

The September night sky perhaps offers some of the best observing conditions. With the autumn equinox for northern hemisphere observers on September 23rd the mix of summer and autumn contains many fine objects to view with both binocular and small telescopes. The constellations of Cygnus, Lyra and Aquila can be seen high overhead and into the south; these are noted for the bright stars of Deneb, Vega and Altair respectively forming the `Summer Triangle` asterism.

The Milky Way stretches from Perseus rising in the north east, through the `W` shaped constellation of Cassiopeia in the north east, along the cross shaped constellation of Cygnus. This faint band of stars best seen on moonless evenings from a dark site 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.

Look early evening low in the southern aspect towards the constellations of Sagittarius and Ophiuchus. To the west of the `spout` of the Teapot Asterism the star fields of the Milky Way rise upward (best seen with binoculars) The bright star above the spout of the teapot is in fact the ringed planet Jupiter in the constellation of Ophiuchus. Jupiter is noted telescopically for the four Galilean moons and the planets characteristic equatorial cloud belts.

Look toward the handle of the `Teapot` asterism in Sagittarius to find a yellow coloured star, this is the planet Saturn, the gem of the solar system. Telescopes show the planets ring system which currently is wide open. Moderate magnification shows the dark line within the rings known as Cassini's division as well subtle pastel shades of the equatorial belts on the planets disk. Post opposition (July 2019) look closely at the ring adjacent to the planet to see the shadow of the planet cast onto the rings, i.e. a dark feature on one side of the disk.

The faint band of light of the Milky Way is seen stretching high overhead and low into the south. Use binoculars to reveal the rich star clouds that show a myriad of stars and some of the dark rifts, regions of the Milky Way spiral arm obscured by dust clouds on clear moonless evenings. 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. 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.

In the North West Ursa Major, The Plough or The Great Bear is seen low with its handle or tail parallel to the horizon late evening 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.

Neptune reaches opposition on September 10th in the constellation of Aquarius and Uranus in the constellation of Aries both visible by late evening and are objects that can be located using binoculars and a suitable finder chart. A good starting point is to locate the Square of Pegasus and the ring of stars below the Square known as the `Circlet` in the constellation of Pisces (The Fishes), 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 pinpoint of stars in the field of view.

In the east mid evening the seven sisters' (Pleiades, M45) star cluster and constellation Taurus heralds the forthcoming autumn skies of a new observing season.

Planets in September 2019

Mercury is at superior conjunction by Sept 4th and returns to evening twilight in October
Venus returns to evening twilight, shining brightly low in the west just after sunset, Better in autumn 2019.
Mars is currently in conjunction returning to morning twilight later in September.

Jupiter is now lost in early evening twilight –poorly placed.

Saturn visible low in the south west early evening, rings is wide open in the constellation of Sagittarius.

Uranus rises late evening in the constellation of Aries. (Binocular / Telescope required) (See notes)

Neptune in Aquarius close to the star phi Aquarii rises early evening (Binocular / Telescope required). The constellation of Aquarius is positioned low in the south east by mid evening Neptune is at opposition on September 10th (See notes)

Moons phases in September 2019

New Moon	Sept 28 th	Moonless, best time for deep sky observing and Comets .
First Quarter	Sept 6 th	Best days to see shadow details in lunar craters (early evening)
Full Moon	Sept 14 th	Best days to see bright ray craters like Copernicus / Tycho.
Last Quarter	Sept 23 rd	Moon visible in daytime skies. Do not look directly at the Sun.

Autumnal Equinox occurs on September 23rd 07:51 BST, Day and night being equal length

Meteor shower's

Piscids, range September to October, maxima September 9th and 21st – rather low rates.(<5 / hour)
Epsilon Perseid also peaks on September 9th rather low rates, but unfavourable.

The highlights of the month 2019

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

Look at the Moon illusion effect at moonrise around Full Moon i.e. the Harvest Moon rising

Uranus and Neptune, binocular objects to find using suitable finder charts

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

Double cluster, on the Perseus /Cassiopeia border, nice pair of star clusters

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

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

September 1st a 8.13% waxing crescent Moon sets at 21:15 BST .Only look for the crescent Moon after the sun has completely set.

