WEST VIRGINIA UNIVERSITY
EBERLY COLLEGE OF ARTS AND SCIENCES
THE DEPARTMENT OF PHYSICS
TOMCHIN PLANETARIUM AND OBSERVATORY

Mountaineer Skies

Volume 12, Issue 1 http://planetarium.wvu.edu/ January – March, 2012

On **January 5** the Earth will be closest to the Sun at 0.983 A.U*. This is called perihelion.

The **Chinese New Year**, the **Year of the Dragon**, will begin on our **January 23** which is year 4710 in the Chinese calendar. This is part of a twelve year cycle that includes the year of the **Rat**, **Ox**, **Tiger**, **Rabbit**, **Dragon**, **Snake**, **Horse**, **Goat**, **Monkey**, **Rooster**, **Dog**, **Pig**, then repeats. So 2013 will be the year of the Snake, 2014 the Horse, 2015 the Goat, etc.

Mars will be at opposition on **March 3**. This will be an excellent time to view the planet. It will be visible in the eastern sky around 8:00 P.M. As sunset is around 6:14 P.M. it should be quite dark. However, do not expect it to be huge. This time of year there is often an inaccurate rumor circulated via e-mail saying it will be as large as the Moon. That is completely untrue.

Daylight Saving time will start on **March 11**. Set your clocks ahead one hour (spring forward).

On **March 20** the **Vernal Equinox**, the first day of Spring, will occur. This is the day when there are equal periods of daylight and darkness.

***1 A.U.** (**A**stronomical **U**nit) = 149,597,870.691 km

INSIDE THIS ISSUE

In The Sky This Quarter

Visible Planets in the Night Sky

Beginning of January, 2012

	Const	Rise	Transit	Set	Mag
Sun		07:41	12:23	17:06	-26.8
Mercury	Oph	06:15	10:59	15:41	-0.4
Venus	Cap	09:47	14:48	19:48	-4.0
Mars	Leo	22:40	05:04	11:27	0.2
Jupiter	Psc	12:53	19:31	02:08	-2.6
Saturn	Vir	01:49	07:23	13:00	0.7

Beginning of February, 2012

	Const	Rise	Transit	Set	Mag
Sun		07:27	12:33	17:39	-26.8
Mercury	Cap	07:28	12:19	17:13	-1.1
Venus	Aqr	09:16	15:07	20:58	-4.1
Mars	Vir	20:47	03:11	09:34	-0.6
Jupiter	Ari	10:53	17:37	00:18	-2.4
Saturn	Vir	23:53	05:25	10:57	0.6

Beginning of March, 2012

	Const	Rise	Transit	Set	Mag
Sun		06:51	12:32	18:12	-26.8
Mercury	Psc	07:29	13:35	19:40	-0.8
Venus	Psc	08:33	15:15	21:55	-4.2
Mars	Leo	18:12	00:47	07:22	-1.2
Jupiter	Ari	09:11	16:00	22:47	-2.2
Saturn	Vir	21:56	03:29	09:03	0.4

Oph	Ophiuchus, The Serpent Holder
Cap	Capricornus, The Goat
Psc	Pisces, The Fishes
Vir	Virgo, The Maid
Aqr	Aquarius, The Water Bearer
Ari	Aries, The Ram
Leo	Leo, The Lion

About: A Brief History of the Space Shuttle, Part 1

As the apparent end has come for the NASA Space Shuttle program, it is, perhaps, fitting to look back at this amazing machine and what it has accomplished.

There were five shuttles constructed: **Atlantis**, **Challenger**, **Columbia**, **Discovery**, and **Endeavour**. Both **Challenger** and **Columbia** were sadly lost with all hands. In addition, there was an earlier (1977) shuttle vehicle called **Enterprise** that was used only for testing. It never actually flew into space. This vehicle was named after the science fiction series ***Star Trek***'s space ship **USS Enterprise (NCC-1701)**.

The space missions within NASA are called **STS** (**Space Transportation System**) followed by the number of that mission. Unfortunately they are not always sequential. The maiden flight of the space shuttle program, called **STS-1**, occurred on April 12, 1981, when **Space Shuttle Columbia** successfully lifted off from Cape Canaveral. It was in space just over two and a quarter days. This mission was simply a demonstration flight showing that the shuttle was safe to operate. Except for some lost tiles (16), the mission achieved all of its goals. That same year, but seven months later, on November 12, **Columbia** was once again rocketed into space as **STS-2**. This mission was to demonstrate its relatively short turnaround time. Again the mission was quite successful with no lost tiles.

