

Mountaineer Skies

From the Editor's Desk

The **Summer Solstice**, which is the first day of summer and the day which has the longest period of sunlight, occurs on June 21 this year. For more about why we have different seasons, see the article on page 2.

Not a Good Time for Meteor Showers

Although the **June Lyrids** peak on the evening of June 15/16 with an estimated hourly rate of somewhere between 8 to 12 meteors, or a meteor every 5 to 7.5 minutes, seeing them will be almost impossible as the Moon will be at 94% illuminated.

The **June Bootids** peak on June 27/28 and have an hourly rate between 0 and 100. This means that some years, none are seen.

Generally, the best time to view a meteor shower is after midnight when you are on the leading edge of the Earth and they impact head on. This gives you a better chance of seeing a brighter event as you essentially have a head on collision between the Earth and the meteor.

In The Sky This Month

Visible Planets in the Night Sky

Beginning of June , 2003

	Const	Rise	Transit	Set	Mag
Sun		5:50	13:18	20:45	- 26.8
Mercury	Ari	4:49	11:41	18:34	0.7
Venus	Ari	4:48	11:52	18:55	- 3.9
Mars	Cap	1:14	6:24	11:34	- 0.7
Jupiter	Cnc	10:32	17:42	00:49	- 2.0
Saturn	Ori	7:09	14:39	22:06	2.4

Middle of June, 2003

	Const	Rise	Transit	Set	Mag
Sun		5:48	13:20	20:53	- 26.8
Mercury	Tau	4:43	11:58	19:09	- 0.4
Venus	Tau	4:47	12:06	19:26	- 3.9
Mars	Aqr	00:40	5:55	11:10	- 1.0
Jupiter	Cnc	9:49	16:56	00:01	- 1.9
Saturn	Gem	6:22	13:52	21:19	2.4

End of June, 2003

	Const	Rise	Transit	Set	Mag
Sun		5:52	13:23	20:55	- 26.8
Mercury	Gem	5:28	12:58	20:35	- 1.8
Venus	Tau	4:56	12:25	19:55	- 3.9
Mars	Aqr	23:59	5:19	10:39	- 1.4
Jupiter	Leo	9:04	16:08	23:10	- 1.8
Saturn	Gem	5:31	13:01	20:28	2.3

Ari	Aries, The Ram
Cap	Capricornus, The Goat
Cnc	Cancer, The Crab
Ori	Orion, The Hunter
Tau	Taurus, The Bull
Aqr	Aquarius, The Water Bearer
Gem	Gemini, The Twins
Leo	Leo, The Lion

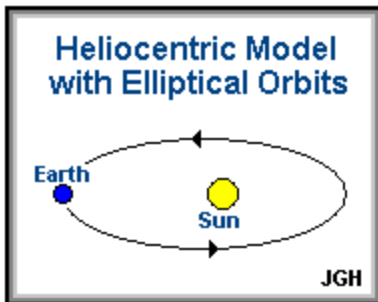
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About: Seasons

Summer begins on June 21 this year, and, after the winter we just had, most of us are glad it is finally here. There is such a contrast between the two seasons that it makes you wonder why this is so.

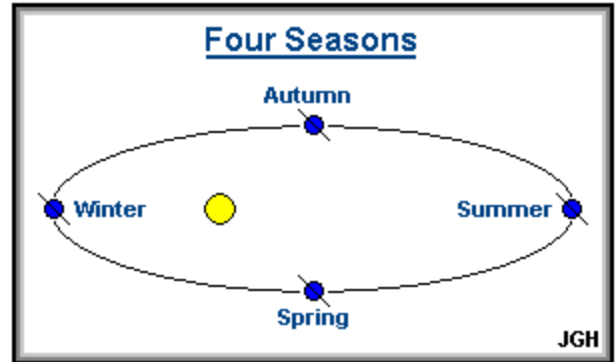
To begin with we have to understand how our solar system works. For thousands of years, it was thought that the Earth was the center of the universe and that the Sun, and everything else, went around it. This model was called **geocentric** or Earth centered. Then about 1514 Nicolaus Copernicus demonstrated that the Sun, not the Earth, was the center of the Solar System and that all of the planets, including the Earth, went around it in circular orbits. His model was called **heliocentric** or Sun centered and was a revolutionary concept. Finally in 1609, Johannes Kepler, using the observational data of Tycho Brahe, showed that planets orbit the Sun not in circles but in ellipses. An ellipse is a somewhat flattened circle.