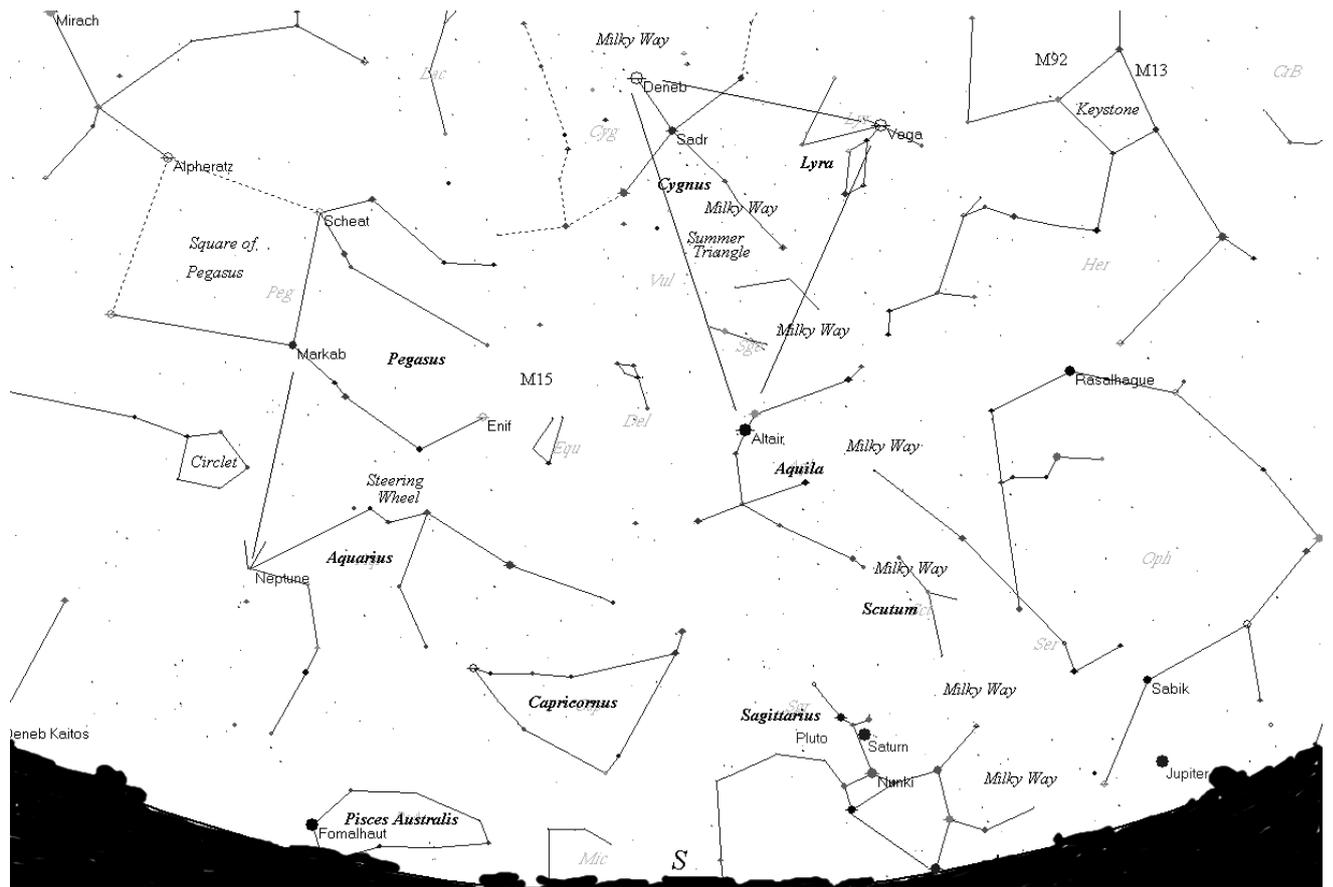
September 29th a 1.5% waxing crescent Moon is visible low in evening twilight with Venus below the Moon – Moon set is 50 minutes after sunset Only look for the crescent Moon after the sun has completely set.