All missions were launched from the **Kennedy Space Center** in Florida and returned either to the Cape or Edwards Air Force Base in California. There was a single exception, **STS-3**, that landed at **White Sands Space Harbor** near Las Cruces, New Mexico. As of June 2011, 135 missions have been flown with the two tragic failures, ***Challenger*, STS-51-L,** on January 28, 1986, which broke up 73 seconds after ignition killing all on board, and the re-entry failure of ***Columbia*, STS-107,** almost exactly 17 years later on February 1, 2003, also killing the entire crew. The other missions essentially have been, if not flawless, almost so.

April 12, 1981 launch (**Columbia**) **STS-1** This was the first space shuttle mission and was designed to demonstrate system viability.

June 10, 1983 launch (**Challenger**) **STS-7 Sally Ride**, the first U.S. woman in space, was on board.

January 28, 1986 launch (**Challenger**) **STS-51-L** On this mission, the twenty-fifth flight, tragically, all hands were lost shortly after takeoff. Among those who were killed was **Christa McAuliffe**, NASA's first **Teacher in Space.** It was decided after an extensive investigation and testing that an O-ring seal on one of the solid fueled rocket boosters had failed.

September 29, 1988 launch (**Discovery**) **STS-26** After almost two years of assessment and reengineering, this flight proved that the flaws that caused the loss of the **Challenger STS-51-L,** crew had been fixed. This mission was successful, reestablishing that the shuttle was once again safe to fly.

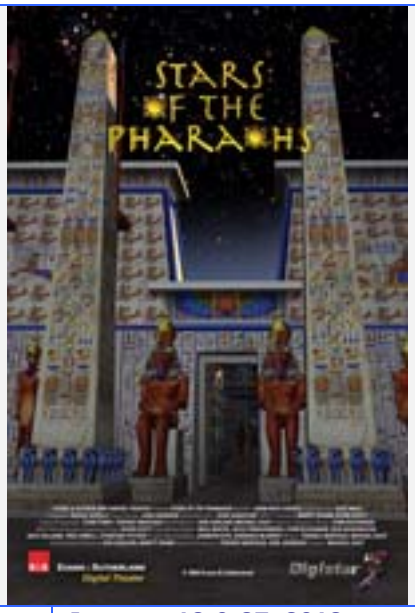
April 24, 1990 launch **(Discovery) STS-31** This flight successfully deployed the **Hubble Space Telescope (HST)** with its 2.4 meter (about 7.9 feet) primary mirror. Although part of the **HST** was found to be defective, it was not related to its deployment. It would take several more missions to fix this problem which occurred during the telescope's construction.

December 2, 1993 launch (**Endeavour**) **STS-61** First Repair mission for the **HST.**

February 11, 1997 launch (**Discovery**) **STS-82** Servicing repair of the **HST.**

October 29, 1998 launch (**Discovery**) **STS-95 John Glenn** at age 77 became the oldest astronaut to date to be a working member of a shuttle crew. He served as a **Payload Specialist 2**.

2012 Planetarium Shows



January 13 & 27, 2012 7:00 P.M. Stars of the Pharaohs 8:00 P.M. Origins of Life	**February 10 & 24, 2012** 7:00 P.M. Stars of the Pharaohs 8:00 P.M. Origins of Life	**March 9 & 23, 2012** 7:00 P.M. Stars of the Pharaohs 8:00 P.M. Origins of Life
April 13 & 27, 2012 8:00 P.M. Stars of the Pharaohs 9:00 P.M. Origins of Life	**May 11 & 25, 2012** 8:00 P.M. Stars of the Pharaohs 9:00 P.M. Origins of Life	**June 8, 2012** 8:00 P.M. Stars of the Pharaohs 9:00 P.M. Origins of Life