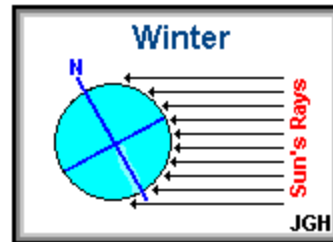
In Kepler's elliptical model, the Sun is not at the center of the Solar System, but at one of the two foci. This means that the Sun is closer to the Earth during part of the year and farther away at other times. Intuitively, you would expect that when the Earth is closer to the Sun we would have summer and when it is farther away winter. However observation shows that we are really closer to the Sun in January, so we must find another reason.

The Earth is not at right angles to the plane of its orbit, but is tilted about 23.5° .

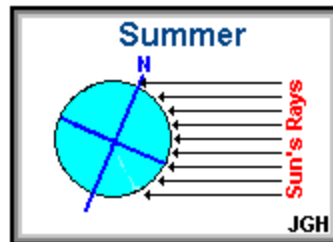
This is the reason we have seasons and with a little thought it will make sense. The diagram below shows the position of the Earth in relation to the Sun at the various seasons.



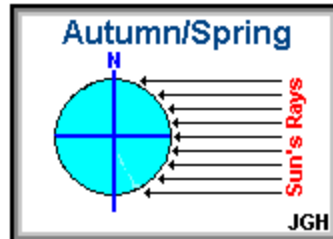
During winter in the Northern hemisphere, the Earth is tilted away from the Sun, so we receive fewer direct rays, and, consequently, the air cools.



In the summer time, the Northern hemisphere is tilted toward the Sun and we get more direct rays which elevate the temperature.



In Autumn and Spring, the amount of sunlight is fairly equally distributed.



Of course, the seasons are reversed in the Southern Hemisphere.

