

# Mountaineer Skies

Volume 12, Issue 4

<http://planetarium.wvu.edu/>

October – December, 2012

## Calendar

**Nov 04 - Daylight Saving - Set Clock Back 1 Hour (United States)** Daylight Saving Time (DST) ends on November 4. Set clocks back one hour. (Fall back) This is a convenient time to change the batteries in your smoke detectors which should be done at least once a year. DST will begin again on March 10, 2013, when you will set your clocks forward one hour. (Spring forward)

**Dec 13/14 Geminids**, max projected 120 per hour, new moon so dark skies, very reliable, from the constellation Gemini the twins. This is the one meteor shower not to miss.

**Dec 21 - Winter Solstice** - On December 21 the Winter Solstice occurs. This is the day when we have the longest period of darkness and shortest period of daylight.

**Dec 21 - Mayan Calendar Ends** - One cycle ends on this day which ends the Mayan Long Count calendar. There are some uninformed people who think that somehow the Earth will end on this date. There is no scientific evidence that this will happen. My advice is to continue to pay your credit card bills and your mortgage, and do not hide under the bed.

**Dec 25** at 8:00 P.M. in the southeast and moving across the night sky westward, the moon will be very bright being 95% illuminated. Just above the moon the bright planet Jupiter can be seen. By 10:30 P.M. Jupiter will be just past due south followed by the moon just to its left – a Christmas present from the cosmos.

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## In The Sky This Quarter

### Visible Planets in the Night Sky

#### Beginning of October, 2012

	Const	Rise	Transit	Set	Mag
Sun		07:17	13:09	19:01	-26.8
Mercury	Vir	08:39	14:06	19:36	-0.4
Venus	Leo	03:54	10:39	17:23	-4.1
Mars	Lib	11:18	16:11	21:03	1.2
Jupiter	Tau	22:15	05:35	12:59	-2.6
Saturn	Vir	08:55	14:29	20:01	0.7

#### Beginning of November, 2012

	Const	Rise	Transit	Set	Mag
Sun		07:50	13:03	18:17	-26.8
Mercury	Scor	09:54	14:34	19:12	0.0
Venus	Vir	04:56	10:56	16:56	-4.0
Mars	Oph	11:06	15:44	20:21	1.2
Jupiter	Tau	20:08	03:27	10:47	-2.8
Saturn	Vir	07:11	12:41	18:08	0.6

#### Beginning of December, 2012

	Const	Rise	Transit	Set	Mag
Sun		07:23	12:09	16:56	-26.8
Mercury	Lib	05:38	10:48	15:59	-0.4
Venus	Lib	05:02	10:17	15:32	-4.0
Mars	Sgr	09:48	14:25	19:01	1.2
Jupiter	Tau	16:56	00:14	07:31	-2.8
Saturn	Vir	04:30	09:53	15:20	0.6

Tau	Taurus, The Bull
Vir	Virgo, The Maid
Leo	Leo, The Lion
Lib	Libra, The Scales
Scor	Scorpius, The Scorpion
Oph	Ophiuchus, The Serpent Holder
Sgr	Sagittarius, The Archer

### About: **When Will Space Tourism Begin?**

Actually, it already has. On April 28, 2001, Dennis Tito became the first person to fly into space as a tourist. He rode to the International Space Station (ISS) aboard a Russian Soyuz rocket. The cost of the ticket was reported to be in excess of \$20 million. Since that year, five other civilians have flown to the ISS aboard a Russian rocket. Aptly named Mark Shuttleworth went in April 2002, Greg Olsen in October 2005, Anousheh Ansari (the first woman tourist) in 2006, Richard Garriott in 2008, Charles Simonyi in 2007 and then again in 2009, and finally, Guy Laliberte also in 2009. It was reported that the last tickets were as high as \$35 million each. The company that arranged the trip is called **Space Adventures** of Vienna, Virginia. This company also sells seats on the "Vomit Comet", an aircraft whose flight profile gives you the feeling of weightlessness for a short period of time. It is also very hard on your stomach, hence the name. In the future, this same company also wants to be able to arrange flights to the Moon when the technology becomes available.

