

The October night sky now sees the autumn constellations prominent early evening and heralds some familiar winter constellations rising by late evening and contains many fine objects to view with both binocular and small telescopes. This month Mars is well placed in UK skies in the constellation of Pisces in our eastern evening sky. Opposition occurs on October 13th but Mars is centre stage throughout the autumn. This perihelic opposition gives us the best view with Mars closest to Earth on October 6th just 62 million km (38 million miles) between the two planets; Mars telescopically reaches an apparent diameter of around 22.6 arc sec the largest apparent size for some 15 years (Sept 2035). At the end of October it is worth noting just what difference the change (clocks go back 1 hour to GMT (UT)) on Sunday 25th October makes on the night skies at the end of the month.

Low in the southwest early evening both Jupiter and Saturn are visible and are located just above the `handle of the Teapot asterism` in the constellation of Sagittarius. Observe these two planets early in the month, both are heading into evening twilight once the clocks change.

The constellations of Cygnus, Lyra and Aquila can be seen slipping westward early evening; these are noted for the bright stars of Deneb, Vega and Altair respectively forming the `Summer Triangle` asterism. Vega high overhead is one of the first stars to spot as twilight ends.

In the west early evening locate the bright orange coloured star Arcturus in the constellation of Bootes (The herdsman), the constellation resembles a classic `Kite shape` with two stars straddling Arcturus and diamond shaped pattern of stars forming the main part of the `kite`.

The Milky Way stretches from Perseus rising in the east, through the `W` shaped constellation of Cassiopeia high in the north east and along the cross shaped constellation of Cygnus. This faint band of stars best seen on dark moonless evenings continues down through the obscure constellation of Scutum and on in the direction of the centre of the Milky Way (not visible from the UK) low on the horizon. Over head the particularly rich star fields running through Cygnus show the spiral arm of our galaxy and some of the obscuring dust in the form of the dark banding of the Cygnus Rift – Binoculars show these star fields well. Cygnus also contains a beautiful yellow / blue double star, Albireo (β Cygnii) visible in binoculars / small telescopes [60mm OG, X 25 magnification]

Auriga has the bright star Capella and can be seen low in the north east early evening, Capella is circumpolar from UK latitudes and so is always visible. In the east the constellation of Pegasus, noted for its `Square` shape and the adjacent constellation of Andromeda noted for The Andromeda Galaxy (M31), visible to the unaided eye as a faint fuzzy patch on moonless evening can now be seen mid evening. Also in Andromeda the blue /orange coloured double star Almach (γ Andromedae) visible telescopically [60mm OG, X 35 magnification]

The Square of Pegasus is a useful sign post constellation and also is a good test for sky conditions, (how many faint stars you see within the square indicates just how good your seeing conditions are). Follow the two end stars (Scheat and Markab) down to find the star Fomalhaut in the constellation of Pisces Australis (The Southern Fishes), visible very low on the southern horizon late evening at the end of the month. Another fine globular cluster is M15 in the constellation, best seen telescopically.

In the North West, Ursa Major, The Plough (asterism) or The Great Bear is seen low with its handle or tail parallel to the horizon mid evening. In a dark sky Ursa Major is strikingly prominent, the constellation extends over a large area with the fore and hind legs of the Great Bear low in the north. Early evening in October the Bear almost appears to be walking across the northern horizon.

Use the right hand pair of stars Dubhe and Merak (The pointers) to find the faint pole star Polaris and hence the position of North. Follow the curve of Ursa Major's tail to the orange star Arcturus in the constellation Bootes (The Herdsman) low in the west. To the east of Bootes find the `horse shoe` shaped constellation of Corona Borealis (Northern Crown) and the `Keystone asterism` in the constellation of Hercules also noted for the globular cluster M13 containing around 750,000 stars, a good view with modest telescopes. Also in the constellation of Hercules is M92 another striking telescopic globular cluster.

Uranus in the constellation of Aries and reaches opposition on October 31st and Neptune in the constellation of Aquarius are now both evening objects that can be located using binoculars and a suitable finder chart. A good starting point is to locate the Square of Pegasus then star hop using the finder chart. Uranus and Neptune are notable due to the blue and green colour, Telescopes show a tiny disc rather than the sharp pinpoints of stars in the field of view.