DSLR astrophotography - Sky photography on moonless evening – 28mm /50mm lens – manual focus to infinity. Set ISO / ASA 1600, exposure 30s, remote cable release, tripod mounted – Have a go at capturing some of the star fields through Cygnus around Deneb (NGC 7000 N.American Nebula) and Scutum

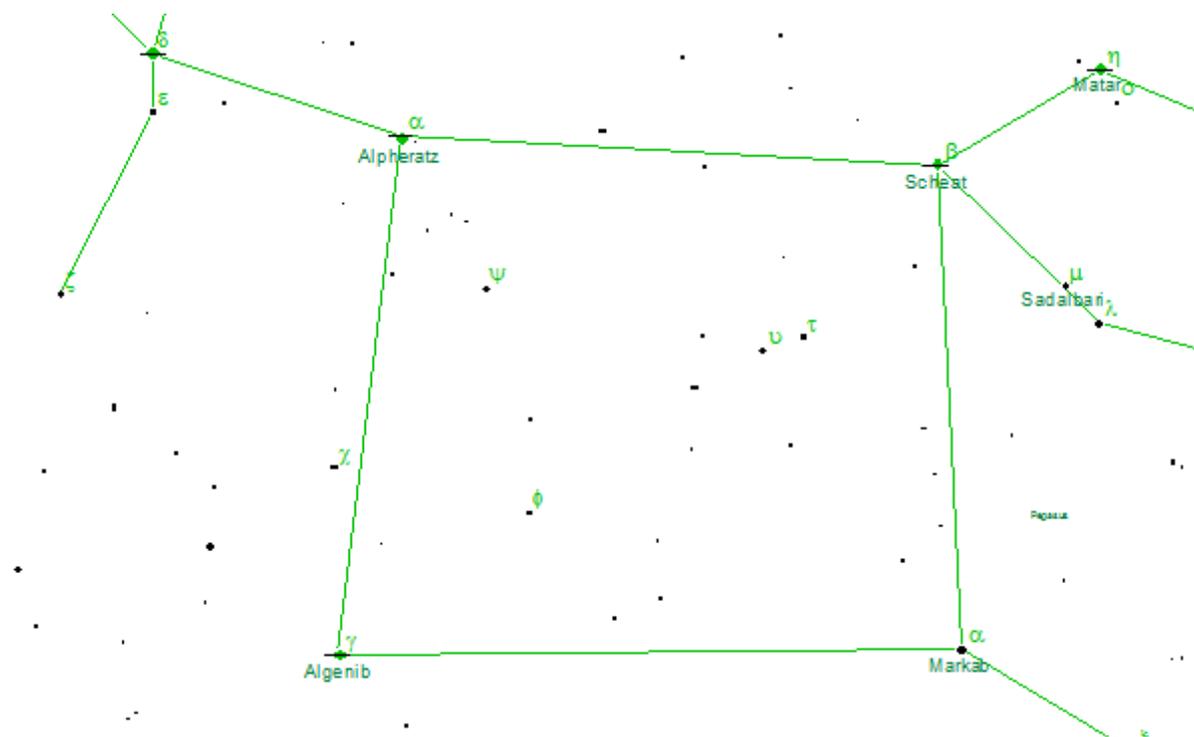
More detailed sky notes and LAS Newsletters, Finder charts are available to LAS members via the Members` page on the LAS Website www.lutonastrolink.org.uk Artificial satellite and International Space Station visible passes – check the home page for posting s of details of favourable observing times.

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Sky looking south in late September 2019 at 9pm BST

