stars.

Saturn rises due east around 2:30 a.m. at the beginning of the month and around 1 a.m. at the end. It is a medium-bright cream-coloured 'star' in an empty region of sky. By dawn it is midway up the north sky. Mars, fainter than Saturn and orange red, rises around 5 a.m. through the month.

*A **light-year** (**l.y**.) is the distance that light travels in one year: nearly 10 million million km or 10^13 km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes sunlight four years to reach the nearest star, Alpha Centauri.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz
260504



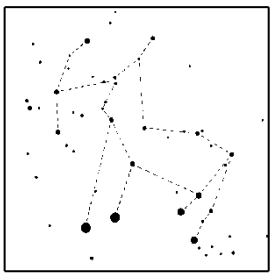
Southern Evening Sky in May-June

The chart shows the southern sky. Interesting star clusters and nebulae are indicated with asterisks. They are described on the other side of this page.

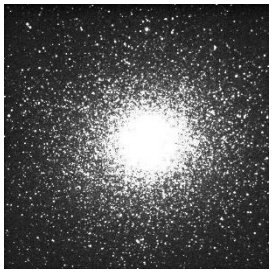
Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo, 7945, New Zealand.
www.canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Interesting Objects in the Winter Southern Sky



Centaurus, with the bright 'Pointers'**,** and **Crux**, the Southern Cross are south of overhead, the tightest grouping of bright stars in the whole sky. Originally Crux was the hind legs of the Centaur, the horse-man of Greek mythology. The complete Centaur, with bow, is outlined at left. It was only in the 17th Century that Crux was split off as a separate constellation. The slow wobble of Earth's axis allowed this part of the sky to be seen from more northerly places in ancient times. The fainter Pointer and the three bluish-white stars of the Crux are all super-bright stars hundreds of light years away. Alpha Centauri is just 4.3 light years* away and the reddish top star of Crux is 90 light years from us.



Omega Centauri, nearly overhead, is a globular cluster, a ball-shaped cluster of millions of stars. Its total mass is six million times the sun's mass. It is 17 000 light years away and 200 light years across. Globular clusters are very ancient, around 10 billion years old, twice the age of the sun. Omega Centauri is the biggest of the hundred-odd globulars randomly orbiting our galaxy. It may originally have been the core of a small galaxy that collided with the Milky Way and was stripped of its outer stars. **47 Tucanae**, near the SMC, is a similar but smaller cluster about 16 000 light years away.

Coalsack nebula, left of Crux, looks like a hole in the Milky Way. It is a cloud of dust and gas 600 light years away, dimming the distant stars in the Milky Way. Many 'dark nebulae' can be seen along the Milky Way, appearing as slots and holes. These clouds eventually form new stars.

The Jewel Box is a compact cluster of young bright stars about 7000 light years away. The cluster formed about 16 million years ago. To the eye it looks like a faint star close by the second-brightest star in Crux. A telescope is needed to see it well.

Eta Carinae nebula, a luminous spot in the Milky Way to the right of Crux and lower, is a glowing gas cloud about 8000 light years from us. The thin gas glows in the ultra-violet light of nearby hot young stars.

The golden star in the cloud, visible in binoculars, is Eta [Greek 'e'] Carinae. It is estimated to be to be 80 times heavier than the sun. It is four million times brighter than the sun but is dimmed by dust clouds around it. It is expected to explode as a supernova in the next few thousand years. There are many star clusters in this part of the sky.