In the east mid evening the seven sisters' (Pleiades, M45) star cluster and constellation Taurus heralds the autumn skies. The Hyades star cluster makes the characteristic 'V' shaped asterism in the constellation of Taurus and noted for the bright, red foreground star Aldebaren , which now rises by early evening.

The recent close approach of parent comet Giacobini-Zinner 21P may give rise to increased activity of the Draconid Meteor shower, peak around October 8th in favourable moonless conditions [20 to 50 per hour?]

Comet C/2020 M3 ATLAS `may` become visible to modest telescopes and binocular observation over the autumn, currently too far south to see from UK skies, the comet moves northward into our evening skies by late October. The comet currently 10.5m magnitude is brightening and may reach 8m around closest approach in mid November , moving up through the right hand side of Orion , visible as a faint `fuzzy` coma.

Harvest Moon occurs on October 1st, watch the moon illusion at moonrise, need a clear eastern horizon (moon rise occurs just after sun set) .Position yourself with a foreground object, a distant tree etc in view of the rising moon to see how large the moon appears. This is an illusion; the Moon remains the same apparent size. With Full Moon occurring early in the month , there is a second Full Moon in October ; two full moons in the same calendar month are rare and gives rise to the second being a `Blue Moon` , nothing to do with colour of the Moon , but the phrase `once in a Blue Moon` suggest something that happens occasionally.

Planets in October 2020

Mercury is poorly placed in October greatest elongation October 1st low in evening twilight- not visible.

Venus shines brightly in dawn twilight; telescopes show an increasing phase during the month reaching 80%.

Mars shines brilliantly in evening skies (-2.6m) and reaches opposition in mid October 2020 .

Jupiter is visible low in evening twilight, in the constellation of Sagittarius setting by mid evening.

Saturn is an early evening twilight object in the constellation of Sagittarius setting by mid evening

Uranus is visible mid evening in the constellation of Aries. (Binocular / Telescope required). See notes.

Neptune is visible early evening (Binocular / Telescope required). Located in the constellation of Aquarius is positioned low in the south east by mid evening. (See notes)

Moons phases in October 2020

New Moon	Oct 16 th	Moonless, best time for deep sky observing and Comets
First Quarter	Oct 23 rd	Best days to see shadow details in lunar craters (early evening)
Full Moon	Oct 1 st / Oct 31 st	Best days to see bright ray craters like Copernicus / Tycho.
Last Quarter	Oct 10 th	Moon visible in daytime skies. Do not look directly at the Sun.

Note - Clocks change to GMT (i.e. go back 1 hour), Sunday October 25th 2020

GMT is the same as UT (Universal Time, Greenwich Mean Time beginning at midnight)

Meteor shower s

Orionids range October 16th to 30th, maxima 21st to 23rd – Fast meteors with persistent trails, very favourable

Taurids range October 20th to November 30th – Maxima Nov 5th /12th slow meteors, some bright events.
Unfavourable –moonlight interferes.

Draconids maxima October 9th, range Oct 6th to Oct 10th, unfavourable (increased activity?)

Camelopardalids range Oct 5th /6th. Just 5 /hour. (Unfavourable)

The highlights of the month .

Mars at opposition – Best views telescopically

October skies, Milky Way visible high over head on moonless evenings in darker skies.

Uranus and Neptune, binocular objects to find using suitable finder charts (see notes)

M31 the Andromeda Galaxy is visible on moonless evenings, best seen in binoculars, low magnification.

Double cluster, on the Perseus /Cassiopeia border, nice pair of star clusters, binocular, medium magnification.