There is another type of flight that is closer to being ready to carry the less affluent, but just as enthusiastic, passengers into space. It is called a suborbital flight. This trip is designed to take a small group to an altitude of 100 km (just over 60 miles), where you experience weightlessness and see the Earth from space. **An altitude of 100 kilometers is the arbitrary beginning of space.** A typical flight is projected to take around two and a half hours, from take off to landing, with about 5 minutes of weightlessness somewhere in the middle. The interesting thing is that you will qualify for astronaut's wings as you will have met the standards set by the [Fédération Aéronautique Internationale](#). Although the trip into space will not be cheap (somewhere between \$100,000 and \$200,000), it is far cheaper than flying to the International Space Station which reportedly now costs \$63 million per seat. It seems it did not take the Russians long to figure out how capitalism works and how to take advantage of it.

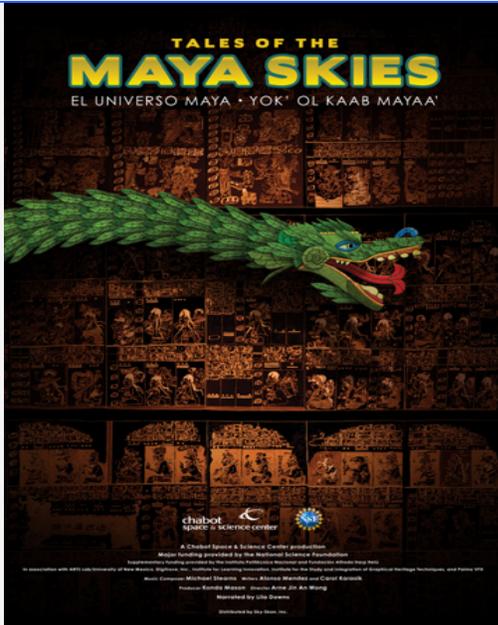
As one can imagine, the conception, development, and testing of a safe suborbital spaceship to transport members of the general public to an altitude of 100 km is a very expensive and time consuming enterprise. To give impetus to the development of such a spacecraft, the Ansari X Prize of \$10,000,000 was established. Essentially, to win, a spacecraft had to be able to carry three people to a height of 100 km twice within a period of two weeks using the same space vehicle. This prize was won on October 4, 2004, by a company called **Scaled Composites**, founded in 1982 by a true aeronautical genius, Burt Rutan. His ability to think out of the box is legendary.

After Rutan and Scaled Composites won the Ansari X Prize, Richard Branson, a British adventurer and investor became their partner for the development and testing of a vehicle that would be able to carry up to six passengers and two pilots to the edge of space. The new company is called **Virgin Galactic** and they are currently booking seats at \$200,000 each. Over 500 people have already booked a flight with a \$20,000 deposit. It is clear that Virgin Galactic is being taken very seriously. Current estimates suggest that their first commercial flights will begin sometime in 2014, but this is not definite as they say that safety is **priority one**. This is quite believable since the first passengers are to include Branson himself and his two children.

There are many more companies who are working to bring suborbital space flight to reality. Some of the more promising ones are **Armadillo Aerospace, Blue Origin, SpaceX, Starchaser, and XCOR.**

So seriously is space tourism now being taken that the great southwestern state of New Mexico has constructed a \$209 million spaceport paid for by the good tax payers of that state. The complex is called **Spaceport America** and includes a hanger and terminal facilities (which looks like a flying saucer from the air), and a very long (2 miles) concrete runway. Now all they need is a flyable space craft. Let's hope it will be soon.

## 2012 Planetarium Shows



**October 12 & 26**  
 7:00 P.M. Tales of the Maya Skies  
 8:00 P.M. Ultimate Universe

**November 9 & 16**  
 7:00 P.M. Tales of the Maya Skies  
 8:00 P.M. Ultimate Universe

**December 7, 14, & 21**  
 7:00 P.M. Season of Light  
 8:00 P.M. Season of Light

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)293-4961 or by email at: [jghopkins@mail.wvu.edu](mailto:jghopkins@mail.wvu.edu)