2003 Planetarium Shows



MARSQUEST

Narrated by Patrick Stewart

http://www.as.wvu.edu/~planet/mars_quest.htm

June 13, 2003 <i>MarsQuest</i>	July, 2003 Closed
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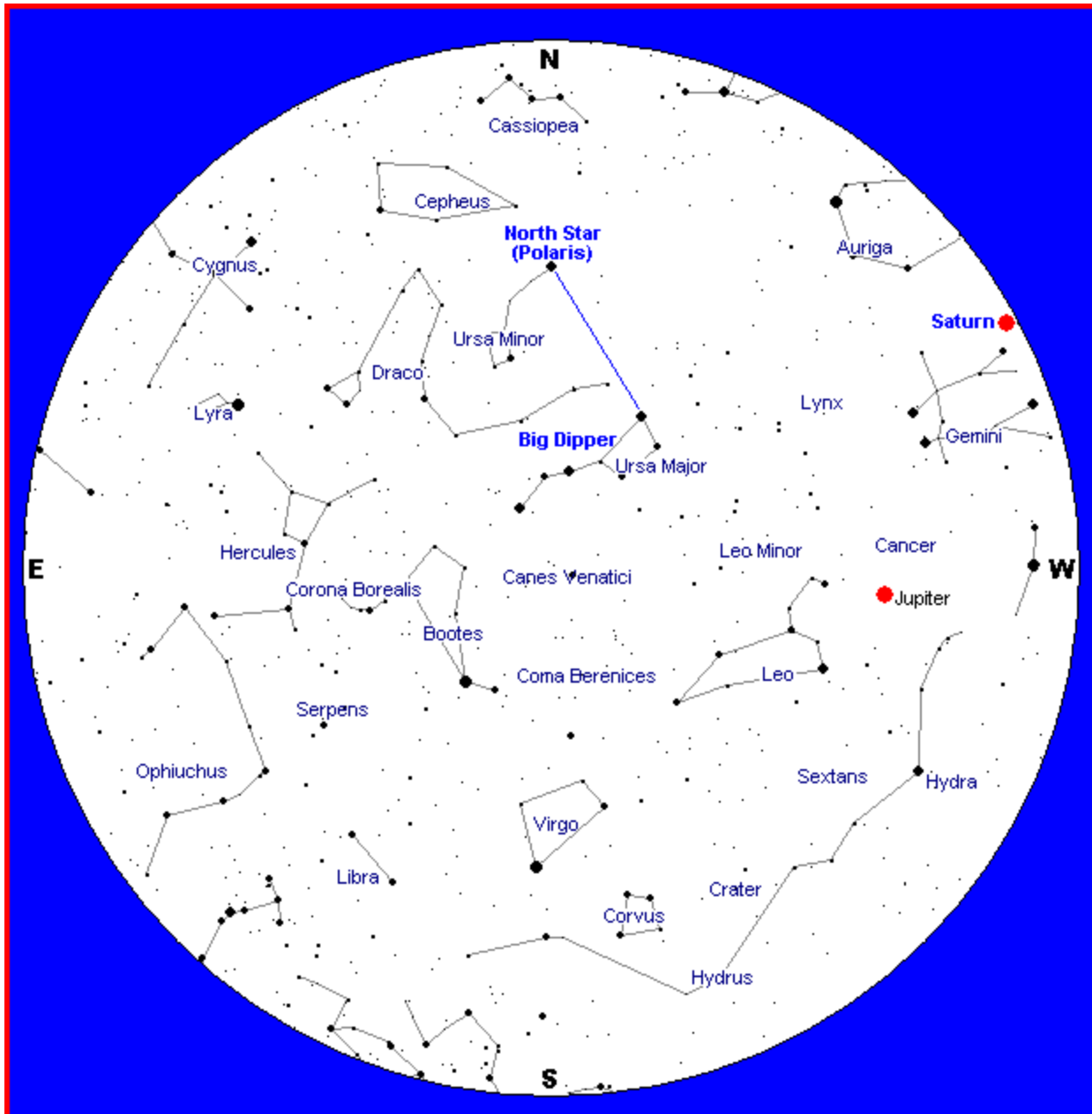
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

For further information or reservations, please call John Hopkins at (304)293-3422, extension 1443 or by email at: jhopkins@mail.wvu.edu

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Jun 7	5:52 A.M.	8:44 P.M.	12:52 P.M.	1:50 A.M.	First Quarter
Jun 14	5:51 A.M.	8:47 P.M.	9:33 P.M.	5:43 A.M.	Full Moon
Jun 21	5:52 A.M.	8:50 P.M.	1:35 A.M.	1:21 P.M.	Last Quarter
Jun 29	5:54 A.M.	8:51 P.M.	5:28 A.M.	9:14 P.M.	New Moon

June 2003 Sky Chart* for:
 10:00 P.M at the beginning of the month
 9:00 P.M in the middle of the month
 8:00 P.M at the end of the month



*Sky Chart used with the kind permission of [Heavens-Above](http://www.heavens-above.com/) at <http://www.heavens-above.com/>

The TOMCHIN PLANETARIUM is named in honor of the late Harold Tomchin, of Princeton, W.Va., who made a generous donation to ensure its continuing operation, and whose family continues to support the planetarium for the educational benefit of WVU students, staff, and faculty members, as well as the local community. Contributions can be made in support of the planetarium through the WVU Planetarium Project at the WVU Foundation, Inc., phone (304)284-4000. Thank You.



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