

Mountaineer Skies

Volume 6, Issue 2

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

April - June 2006

From the Editor's Desk –

Daylight Saving Time begins at 2:00 A.M. on the first Sunday of April. This year, 2006, that occurs on April 2. Set your clocks ahead 1 hour. This is a good time to check the batteries in your smoke detector.

The **Lyrids Meteor shower** begins on April 16 and runs through April 25 with its maximum on April 22.

The **Eta Aquarids** meteor shower will occur between April 21 and May 12. The predicted maximum happens on May 6.

The first day of summer or the **Summer Solstice** begins on June 21 this year and is followed in three months by the **Autumnal Equinox** on September 22. Then three months later we find the first day of winter, the **Winter Solstice**, on December 21.

In answer to a reader's question, Morgantown, WV is located at **Longitude = 79° 57' 22" W** and **Latitude = 39° 38' 04" N**.

Rise and Set Times

Beginning of April, 2006

	Const	Rise	Transit	Set	Mag
Sun		06:03	12:24	18:44	- 26.8
Mercury	Aqr	05:05	10:46	16:29	0.6
Venus	Cap	04:07	09:30	14:52	- 4.3
Mars	Tau	09:33	17:09	00:43	1.2
Jupiter	Lib	21:32	02:40	07:48	- 2.4
Saturn	Cnc	12:55	20:06	03:18	1.9

Beginning of May, 2006

	Const	Rise	Transit	Set	Mag
Sun		6:19	13:17	20:14	- 26.8
Mercury	Psc	5:45	12:12	18:39	- 0.6
Venus	Psc	04:40	10:37	16:33	- 4.1
Mars	Gem	09:54	17:27	00:59	1.5
Jupiter	Lib	20:17	01:29	06:40	- 2.5
Saturn	Cnc	11:56	19:11	02:22	2.0

Beginning of June, 2006

	Const	Rise	Transit	Set	Mag
Sun		05:54	13:18	20:41	- 26.8
Mercury	Tau	06:52	14:26	22:03	- 0.8
Venus	Ari	04:08	10:49	17:28	- 4.0
Mars	Cnc	09:23	16:44	00:04	1.7
Jupiter	Lib	17:58	23:13	04:28	- 2.5
Saturn	Cnc	10:05	17:18	00:27	2.1

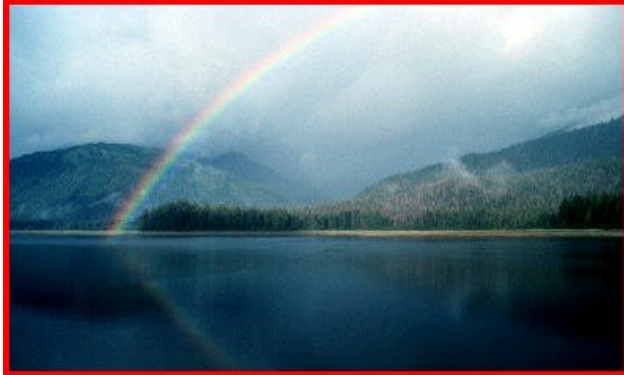
Aqr	Aquarius, the Water Bearer
Cap	Capricornus, the Goat
Cnc	Cancer, The Crab
Gem	Gemini, the Twins
Lib	Libra, The Scales or Balances
Psc	Pisces, the Fishes
Tau	Taurus, the Bull
Ari	Aries, the Ram

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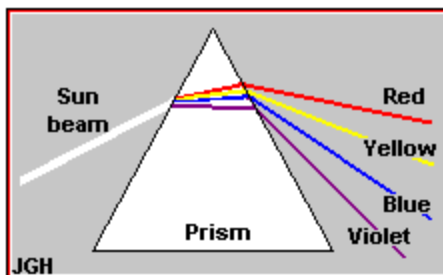
About: Rainbows

After a rain we often see an arc (or bow) of subtle colors painted across the sky opposite the Sun. This phenomenon, that we are all familiar with, is, of course, called a **rainbow**.



