

Autumn Equinox

Article By Comet Hunter

Can it really be time for the fall equinox? It seems that it was just yesterday that I was writing this column for the summer solstice!. Yes, it must really be fall, I can tell from the increased amount of shade on my front porch, so the sun is already lower in the sky, behind the trees, but this summer flew by for me! I suppose fall will be greatly welcomed this year, especially among those of you who live in areas that had extreme heat this summer.

What the fall equinox means is just that the sun is in the same position it was during the spring equinox, so that on this day, there will be approximately 12 hours each of daylight and night. The difference for the fall equinox is that the sun will now be a little lower in the sky each day, until it reaches it's lowest point on the winter solstice. So each day from now until then will be a few minutes shorter, each night a few minutes longer. Hmm.....that could be a good thing! More time for astronomical observing, since it will get dark earlier and earlier each night. As I explained in my first column, all these changes in our weather and length of days is caused by the tilt of the earth on it's axis, not by movement of the sun. Isn't it amazing what changes are caused on our planet by just a few degrees of tilt? We would have no changes of season if not for that little tilt!

**Mortal as I am, I know
that I am born for a day.
But when I follow at my
pleasure the serried
multitude of the stars in
their circular course, my
feet no longer touch the
earth.**

Ptolemy,c.150 AD

**It is clear to everyone that
astronomy at all events
compels the soul to look
upwards, and draws it
from the things of this
world to the other.**

Plato

Another way I can tell it's fall is that the night sky is changing. The fall constellations are up by 1am in northern latitudes, and if you stay up

really late, the winter ones are also coming up in the east. The beautiful Pleiades, also known as the Seven Sisters, a cluster of seven bright stars, looking very much like a tiny dipper. It is often mistaken for the Little Dipper, which is much larger, dimmer, and is always in the north. IMHO, the Pleiades are much more beautiful. Try looking at them in binoculars, they are breathtaking. Once you spot them, watch for Mars which rises just a little after them. It is unmistakable, very bright and red. We should get some good telescopic views of Mars this year, since it is on the winter ecliptic (the zodiac, or path the planets are always on), which is much higher in the sky than in summer. The closer to zenith (straight up) an object is, the better the view. This is because when things are straight up in the sky, they are closer to us who are on the surface of the earth, so there is less atmosphere to look through. Atmosphere is almost always moving, and clouds images in a telescope. If we could observe from a spot with no atmosphere, like on the moon, we would get wonderfully clear images. But we wouldn't be able to breathe, so the next best thing is at high altitudes. You folks in the mountains of New Mexico and Arizona have the perfect spot for star gazing. My favorite winter constellation, Orion, is also up very late. Look for three stars of equal brightness in a straight row, coming up in the east. That is Orion's belt. Hanging from the belt are 3 dimmer stars, that's his sword. Look at the middle star. If you have dark sky, you will see a haze around that middle star in the sword. This is the famous Orion nebula. If you have binoculars, look at the nebula with them, you will see a bright hazy glow.

SKY HIGHLIGHTS FOR FALL

September

* Take a last look at Jupiter, still in the constellation Scorpius, but low in the south western sky now.

* Look for Mars rising in the eastern sky, in the constellation Taurus

*Venus is back with us again, but at dawn now. Look for it in the east just before dawn.

*September 11th new moon

*September 23rd Fall Equinox, 5:51 am EDT

*September 26th full moon

October

* Oct 5th the moon is just a little north of the Beehive cluster in Cancer-- look at and around the moon with binoculars, you will see the beautiful Beehive open cluster too.

* Oct. 11th new moon (1:01am EDT)

* Oct 20th-22nd Orionid meteor shower peak is on the 21st, but you can see many for several nights. Up to 20 meteors per hour, after 2 or 3 am EDT from dark skies.

* Oct 25-26th full moon at 12:52 am EDT on the 26th, and just 7 hours later, the moon will be at Perigee, meaning it is at it's closest to the earth this year. So this will be the largest full moon this year! (yes, it is larger at Perigee, because it much closer to the earth)

November

* Nov. 9th new moon

* Nov 24th full moon

* Nov. 17th Leonid meteor shower peak, probably around 1 or 2 am EDT

December

* Dec. 9th new moon

* Dec. 24th- full moon

* Dec. 14th Geminid meteor shower peaks, but meteors can be seen for several nights before as well as a few after the peak. These are usually

very nice meteors, very bright with long tails

* Dec. 24th Mars at opposition, meaning it is at it's closest to earth for the year, so will be at it's brightest.

Generally, October and November are the months that we see the most auroras, the northern lights. No one can predict when an aurora will occur, but if you hear about a lot of sunspot activity, keep an eye to the north at night. Many auroras are large enough to be seen as far south as Texas. You can check for possible aurora activity here: [Space weather](#)

For those who missed the beautiful total lunar eclipse of August 28th, here are some images taken by my good friend, and very talented astronomical imager, [Eric Africa](#).

Comet Hunter is an avid astronomer who has courageously coped with chemical injury for many years. [Email Comet Hunter](#) your star gazing questions.