

DECEMBER 2008 ASTRONOMY

From the Trackman Planetarium at Joliet Junior College.

December brings us the shortest days of the year in the Northern Hemisphere. The Winter Solstice is on December 21st and we receive only nine hours and ten minutes of sunshine. (Less sunshine if you go north from Joliet, Illinois and more if you go south.) The good news is the earliest sunset is on December 7th and by Christmas we have added an extra six minutes of sunlight on the end of the day. The bad news is the latest sunrise isn't until January 3rd.

If you look to the west after sunset on December 1st, you will see Jupiter and Venus and the crescent moon close together in the evening sky.

Venus and Jupiter are on the opposite side of the sun from the earth and both are orbiting from west to east. Venus is zooming along at 107,000 miles per hour and Jupiter is moping along at 29,000 miles per hour and therefore Venus will be quickly moving away from the giant Jupiter. Think of it as a racetrack with the sun in the middle. Venus and Jupiter are on the backstretch and the Earth is in the home stretch and moving past the sun in the opposite direction at 67,000 miles per hour. Because we are moving faster than Jupiter, the sun will appear to move between earth and Jupiter. Jupiter will disappear behind the sun on January 24th. Meanwhile, Venus will continue to move to the east until mid-January, at which time its orbit will bring it back toward the sun.

See if you can find Jupiter in the evening sky right after sunset on December 31st. One degree to the left of Jupiter will be the elusive planet Mercury. (Use binoculars after sunset.)

One of the easiest constellations to find is Orion - the Hunter - and he starts rising in the evening skies during December. Look for three stars in a straight line that make up his belt. Right under the belt is a nebula (looks like a bit of fuzz) that is a nursery for new stars that are just forming. The cloud is great viewing with binocular or small telescope viewing.

Follow the line of Orion's belt up to the right and you come to the constellation of Taurus - the Bull. The bright red star Aldebaron marks the Bull's eye. Continue up a little farther and you will find the tight group of new stars - the Pleiades.

Above Orion are the constellations Auriga, to his right with the bright star Capella, and the Gemini Twins to his left with the bright stars of Castor and Pollux. Follow Orion's belt down to the left and you find Sirius, the brightest star in the sky besides our sun. Sirius is called the "Dog Star" because it is in the constellation of Canis Major - the Big Dog. It is because Sirius rises just before the sun in August that those days are known as the "dog days" of summer.

The full moon is on December 12th. Because the full moon is opposite the sun as seen from earth, and since the sun is at the lowest point during the year, this full moon is the highest a full

moon can be as it crosses the sky. In addition, this full moon is coming when the moon is at its closest approach to the earth (perigee) and it will be within 1,200 miles of the closest possible approach to our planet. Meanwhile, we are almost at our closest approach to the sun, so the moon gets about 7% more sunlight to reflect than it does in the summer. This means we will have a very high, very bright, and very large full moon

It is not coincidence that the Holiday Season falls at the same time as the winter solstice - the lowest point the sun appears to cross the sky. For centuries, throughout the Northern Hemisphere, the time that the sun stops moving southward as it crosses the sky and starts advancing back toward summer has been celebrated. Three thousand years ago no one knew the earth was on an angle or that it orbited the sun, or that that was the reason for the rising and falling as the sun crossed the sky each year. All the superstitious ancients knew was that whoever moved the sun across the sky was moving it higher after the solstice and that meant warmer weather was on the way.

The Native Americans, the Europeans, the Asians and everyone else far enough north of the equator to notice this phenomenon celebrated. The feast of Christmas was first celebrated at this time of the year in the third century. The centuries-old Jewish feast of Chanukah is celebrated at this time of year and this year Chanukah falls in the week of the solstice. And recently, we have added the African American feast of Kwanzaa. The Romans called the solstice celebration "Saturnalia" and they put decorated trees in their homes, exchanged gifts, and had the family and friends in for feasts. Sound familiar? So, no matter what your beliefs or non-beliefs, the sun is going to start moving back toward summer and so it is time to do what everyone has done at the solstice for thousands of years and have a.....

Happy Holiday!
Art Maurer
E-Mail- amaurer@jjc.edu