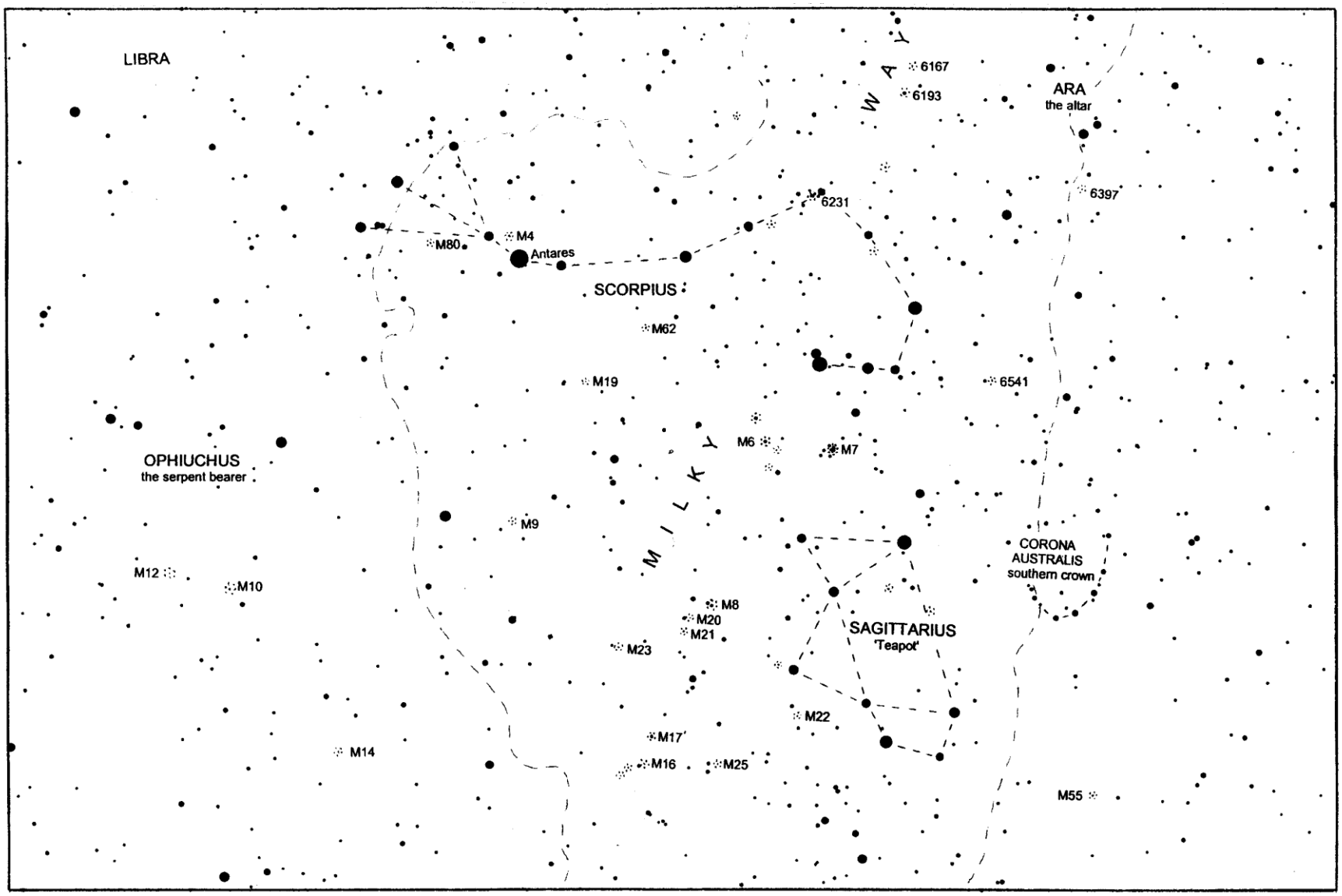
Large & Small Clouds of Magellan (LMC & SMC) appear as two luminous clouds, easily seen by eye in a dark sky. They are galaxies like the Milky Way but much smaller. Each is made of billions of stars. The LMC contains many clusters of young bright stars seen as spots of light in binoculars. The LMC is 160 000 l.y away; the SMC 200 000 l.y. Both are very close by for galaxies.

Tarantula nebula is a glowing gas cloud in the LMC. The gas glows in the ultra-violet light from a cluster of very hot stars at the centre of the nebula. The cloud is about 800 light years across. It is easily seen in binoculars and can be seen by eye on moonless nights.

This nebula is one of the brightest known. If it was as close as the Orion Nebula then it would be as bright as the full moon.

*A **light year** (**l.y**.)is the distance that light travels in one year: nearly 10 million million km, or 10^13 km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.

Text and photos by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz
230504



Eastern Evening Sky in Early Winter

The chart shows the eastern sky at nightfall. The Milky Way is here bright and broad as we look toward the centre of the galaxy. Many star clusters and a few nebulae are seen, some obvious to the naked eye. Those visible in binoculars or small telescopes are indicated with asterisks. They are described on the other side of this page.