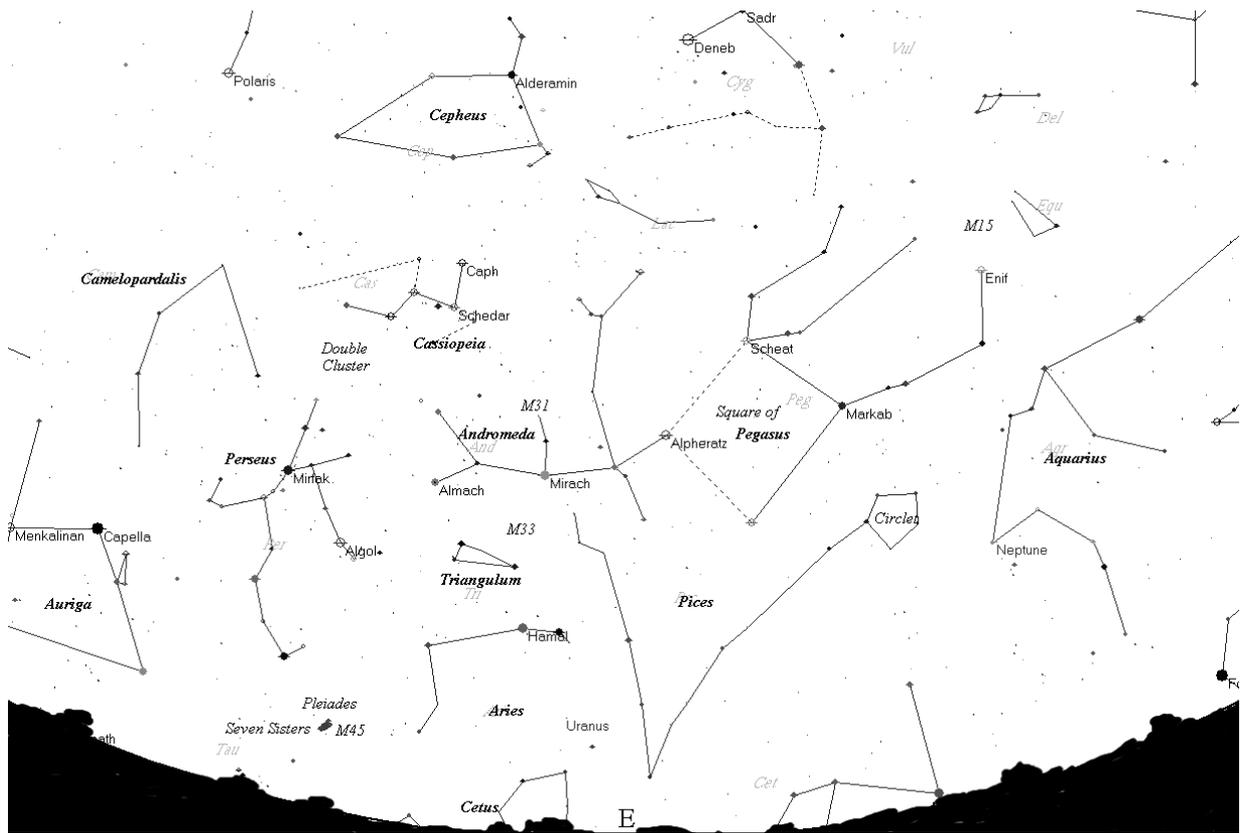


The number of stars visible inside the Square of Pegasus in dark moonless conditions is an indication of your sky conditions.