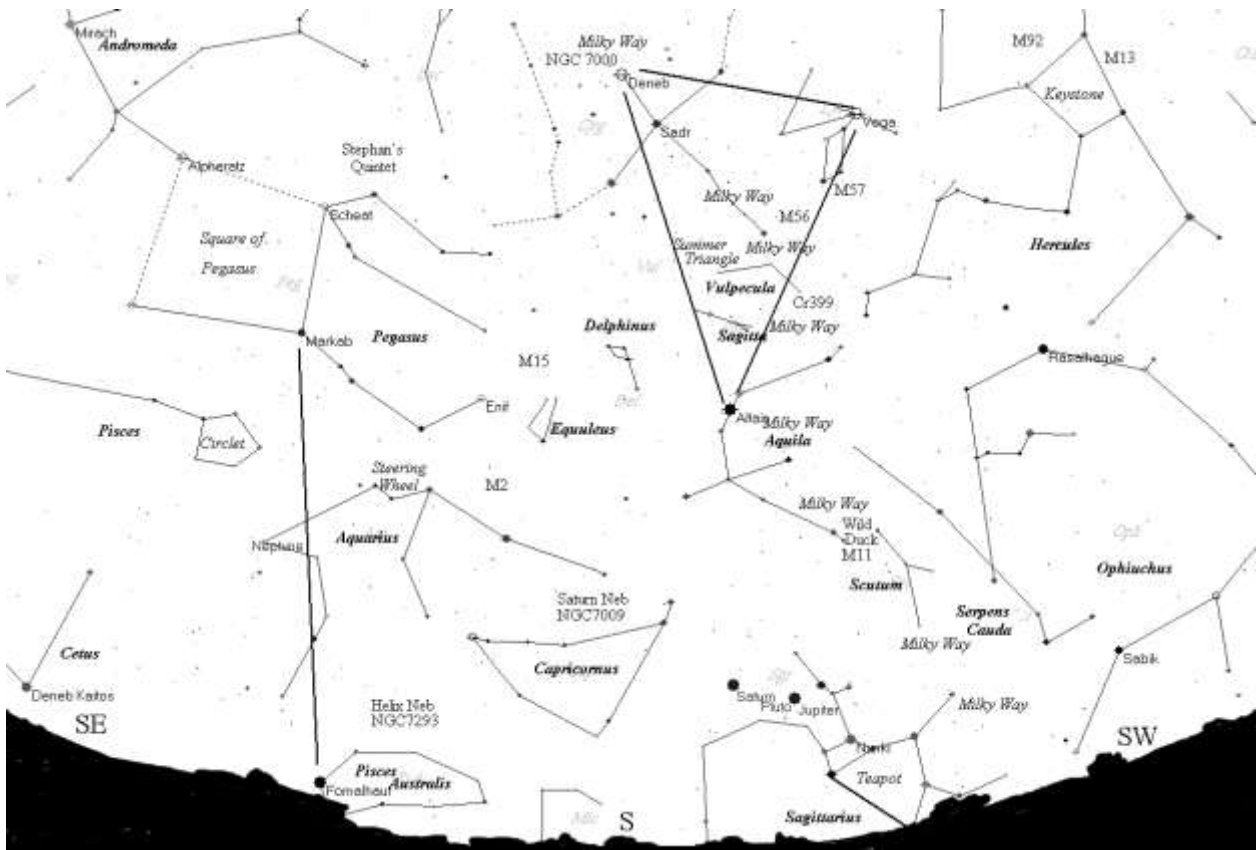
Albireo, the star Beta Cygnii is a nice blue/ yellow double star seen telescopically, moderate magnification.

Waxing crescent Moon visibility . **Caution. Do NOT look at the Sun directly with or without optical aid.**