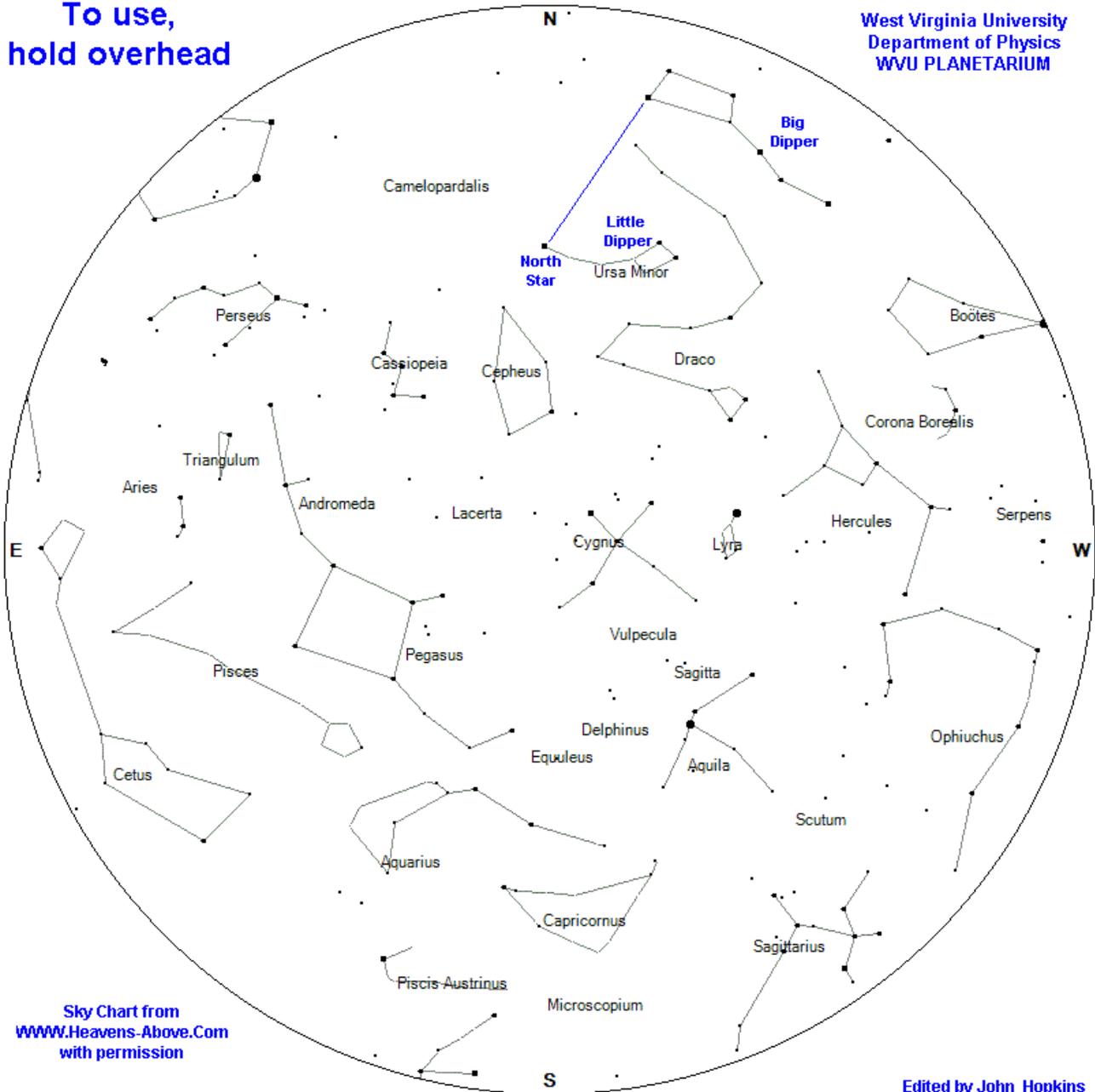
### Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Oct 8	7:23 A.M.	6:52 P.M.	12:03 A.M.	2:38 P.M.	Last Qtr
Oct 15	7:30 A.M.	6:41 P.M.	7:39 A. M.	6:39 P.M.	New Moon
Oct 21	7:36 A.M.	6:33 P.M.	1:57 P.M.	NA	First Qtr
Oct 29	7:45 A.M.	6:22 P.M.	6:13 P.M.	7:35 A.M.	Full Moon
Nov 6	6:54 A.M.	5:13 P.M.	11:50 P.M.	12:46 P.M.	Last 07:Qtr
Nov 13	7:02 A.M.	5:06 P.M.	6:39 A.M.	4:58 P.M.	New Moon
Nov 20	7:10 A.M.	5:01 P.M.	12:45 P.M.	NA	First Qtr
Nov 28	7:18 A.M.	4:57 P.M.	5:11 P.M.	7:15 A.M.	Full Moon
Dec 6	7:26 A.M.	4:55 P.M.	NA	12:20 P.M.	Last Qtr
Dec 13	7:32 A.M.	4:56 P.M.	7:40 A.M.	5:37 P.M.	New Moon
Dec 20	7:36 A.M.	4:58 P.M.	12:15 P.M.	12:24 A.M.	First Qtr
Dec 28	7:40 A.M.	5:03 P.M.	5:39 P.M.	7:34 A.M.	Full Moon