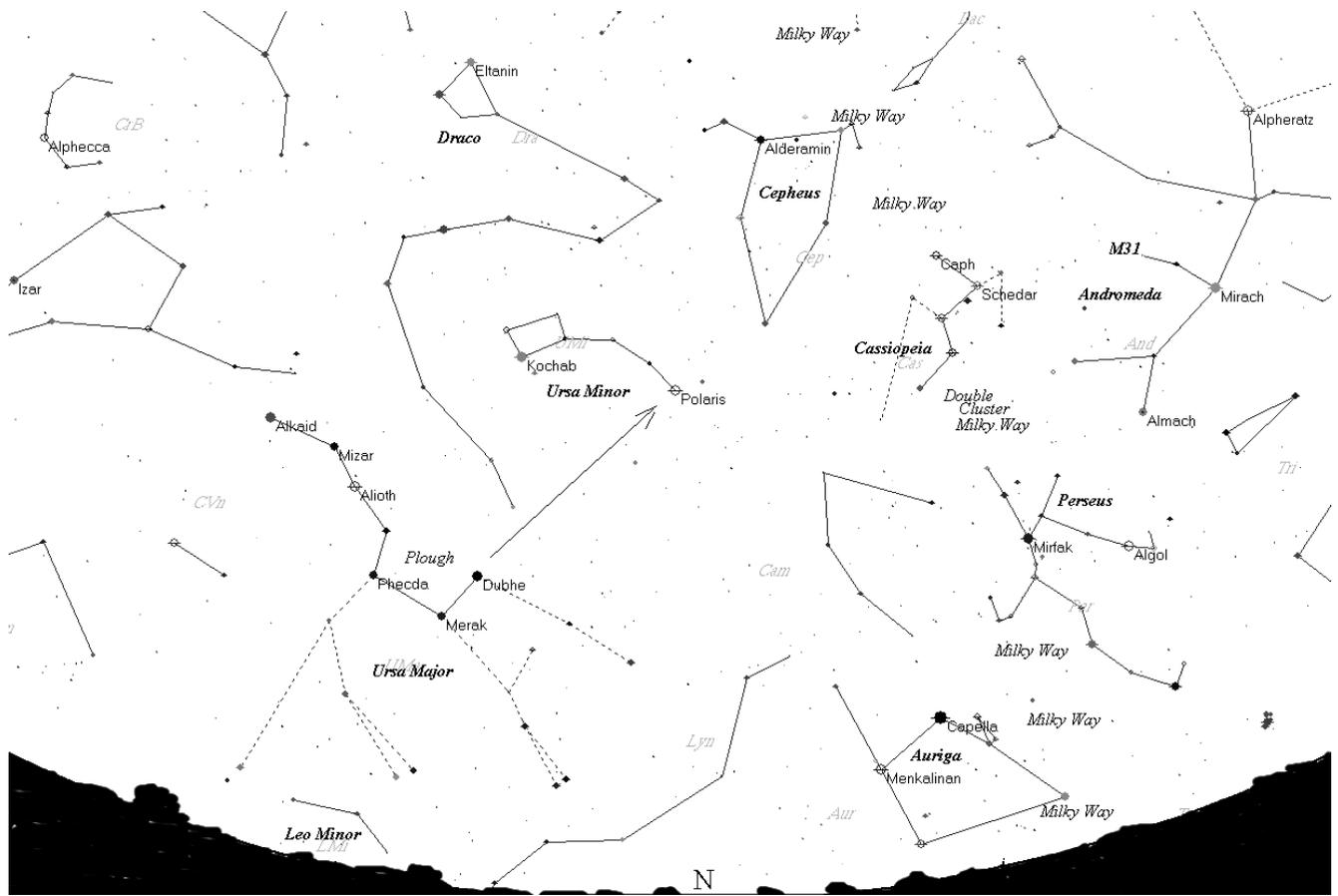
Stars shown to unaided eye limit 6th magnitude equivalent to a good dark moonless site