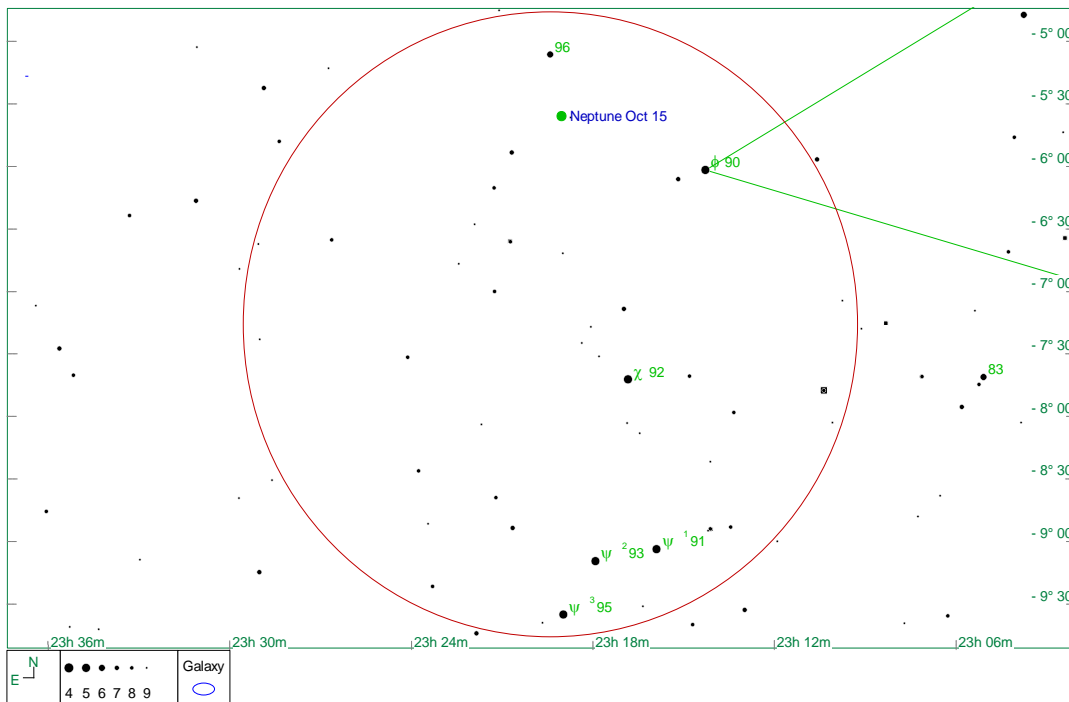
A thin 1.23% waxing crescent moon is visible **from 15 minutes after sunset** on Oct 17th to moonset at 6:43 pm BST.

Note the dimly lit part visible by Earthshine is readily seen with binoculars or small telescope October 18th onwards in evening twilight **only look for the crescent Moon after the sun has completely set.**

