

Mountaineer Skies

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<http://www.as.wvu.edu/~planet/index.html>

April - June, 2009

From the Editor's Desk

The **International Space Station** or ISS is in low Earth orbit at approximately 190 miles above the Earth and is traveling at a speed of just under 17,500 mph. Participants in the construction include the United States, Russia, Japan, Canada, 11 of the 17 members of the European Space Agency, the Brazilian Space Agency, and the Italian Space Agency.

Fliers to the ISS include astronauts from Belgium (1), Brazil (1), Canada (5), France (3), Germany (2), Italy (3), Japan (4), Malaysia (1), Netherlands (1), Russia (27), South Africa (1), South Korea (1), Spain (1), Sweden (1), and the United States (115) for a total of 167.

The International Space Station is easily observed from Earth. Go to Spaceweather.com and select click on **SATELLITE FLYBYS** in the right most column. Enter your **Zip Code** and click on **GO**. You will then be presented with satellites that you can see. Remember that the smaller number the brighter it is. The ISS is usually -2.3 or smaller and remember that it is not visible every night.

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In The Sky This Month

Visible Planets in the Night Sky

Beginning of April, 2009

	Const	Rise	Transit	Set	Mag
Sun		07:00	13:23	19:46	-26.8
Mercury	Psc	07:10	13:31	19:53	- 2.0
Venus	Psc	06:05	12:42	19:14	- 4.1
Mars	Aqr	05:59	11:40	17:21	1.2
Jupiter	Cap	04:52	10:03	15:17	- 2.1
Saturn	Leo	17:22	23:51	06:19	16.2

Beginning of May, 2009

	Const	Rise	Transit	Set	Mag
Sun		06:16	13:16	20:16	-26.8
Mercury	Tau	07:02	14:31	21:57	1.2
Venus	Psc	04:34	10:46	17:00	- 4.5
Mars	Cet	04:56	11:07	17:19	1.2
Jupiter	Cap	03:07	08:24	13:43	- 2.3
Saturn	Leo	15:17	21:47	04:18	16.2

Beginning of June, 2009

	Const	Rise	Transit	Set	Mag
Sun		05:51	13:17	20:43	-26.8
Mercury	Tau	05:06	12:04	18:59	1.9
Venus	Psc	03:44	10:16	16:48	- 4.3
Mars	Ari	03:51	10:32	17:15	1.2
Jupiter	Cap	01:13	06:32	11:51	- 2.5
Saturn	Leo	13:15	19:46	02:16	16.2

Psc	Pisces , The Fishes
Aqr	Aquarius, The Water Bearer
Cap	Capricornus , The Goat
Leo	Leo, The Lion
Cet	Cetus, The Whale
Tau	Taurus, The Bull
Ari	Aries, The Ram

About: Some Major Meteor Showers

A falling or shooting star is, in reality, not a star but a meteor. A meteor is usually a small piece of interplanetary flotsam or jetsam that enters our atmosphere and incandesces as it streaks through the atmosphere making the bright light we often see in the night sky. When a predictable group of meteors occurs at roughly the same time, we call that a meteor shower. This is usually associated with a comet's path. That is, the leftover debris from comets is the origin of many of the meteors we see. Over sixty meteor showers have been identified, but most of these have so few shooting stars that they are hardly distinguishable from random, individual meteors. The predictions of the number of meteors expected in an hour are only that – predictions. Think of them as more like educated guesses similar to weather predictions. Additionally, meteor showers are best viewed when the moon is new or nearly new, as the brightness of a full moon will obscure the meteor trails.

Their name comes from the constellation from which they appear to originate. For instance, the Perseids come from the constellation Perseus and the Orionids from Orion.

Here are some of the more active ones.

The **Quadrantids** meteor shower can usually be seen between December 29 and January 7 with its maximum occurring on the night of January 3 – 4. This shower is associated with a comet called, unimaginatively, 2003 EH1. One can expect up to 200 meteors per hour if atmospheric conditions are favorable. The moon will be in its first quarter with about 50% illumination in 2009. In 2010 it will be in a waxing gibbous phase with 83% illumination. The percent of illumination indicates the percent of the moon that is visible.