October 2012 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

To use,  
 hold overhead

West Virginia University  
 Department of Physics  
 WVU PLANETARIUM



Sky Chart from  
 WWW.Heavens-Above.Com  
 with permission

Edited by John Hopkins

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

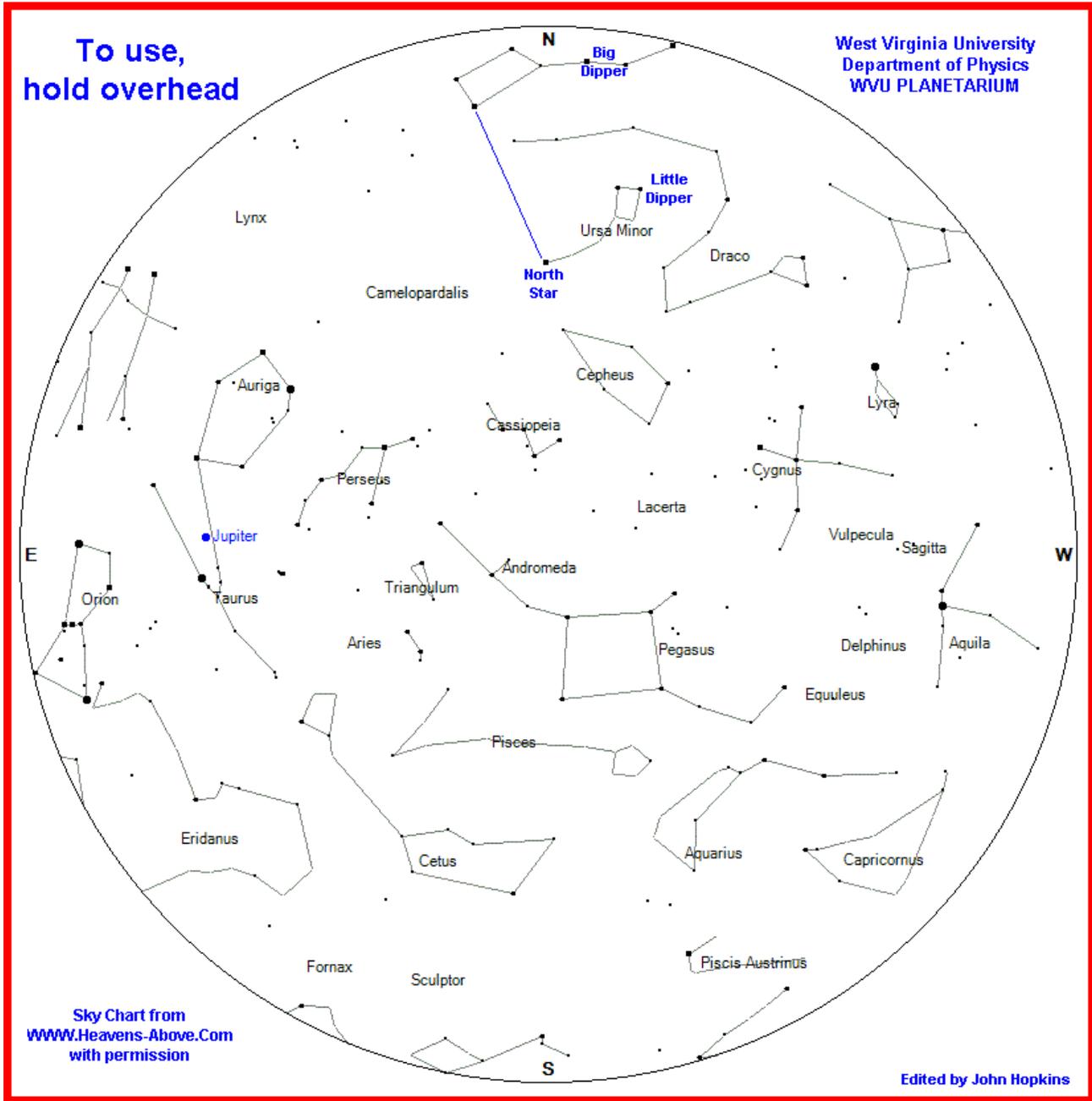
The TOMCHIN PLANETARIUM is named in honor of the late Harold Tomchin, of Princeton, W.Va., who made a generous donation to ensure its continuing operation, and whose family continues to support the planetarium for the educational benefit of WVU students, staff, and faculty members, as well as the local 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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November 2012 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**