Sky looking south 10pm mid October 2020

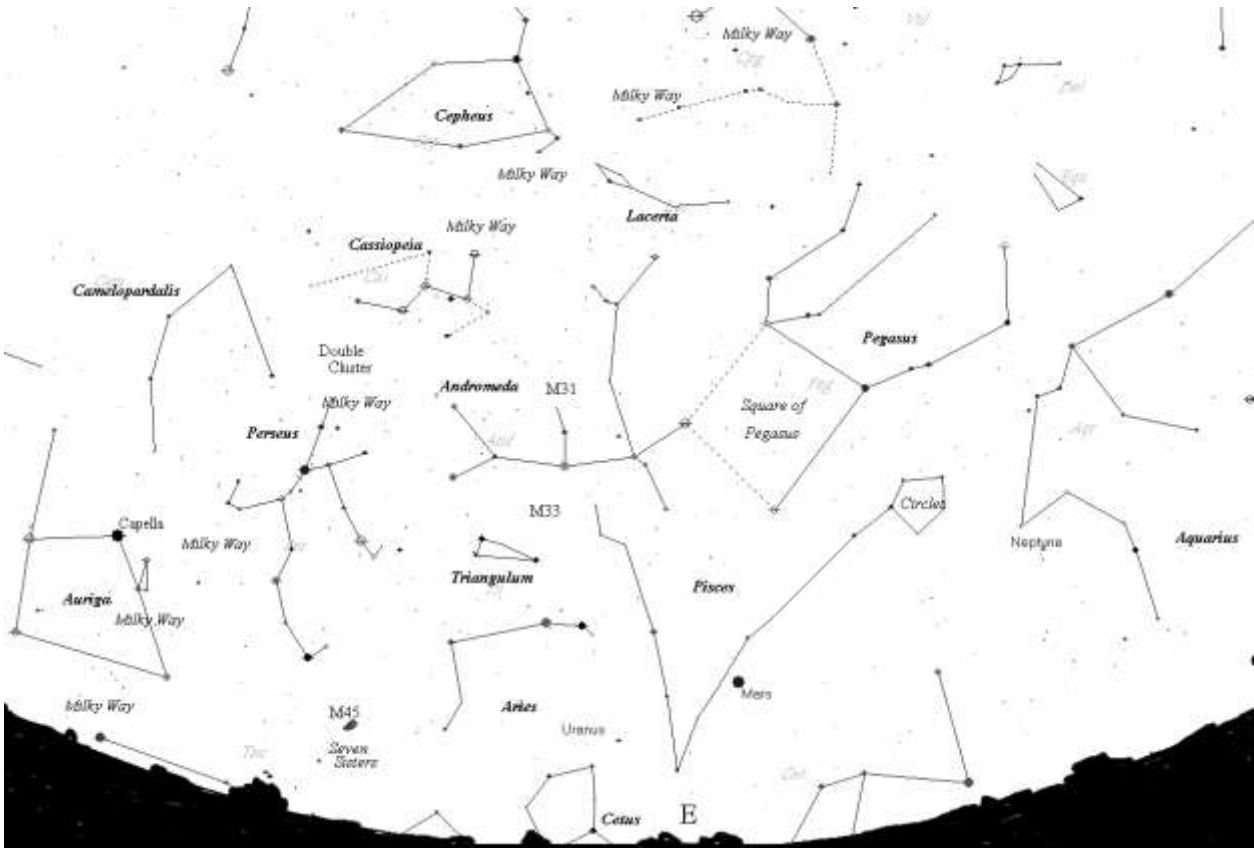


Follow the stars Scheat and Merkab in the square of Pegasus down to find the star Fomalhaut in the constellation of the `Southern Fishes` Pisces Australis. Planet Neptune is located close to phi Aquarii in the constellation of Aquarius - see LAS finder chart below. Circle represents a field of view of a pair of 10 x50 binoculars / finder scope.



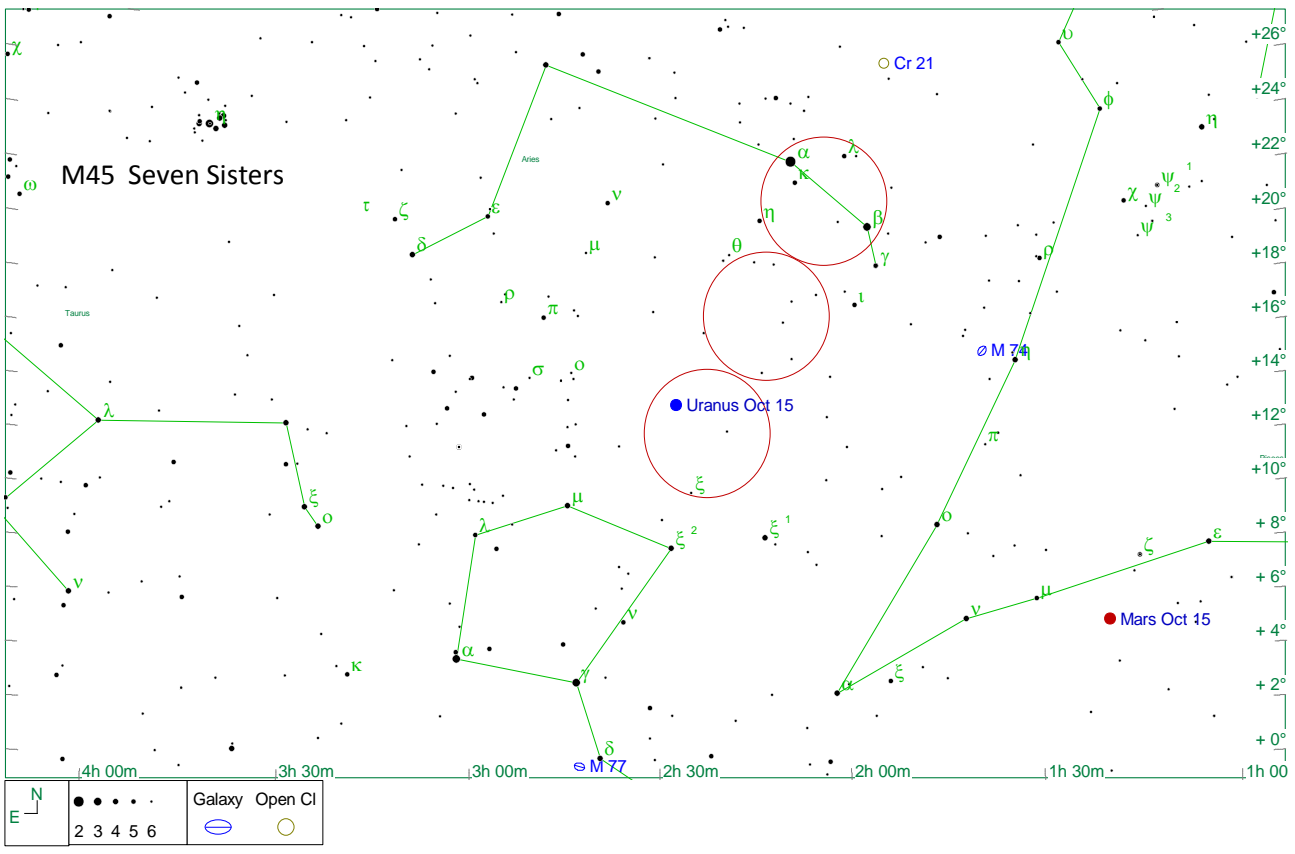
More detailed sky notes and LAS Newsletters, Finder charts are available to LAS members via the Members` page on the LAS Website www.lutonastrolink.org.uk