The **Eta Aquarids** comes between April 21 and May 12 with its maximum on the evening of May 5-6. You can expect between from 40 up to 100 meteors per hour but do not be surprised if there are fewer. Its parent is the famed Halley's Comet. The moon will be a waxing gibbous and unfortunately bright at about 91% illumination, so viewing will be less than optimum. The next year, 2010, viewing will be slightly better with the moon being in its third quarter with illumination of 50%.

Between July 23 and August 22, the **Perseids** are manifest. The maximum occurs on the night of August 12 – 13. Its parent is the comet 109P/Swift-Tuttle. In 2009, the illumination will be 66% with the moon in the waning gibbous phase. A year later, the viewing will be better as the moon is in the waxing crescent with the illumination being only 7%.

The days from October 15 to 29 brings the **Orionids**, which, like the **Eta Aquarids**, come from the comet whose periodicity Edmund Halley discovered and bears his name. Its maximum will occur during the night of October 21 -22 with up to 40 incidents per hour expected. In 2009, the moon will be in a waxing crescent phase which will give a pretty clear sky at 10% illumination. Unfortunately in 2010, the moon will be in a waxing gibbous phase which is nearly a full moon, at 97% illumination.

The **Leonids** entertain us from November 13 – 20 with its maximum being on the night of November 17 – 18 when we can expect up to 100 sightings per hour. This meteor shower comes from the debris left by the comet 55P/Tempel-Tuttle. This year will be a good time to view this shower as the moon will be new and so illumination will be 0%. Next year, however, the period will be a waxing gibbous at 81% illumination.

Between December 6 and 19 we have the **Geminids** reaching as many as 120 per hour on the night of December 13 – 14. The waning crescent is only 10% illuminated, so good viewing is expected. In 2010 there will be a first quarter moon with 50% illumination. This shower originates from Comet 3200 Phaethon.

If you would like to learn more about meteor showers, look online. There is a lot of information available there.

2009 Planetarium Shows



Saturn, the Ring Planet

April 3 and 24, 2009 8:00 P.M. Dawn of the Space Age 9:00 P.M. Saturn, the Ring World	May 8 and 22, 2009 8:00 P.M. Dawn of the Space Age 9:00 P.M. Saturn, the Ring World	Jun 12, 2009 8:00 P.M. Dawn of the Space Age 9:00 P.M. Saturn, the Ring World
July, 2009 - Closed		