Photograph courtesy of NOAA

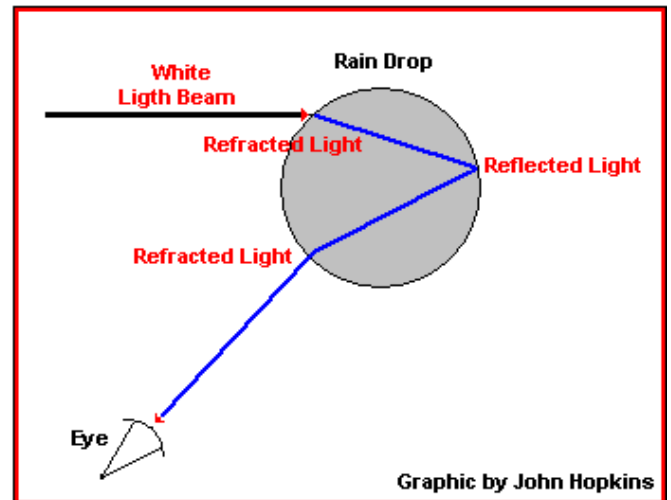
If you look closely, you will notice that the colors in a rainbow are not randomly distributed but rather are arranged in an order, beginning on the outside and moving inward, red, orange, yellow, green, and blue through indigo and violet. (Remember the Roy G .Biv.)



To make a rainbow, you need only two things, a white light source, usually sunshine, and water (or another liquid) droplets suspended in the atmosphere which act as prisms.

There is one new word that we need to learn – “**refraction**”. When light goes from one medium to another, say from air to water or water to air, the light is bent or changes direction at the boundary layer between the two. This phenomena occurs because light travels at different speeds in different media. Remember that the speed of light is constant only in a vacuum. The speed of light in glass is only about 2/3 of that in a vacuum.

A beam of sunlight (essentially white light) enters a rain drop and is refracted at the boundary between the air and rain water. Next it is reflected at the back of the rain drop and is once again refracted as it exits the rain drop at the boundary between the rain drop and the air, and then finally enters your eye.



From an individual raindrop, only one wavelength (color) emerges and enters your eye. Of course, there are many, many drops of rain and, thus, all colors are included.

The reason that the colors are sorted in the sky is due to different wavelengths that light refracts at different angles. For example, red light is reflected back to your eye at 42°, blue light is reflected back at 40°, etc.

If the Sun is greater than 42° above the horizon or the Sun is not at your back, you will not be able to see a rainbow.

By the way, there is such as thing as a “moonbow” but the colors are much fainter because the light source, the Moon, is much less intense than the Sun.

Liquid water outside of Earth is very rare, but there are other liquids available. For instance on Saturn’s moon Titan there is almost certainly no liquid water, but there is probably some liquid methane, CH₄, which means that there may very well be methane rainbows on Titan.

