

Comet Hunter

Winter Solstice Astronomy

By Comet Hunter

Winter means short days and long nights. Those of you in cold climates are probably glad for the short days, more time for snuggling under the warm blankets. December 22nd is the winter solstice, the shortest day and longest night of the year, with about 13 hours of sunlight. The sun is at its lowest point in the sky, low in the west at noon and not overhead as in summer. Each day from now to the solstice will be a little longer, approximately four minutes more each day.

For astronomy buffs, the long nights mean we can get out under the stars to observe much earlier and avoid the bitter cold of the morning hours. However, in many parts of the country, it is still important to dress properly to protect against the cold and frost bite. It might not feel so cold as you take a short evening stroll but one can get terribly chilled when staying outdoors at night for prolonged periods of time. Several layers of clothing is advised, thermal underwear, heavy sweaters and pants. Wool socks are great over cotton ones, but don't stuff so many pairs of socks into your shoes that they become tight. Your feet will be colder that way. Always leave some airspace in your shoes to trap air, it keeps your feet much warmer. Hat and gloves, preferably mittens, are essential. Top it all off with a wool, down or other heavy coat with a hood. Seems like an excessive amount of clothing but once outside for awhile you will be grateful you have it all on. Bring along a thermos filled with hot beverages or soup and some high carb snacks too. On bitter cold nights, a blanket is also a welcome addition.

Since the sky is so overcast in much of the country this time of year we thought we would include something a little different in this issue. Here is a web site that will allow you to do some virtual observing from right in your living room on those cold, cloudy winter nights, [astronomy picture of the day](#), and a story from mythology about most of the constellations that are in the sky right now. We hope you find it entertaining.

In ancient times there was a very beautiful and vain queen of Ethiopia named Cassiopoeia. Her beauty was surpassed only by that of her daughter Andromeda. Queen Cassiopoeia bragged that her daughter, Princess Andromeda was beauty incarnated.

Now the sea nymphs who considered themselves very beautiful also became angry and jealous at all the bragging concerning Andromeda's beauty. They complained to Neptune [planet] who stirred up the sea monsters who wrecked all the Ethiopian fishing boats

making it impossible for them to make a living. The Ethiopians were starving since fishing was their main trade.

So Queen Cassiopoeia and her husband King Cepheus called on Posiden to try to make amends. However, Posiden threatened to unleash Cetus the sea monster on the Ethiopians unless they agreed to offer their daughter Andromeda to the sea monster as a sacrifice. Cepheus and Cassiopoeia of course, did not want to do that, but said, yes, they would think about it and went home very

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saddened. Meanwhile there was a handsome young man named Perseus who was very smitten by Andromeda's beauty. When he heard of the royal families plight he hopped on his winged horse, Pegasus and went to the find the sea hag Medusa. Medusa had rising snakes on her head, instead of hair and was sad to be so ugly that anyone who looked on her face would turn to stone instantly from fright. When he finally found Medusa, Perseus tricked her into looking at Algol her own face by using his shield as a mirror. He then cut off her head and took it with him. Not wanting to get Medusa's horrifying head to close to his body he held it at arms length as he rode Pegasus home.

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If you look at the constellation Perseus, you can still see Medusa's head, which is the star Algol well out from Perseus's shoulder. The name means demon star. The ancients believed God created all stars and heavenly bodies unchanging. Algol is a variable star, meaning it changes brightness. Some nights it is very bright, others much dimmer. It's changes in brightness can be seen

with the unaided eye. Since they could see Algol change regularly and thinking all good stars were constant and unchanging the ancients considered it evil and named it demon star Algol. [there are actually many variable stars but perhaps not as easily observed as Algol]

So Perseus flew back to Ethiopia on Pegasus with Medusa's head held out to his side. He froze the horrible sea monster with Medusa's head and saved Andromeda. You know the rest, they all lived happily ever after... the end.

Take a star chart outside and look for all the constellations in this story as well as Algol. Each constellation is capitalized so grab your star gazing guide which you can obtain from [Sky View Cafe](#) if you do not have one and go outside and take a look!

Sky Highlights

December

New moon, December 9th, 2007. Full moon, December 24th, 2007 To view a monthly moon calendar go to: [TuTiempo.net](#)

Mars, Sunday, December 23rd, if you look outside you'll see this full moon near a blazing reddish light in our sky. It's the planet Mars. Mars will be the closest to earth on December 19th.