Sky looking east at 9pm BST late September 2019

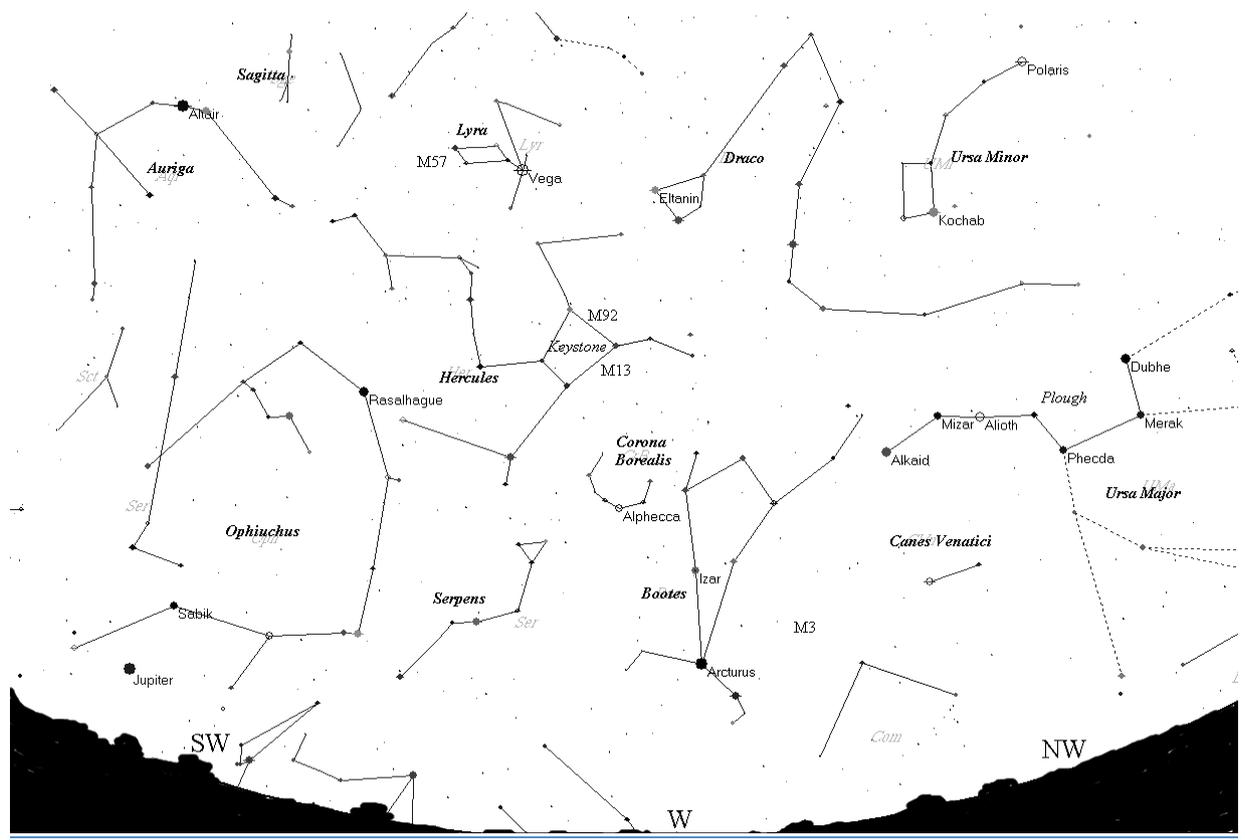


Refer to finder charts for location of Uranus and Neptune.

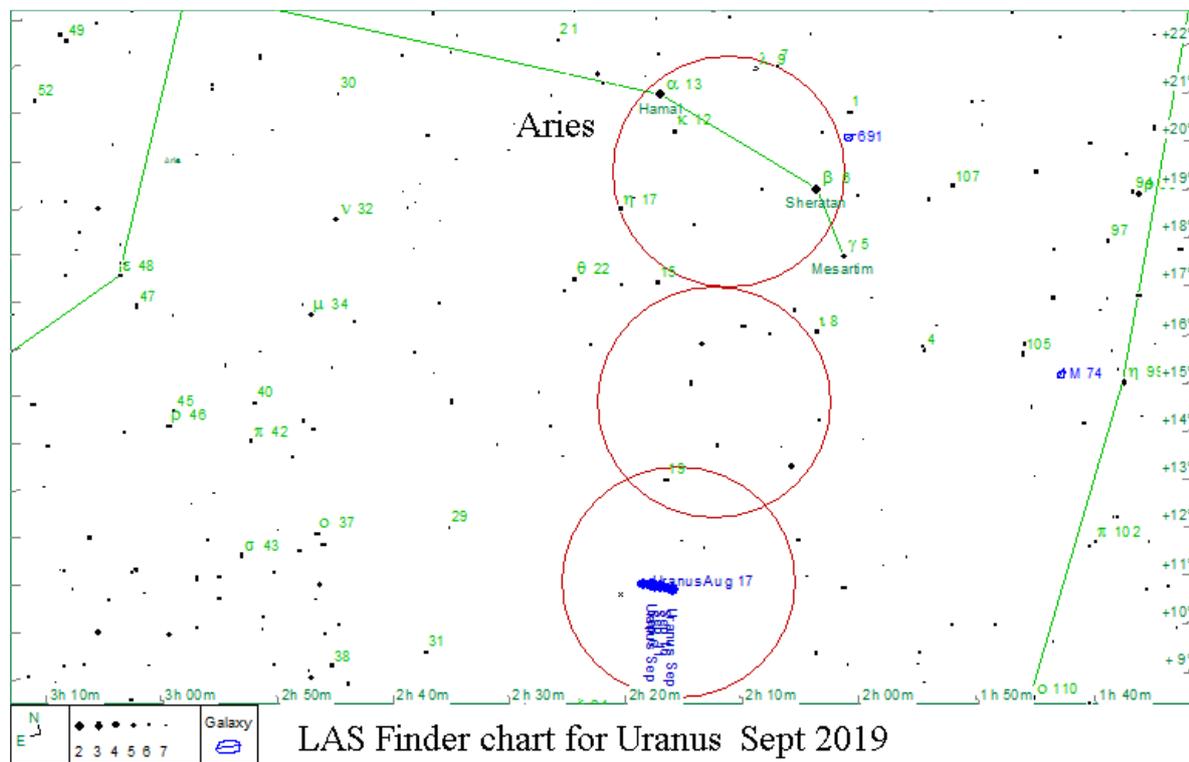
Sky looking north at 9pm late September 2019