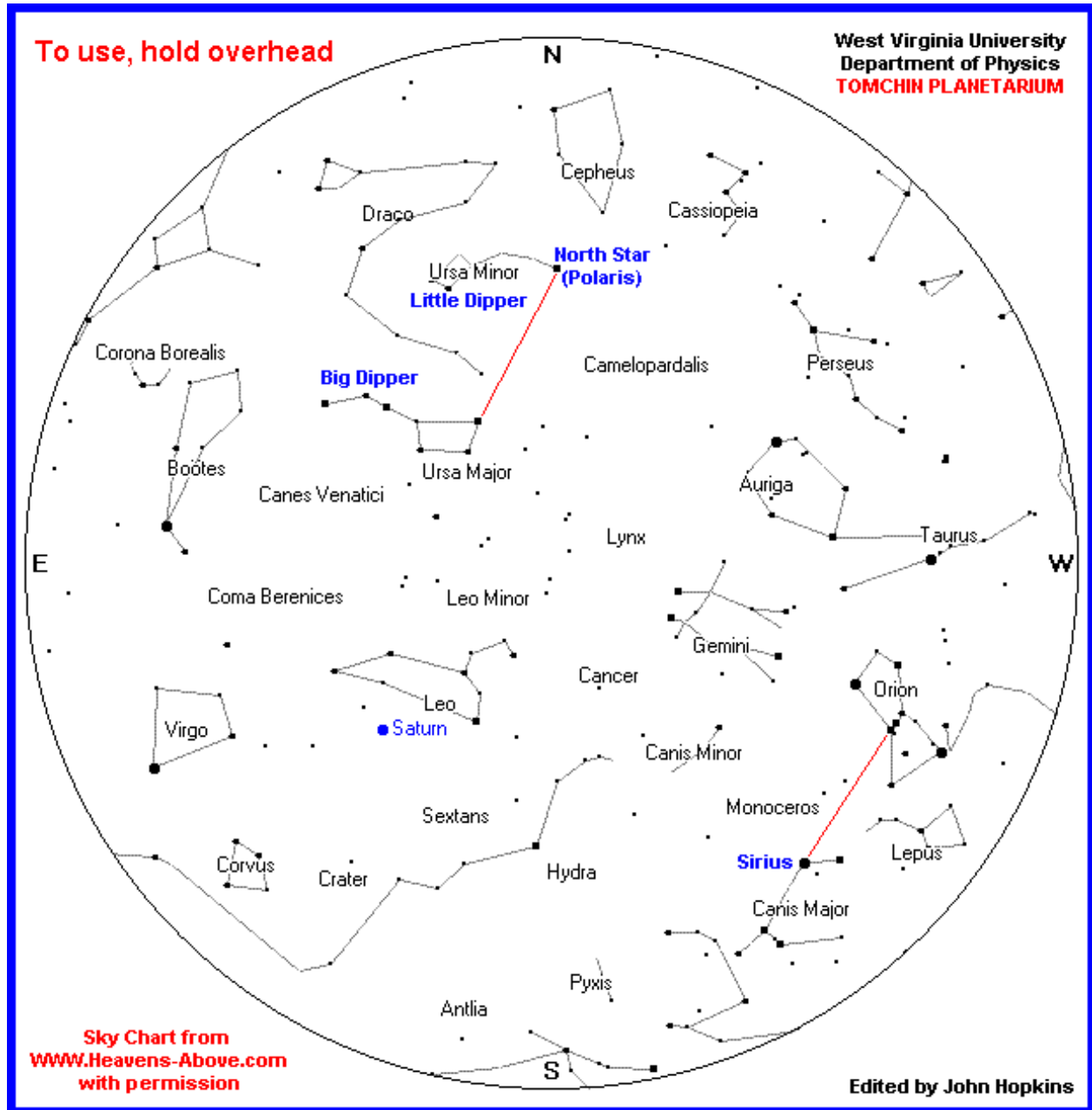
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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 (2009)	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Apr 2	7:02 A.M.	7:43 P.M.	12:08 P.M.	2:46 A.M.	First Qtr
Apr 9	6:51 A.M.	7:50 P.M.	8:21 P.M.	6:26 A.M.	Full Moon
Apr 17	6:39 A.M.	7:58 P.M.	2:42 A.M.	12:27 P.M.	Last Qtr
Apr 24	6:29 A.M.	8:05 P.M.	5:46 A.M.	8:02 P.M.	New Moon
May 1	6:20 A.M.	8:12 P.M.	12:26 P.M.	2:11 A.M.	First Qtr
May 8	6:12 A.M.	8:19 P.M.	8:20 P.M.	5:25 A.M.	Full Moon
May 17	6:03 A.M.	8:28 P.M.	2:06 A.M.	1:18 P.M.	Last Qtr
May 24	5:58 A.M.	8:34 P.M.	5:37 A.M.	9:21 P.M.	New Moon
May 30	5:55 A.M.	8:39 P.M.	12:41 P.M.	1:17 A.M.	First Qtr
Jun 7	5:52 A.M.	8:44 P.M.	9:09 P.M.	5:22 A.M.	Full Moon
Jun 15	5:51 A.M.	8:48 P.M.	12:55 A.M.	1:09 P.M.	Last Qtr
Jun 22	5:52 A.M.	8:50 P.M.	5:19 A.M.	9:08 P.M.	New Moon
Jun 29	5:54 A.M.	8:51 P.M.	1:54 P.M.	12:38 A.M.	First Qtr

April 2009 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 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.



Edited by John Hopkins
 (304)293-3422, extension 1443
 jhopkins@mail.wvu.edu