Mars will be in opposition at the end of December, meaning it is at its brightest and closest to earth. It's directly opposite the sun in relationship to the earth, which means you get the best night time views b/c it's so close to earth, look for Mars which appears to be very bright red star in the constellation Gemini near the star Castor. [at the end of the month] Also from TuTiempo.net: Mars is in Retrograde from November 15th, 2007 - January 30th, 2008. A Retrograde Mars only happens every other year and lasts for approximately 70 to 80 days. When planets are in retrograde they lose steam, clarity and direction. Which is why when Mars turns retrograde, we may feel like we're paddling upstream.

I mentioned the constellation Orion and how to find the famous Orion Nebula in the last issue, now is the peak time of year for viewing it.

The Andromeda Galaxy M31 is a very large, bright beautiful galaxy that can be seen in the constellation Andromeda. It is naked eye this time of year from dark skies.

Meteor Shower December 22

From the Arkansas Sky Observatory, - This meteor shower, coming from within the "Little Dipper" will never rise nor set and you can watch it all night; however, best observations would center BEFORE the moon rises, but this year the peak coincides with the time of December's FULL moon. The meteoroids in this group have origins with the famous Comet Tuttle, and leave many spectacular wakes and smoky trails in their wakes. Up to 20 meteors per hour under dark skies can be seen to any observer looking nearly due north and "up" a bit!

IF we're lucky we'll get a comet for Christmas.

January

New moon, January 8th. Full moon, January 22nd. Mars in Retrograde ends January 30th. **January 3-4** - Quadrantid Meteors - The moon will be last quarter in the sky for this year's possible excellent showing of this meteor shower (SEE PAGE 66 of the January issue of Sky & Telescope). Always a chance for quite a show...the best that January has to offer each year, but in 2008 the moon will not hamper observation of these meteors until well after midnight.

January 15-16 - Delta Cancri Meteors - Sounding more like a disease than a meteor shower, the Delta Cancri rise in the east about the same time the sun sets in the west...thus it is nearly directly overhead at midnight each year, in the constellation of Cancer.

January 18 - Coma Berenicid Meteors - Also coming from very close to a naked eye cluster, the Coma cluster, this meteor shower rises about 10 p.m. and is directly overhead at pre-dawn.

Also from the Arkansas Sky Observatory, Venus - An incredible month for naked eye sky

watchers, as brilliant Venus is an early morning object dominating dawn skies. The first week of this month, you will find the most brilliant of planets high in the SE skies at dawn, perched near the two "pinchers" of the scorpion, Scorpius, just above the bright red star Antares; on the morning of **Jan 5**, look at Antares just above the thin crescent moon, while bright Venus looms above them both....a spectacular sight. But that is not all this planet holds for stargazers this month: on the last day of this month - **Jan 31** - set your clocks and get up at dawn to see Venus and Jupiter poised very close together like you have never seen them, only 1.5 degrees apart, with yellowish and slightly dimmer Jupiter below Venus....this event is very low in SE skies and a good horizon will be needed as the pair rises only 40 minutes before sunrise - in Scorpius.

Comet P/8 Tuttle- at magnitude 5 or better, this comet might be naked eye visible in early January, and certainly will be a great target in binoculars, low in the SW skies of dusk until about 10 p.m. nightly.

February

New moon, February 7th. Full Moon, February 21st. **February 1st**- Venus and Mars are in close conjunction, a 1/2 degree apart. [the width of the moon between them]

A total eclipse of the Moon occurs during the night of Wednesday, February 20/21, 2008. The entire event is visible from South America and most of North America as well as Western Europe, Africa, and western Asia. During a total lunar eclipse, the Moon's disk can take on a dramatically colorful appearance from bright orange to blood red to dark brown and (rarely) very dark gray. To view a sky chart of the February eclipse visit: [NASA Eclipse page](#).

[Excerpted from the February Sky Guide](#): Mars is visible all night in the constellation Taurus. Venus is a morning star visible low in the SW just before sunrise. No periodic comets are easily visible this month.

No meteor showers expected.

March

March 7th -New Moon. March 20th - Full Moon.

March 5th, the moon occults Venus, which means you can watch Venus go completely behind the moon.

*Comet Hunter is an avid astronomer who has courageously coped with chemical injury for many years. **Email Comet Hunter** your star gazing questions.*