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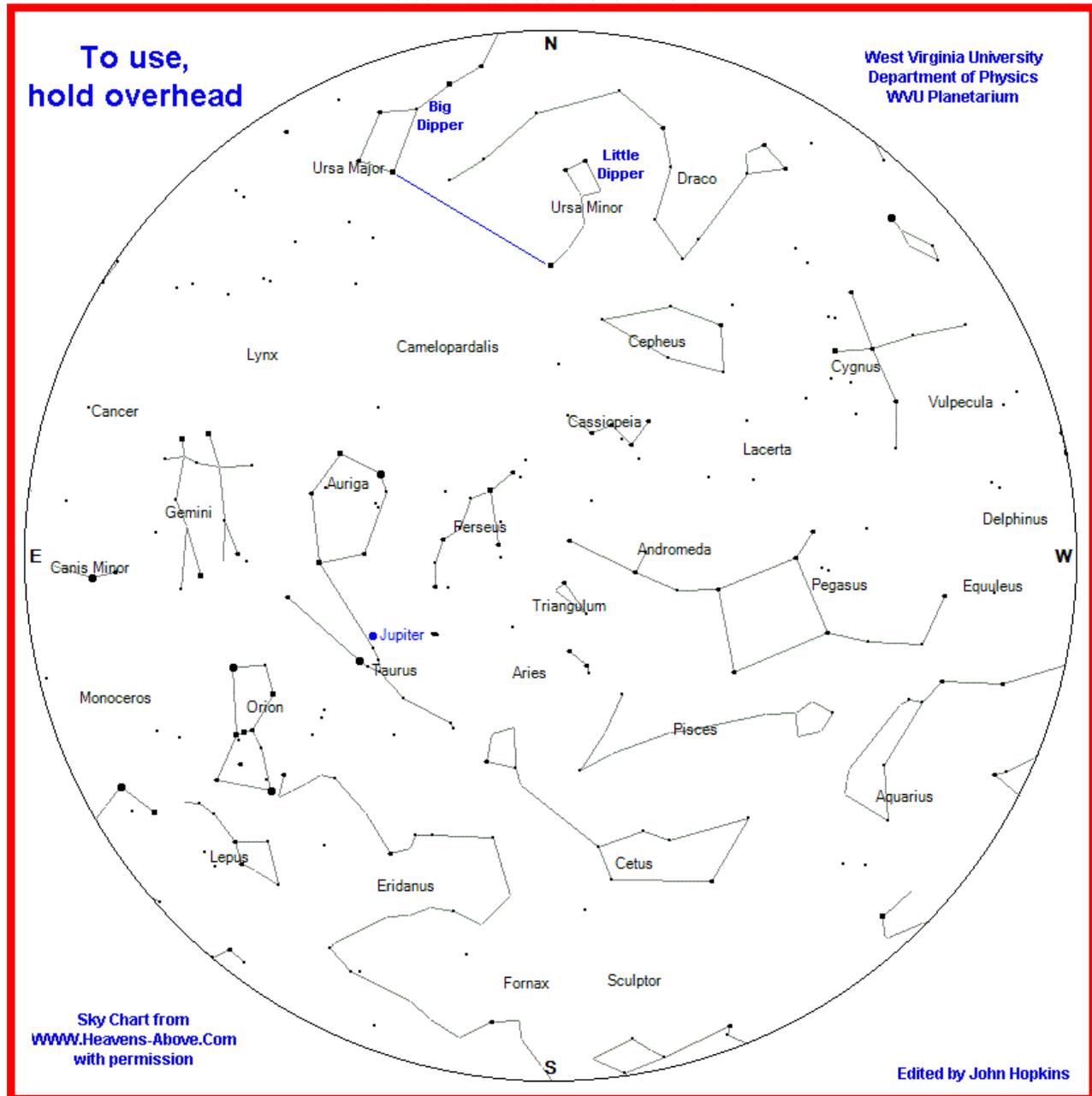
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