Sky looking west at 9pm late September 2019



General finder chart for locating planet Uranus (Binocular / small telescope)



LAS Finder chart for Uranus Sept 2019

LAS general finder chart for Uranus for September / October 2018, positions shown at 5 day intervals

Note – Circles show the field of view of typical 10x50 binoculars Uranus at opposition October 24th 2018

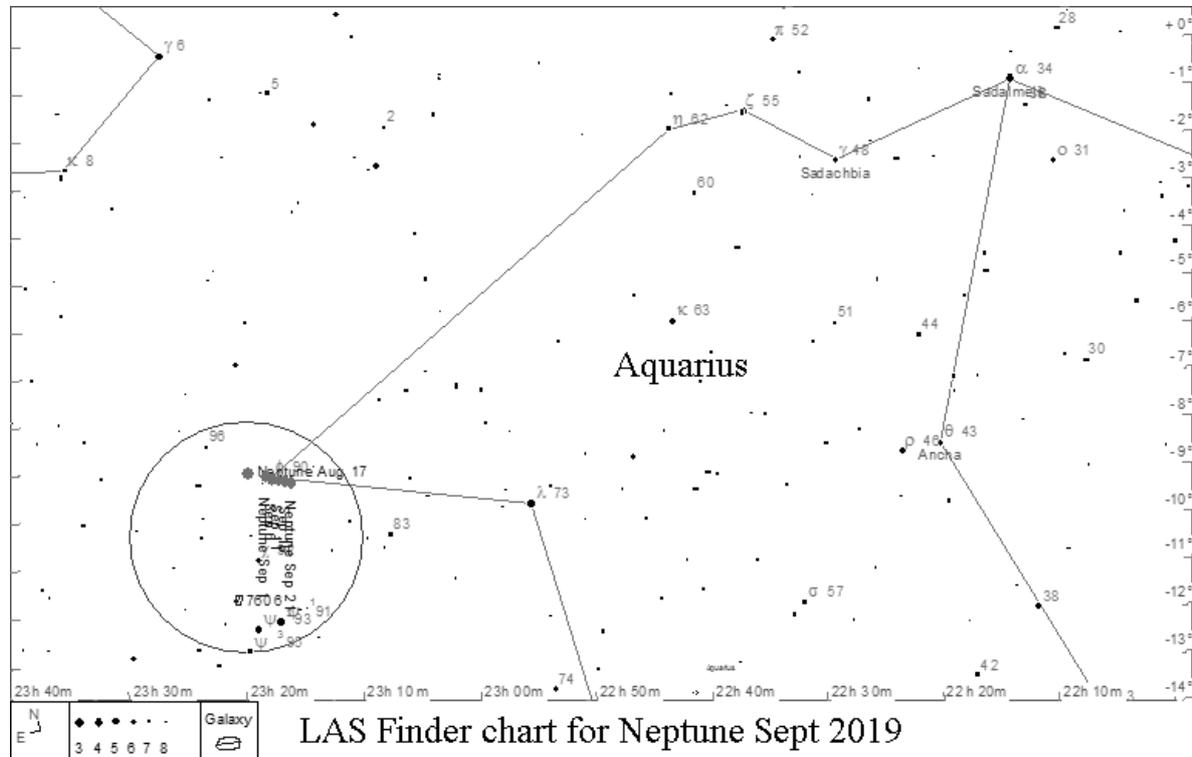
Uranus is located in the constellation of Aries and rises in the east late evening in September. Telescopes show a tiny blue disk (magnitude 5.8m).

LAS general finder chart for Neptune for September / October 2018, positions shown at 5 day intervals

Neptune is visible using 10x50 binocular at magnitude 7.8m at opposition September 10th 2019

Located in the constellation of Aquarius, telescopes show a tiny greenish disk.

Note – Circles show the field of view of typical 10x50 binoculars



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