Sky looking east at 10 pm mid October 2020

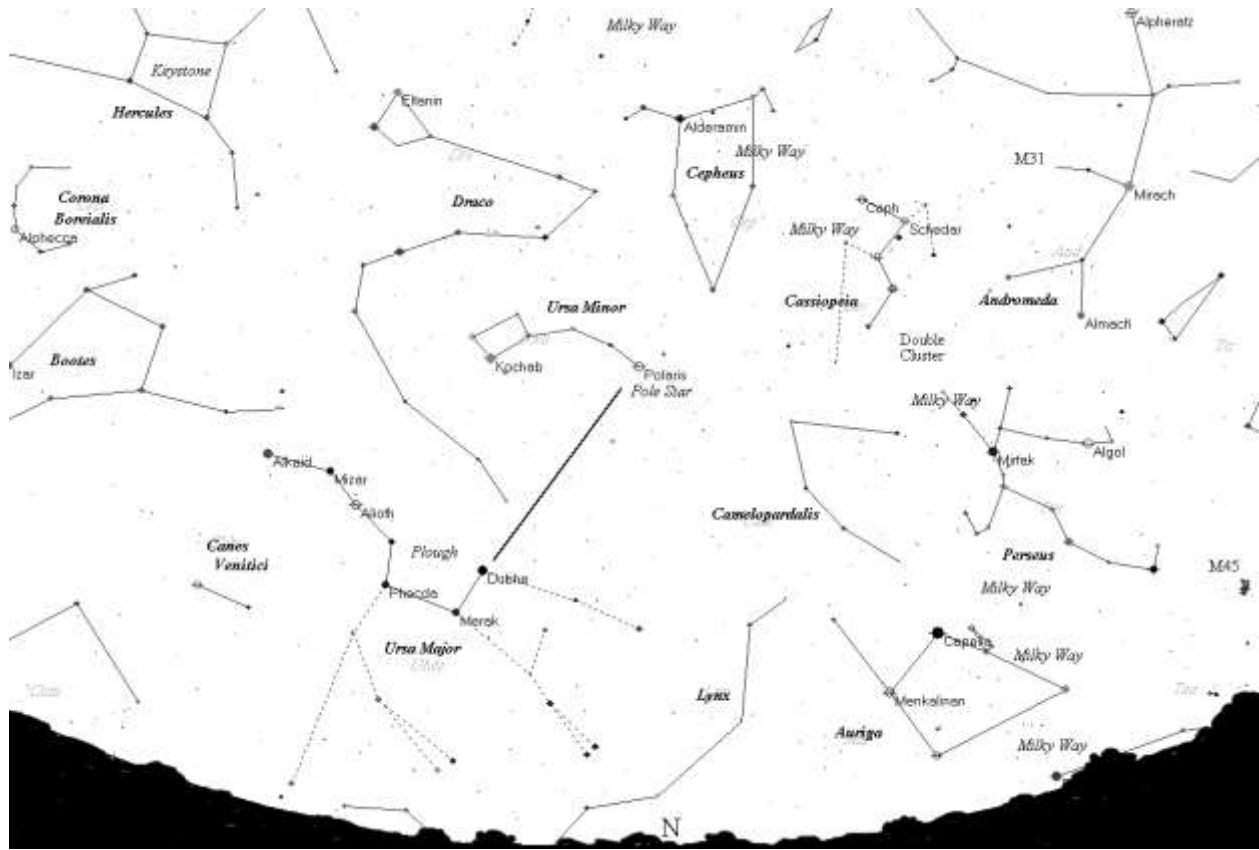


M45 (Seven Sister's) star cluster a familiar sight in autumn skies

Use the two brightest stars in the constellation of Aries and drop 2 binocular fields to locate the 'blue' coloured star that in fact is the planet Uranus. Circles show field of view of 10x50 binoculars

