

JANUARY 2011 ASTRONOMY
From the Trackman Planetarium at Joliet Junior College

On January 3rd, the Earth will be at its closest approach to the sun in our annual orbit. We'll be 91.4 million miles from our star. We are at the farthest from the sun in July. The sun is slightly brighter and larger in January than in July, but it is only noticeable if we have a solar eclipse. In the winter, the sun's image is too large for the moon to cover, and so we have an annular eclipse, an eclipse where the edge of the sun is still visible. The "smaller" sun will make the difference when we have a total solar eclipse visible from southern Illinois on August 21, 2017.

The latest sunrise of the year is on January 4th. The good news is that we add 48 minutes of sun time to the day by the end of January - 14 minutes in the morning and 34 minutes in the afternoon.

The Quadrantids Meteor Shower peaks before sunrise on the morning on January 4th. There will be no moon so viewing should be good. Look to the northeast, above the planet Venus. It will no doubt be cold, but those of us who went out in the 7 degree weather to watch the Geminid Meteor Shower feel that a very good meteor shower is worth the cold toes.

The king of the January evening sky is Orion. You can't miss the three stars in a straight line that make up the Hunter's belt. The red star that marks his shoulder is Betelgeuse. Betelgeuse is red because it is cooling down and about to go supernova - explode. Of course "soon" in astronomical terms can mean anytime in the next million years. Betelgeuse is between 450 and 850 light years from earth depending on which information source you use. Betelgeuse is hundreds of times larger than our sun and it fluctuates by almost 60% in size. Below Orion's belt is a cloud that can be seen with the naked eye and is a great binocular target. It is the Orion Nebula, a cloud of cold gases that are forming new solar systems. If you follow Orion's belt down and to the left, you will find Sirius, the brightest star in the sky - twice the magnitude as the next brightest star. Above Orion and to the right is a tight group of stars called the Pleiades. These are newly formed stars - only a couple of million years old. They are another good binocular target. High above Orion is the "W" that marks the constellation of Cassiopeia. Between Orion and Cassiopeia is Perseus. In Perseus - near Cassiopeia - is a double cluster of stars that are easily seen in binoculars. Looking south at Perseus, if you continue to the west (right) from the double cluster, you should find a fuzzy object that is the Andromeda galaxy. The Andromeda galaxy is very similar to our Milky Way galaxy and is 2.25 million light years away. Above and to the left of Orion are two bright stars - Castor and Pollux. They mark the heads of the Gemini twins. The Big Dipper is rising in mid-evening during January. Look for it in the northeastern sky.

Jupiter is the only visible planet in the evening sky during January. It is the very bright object in the southeastern sky. If you go out in the early morning to see the Quadrantid meteors, look to the east for Venus and Mercury. Venus will be easy to find since it's so bright. Mercury will rise at about 5:45. Look for it on the southeast horizon. Mercury will be at its farthest from the sun on January 9th. Venus will start moving back toward

the sun on January 8th. Meanwhile, Saturn is high in the southern sky at sunrise and is working its way west to become an evening planet in mid-March.

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The full moon is on January 19th. Since the full moon is always opposite the sun, and the sun is low in the sky, the full moon will be very high in the winter sky. It was too bad about the clouds for the lunar eclipse on December 21st. The next one is on April 15, 2014. It too will be in the middle of the night.

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The planetarium shows during January are on January 4th at 7:30 pm (*Sun, Earth & Moon*), **Sunday**, January 16th at 2:30 pm (*Are There Aliens?*), January 18th at 7:30 pm (*Comets, Asteroids & Meteors*), January 27th at 6:30 pm (*We Go To The Moon*).

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Akatusuki, a Japanese probe bound for Venus, missed its orbit due to a faulty valve. The Japanese are still in touch with the probe and hope to insert it into Venus' orbit when it passes the planet again in six years.

The International Space Station will be making evening passes through January 15th. The space station is easy to see with the naked eye. There are currently six crew members on the International Space Station - five men and one woman. They will be on the space station until March.

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Our wish to you for 2011: May you get a clean bill of health from your dentist, your cardiologist, your gastroenterologist, your urologist, your proctologist, your podiatrist, your psychiatrist, your plumber and the I.R.S. Happy New Year

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