Chart produced by Guide 8 software; www.projectpluto.com. Labels added by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

UC UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Interesting Objects in the Eastern Sky in Early Winter

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Antares is the brightest star in the region. It is orange coloured; being a 'red giant' star. (The 'red' of red giants is usually more an orange tint.) It is 600 light years* away, 19 000 times brighter than the sun, and big enough to fill Earth's orbit. Its mass or weight is about 20 times that of the sun, so most of the star is very thin gas spread around a hot dense core. Red giants are the last stage in the evolution of stars. The dense core of the star has shrunk and heated. The outer regions of the star have expanded to a very spread-out gas. The core is wringing the last of the thermo-nuclear energy out of elements like helium, carbon, oxygen and neon. In about two million years the core of Antares will run out of energy and collapse, triggering a spectacular supernova explosion. (The sun will become a red-giant in about seven billion years time but it ends up as a white dwarf star, not a supernova.)

Antares marks the heart of Scorpius. In the evening at this time of year the Scorpion is on its back with its tail on the right, curving upward then turning down and curling clockwise. The sting is the horizontal line of bright stars pointing toward Antares. In Maori star lore the tail's hook is the 'fish hook of Maui'.
By midnight the scorpion's tail is directly overhead.

At the right-angle bend in the tail is a large and bright cluster of stars, NGC **6231,** looking like a small comet. It is around 6000 l.y. away. Its brightest stars are 60 000 times brighter than the sun. The cluster is about 8 light years across, similar in size to the Pleiades/Matariki cluster in our summer sky. Were it as close at the Pleiades (440 l.y.) then its brightest stars would be as bright as Sirius. Below the Scorpion's sting is **M7** a cluster obvious to the eye and nicely seen in binoculars. M7 is about 800 l.y. away and around 260 million years old. (The older a star cluster, the fewer bright stars it has.)

Below M7 and fainter is **M6**, the 'butterfly cluster'. M6 is around 1300 l.y. away and is half the age of M7. Other clusters worth a look in binoculars are **M21**, **M23**, NGC **6167**, and NGC **6193**. The 'M' objects were listed by the 18th Century French astronomer Charles Messier. He hunted comets, so made a catalogue of fuzzy objects that could be mistaken for comets. The NGC (New General Catalogue) objects shown are bright to enough to have been seen by Messier but are too far south to be seen from Paris.

Left of the Sagittarius 'Teapot' is the glowing gas cloud **M8**, the 'Lagoon Nebula'. It is a star-forming region where gas and dust have recently gathered into new stars. ('Recently' = the past million years or so.) Ultraviolet light from one particularly hot star is lighting up the leftover gas, making it glow. On colour photos it appears pink due to hydrogen atoms fluorescing in the UV light. Below M8 is **M20**, the Trifid Nebula, small glowing patch in binoculars, also a pink hydrogen region in photos. Right alongside it is a blue reflection nebula where starlight is scattered by dust. Other nearby nebulae (gas and dust clouds) are **M16** and **M17.**

Globular clusters, spherical clusters of ancient stars, are found throughout the region. The brightest is **M4** by Antares. It is also one of the closest at 10 000 l.y. away. In binoculars and small telescopes 'globs' appear as round fuzzy spots. Others marked on the chart are **M9**, **M10**, **M12**, **M14**, **M19**, **M22**, **M55**, **M54**, **M62, M80** and NGC **6541**. The concentration of globular clusters in this area was an early clue that the centre of the galaxy lay in this direction.

This part of the Milky Way is broad and bright as we are looking to the centre of the galaxy. The actual centre, 27 000 light years away, is hidden from our view by intervening dust clouds. The nearer clouds make gaps and slots along the Milky Way. The hub of the galaxy is a great sphere of stars, called the 'central bulge'. Some of the central bulge is glimpsed in gaps between the dust clouds. At the very centre lies a black hole four million times the sun's mass but only the size of our solar system. Infra-red telescopes, peering through the dust, show stars orbiting the invisible black hole at high speed. By plotting the movements of these stars over the past two decades, astronomers have been able to deduce the mass of the central black hole and its distance. All big galaxies have a massive black hole at their centre.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz
200505