2006 Planetarium Shows



April 14 & 28, 2006 <i>Hubble Vision 2</i>	May 12 & 26, 2006 <i>Hubble Vision 2</i>	June 9, 2006 <i>Hubble Vision 2</i>
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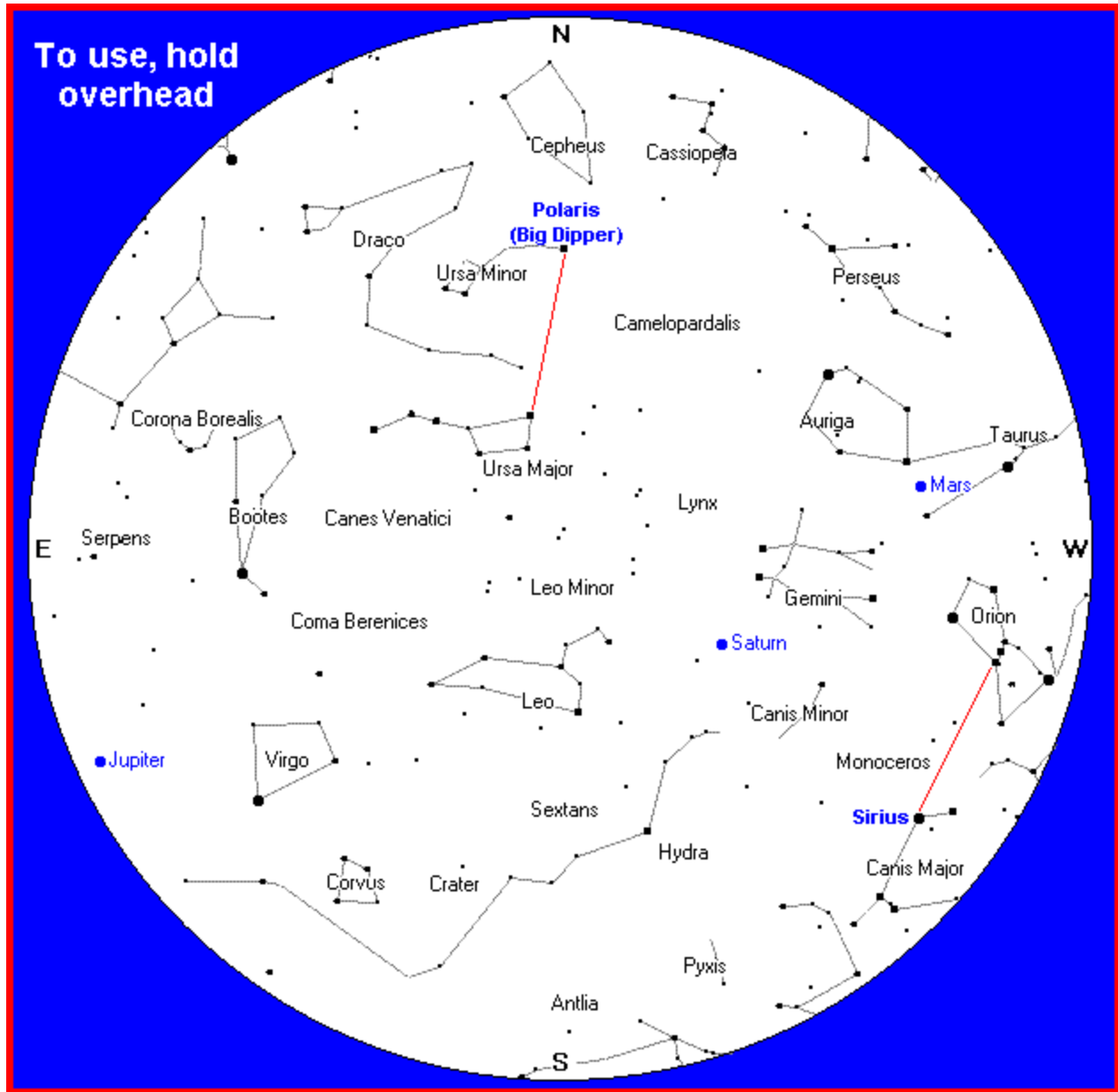
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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 (2006)

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
April 5	6:58 A.M.	7:46 P.M.	12:03 P.M.	3:08 A.M.	First Qtr
April 13	6:46 A.M.	7:54 P.M.	8:13 P.M.	6:35 A.M.	Full Moon
April 20	6:35 A.M.	8:01 P.M.	2:32 A.M.	11:35 A.M.	Last Qtr
April 27	6:26 A.M.	8:08 P.M.	6:04 A.M.	8:24 P.M.	New Moon
May 5	6:16 A.M.	8:16 P.M.	1:00 P.M.	2:53 A.M.	First Qtr
May 13	6:07 A.M.	8:24 P.M.	9:22 P.M.	5:56 A.M.	Full Moon
May 20	6:01 A.M.	8:30 P.M.	2:23 A.M.	1:10 P.M.	Last Qtr
May 27	5:56 A.M.	8:36 P.M.	5:48 P.M.	9:43 P.M.	New Moon
June 3	5:53 A.M.	8:41 P.M.	12:50 P.M.	1:43 A.M.	First Qtr
June 11	5:51 A.M.	8:46 P.M.	9:22 P.M.	5:14 A.M.	Full Moon
June 18	5:51 A.M.	8:49 P.M.	1:20 A.M.	1:27 P.M.	Last Qtr
June 25	5:53 A.M.	8:51 P.M.	5:22 A.M.	9:29 P.M.	New Moon

April 2006 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.



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