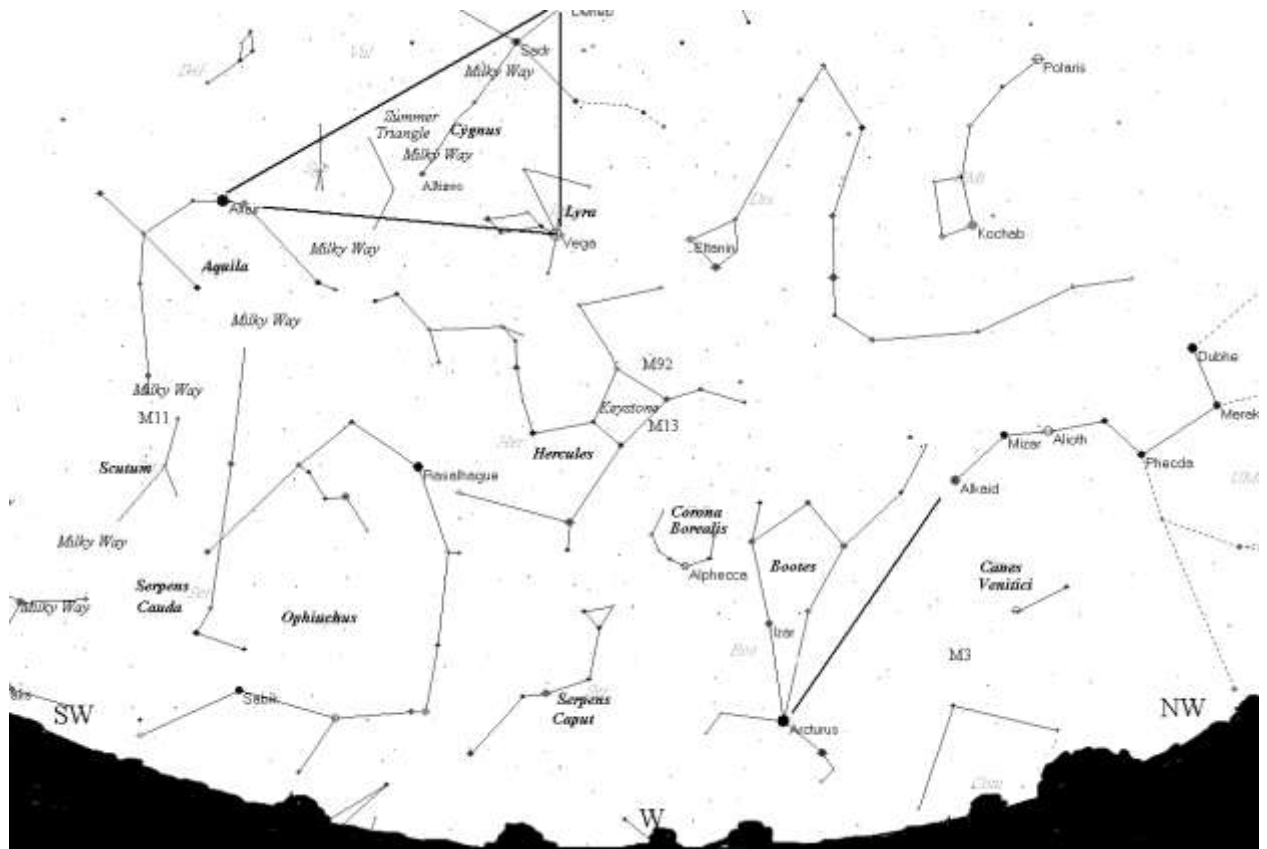


Sky looking north at 10pm mid October 2020



Follow the pointer's Dubhe and Merak to find the polestar Polaris

Sky looking west 10 pm mid October 2020



The familiar summer constellations head towards the evening twilight. Arcturus is easily spotted due to its orange colour , follow the curve of the Plough (handle) down to locate Arcturus.

More detailed finder charts and newsletters are available to LAS members on the member's page