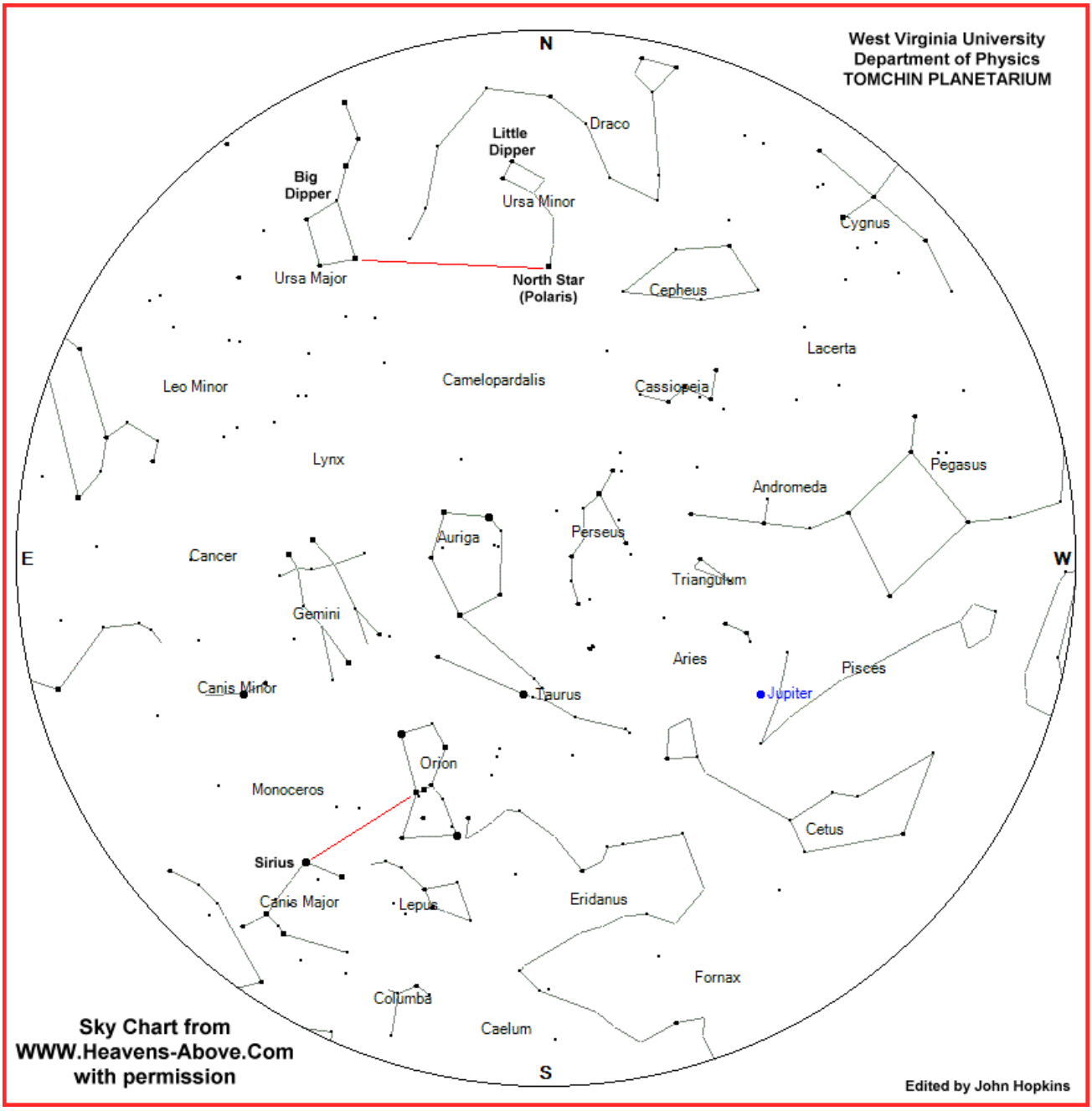
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

For further information or reservations, please call John Hopkins at (304) 293-4961 or by email at: jghopkins@mail.wvu.edu

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Jan 1	7:40 A.M.	5:05 P.M.	11:54 A.M.	12:36A.M.	First Qtr
Jan 9	7:41 A.M.	5:12 P.M.	5:58 P.M.	7:41 A.M.	Full Moon
Jan 16	7:39 A.M.	5:20 P.M.	12:46 A.M.	11:34 A.M.	Last Qtr
Jan 23	7:35 A.M.	5:27 P.M.	7:30 A.M.	6:15 P.M.	New Moon
Jan 30	7:30 A.M.	5:36 P.M.	10:54 A.M.	12:18 A.M.	First Qtr
Feb 7	7:23 A.M.	5:45 P.M.	5:56 P.M.	6:51 A.M.	Full Moon
Feb 14	7:15 A.M.	5:53 P.M.	12:57 A.M.	11:00 A.M.	Last Qtr
Feb 21	7:06 A.M.	6:01 P.M.	6:33 A.M.	6:08 P.M.	New Moon
Feb 29	6:54 A.M.	6:10 P.M.	10:45 A.M.	12:56 A.M.	First Qtr
Mar 8	6:42 A.M.	6:19 P.M.	7:06 P.M.	6:25 A.M.	Full Moon
Mar 14	7:33 A.M.	7:25 P.M.	1:59 A.M.	11:43 A.M.	Last Qtr
Mar 22	7:20 A.M.	7:33 P.M.	6:58 A.M.	7:58 P.M.	New Moon
Mar 30	7:07 A.M.	7:41 P.M.	12:12 P.M.	2:17 A.M.	First Qtr

January 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

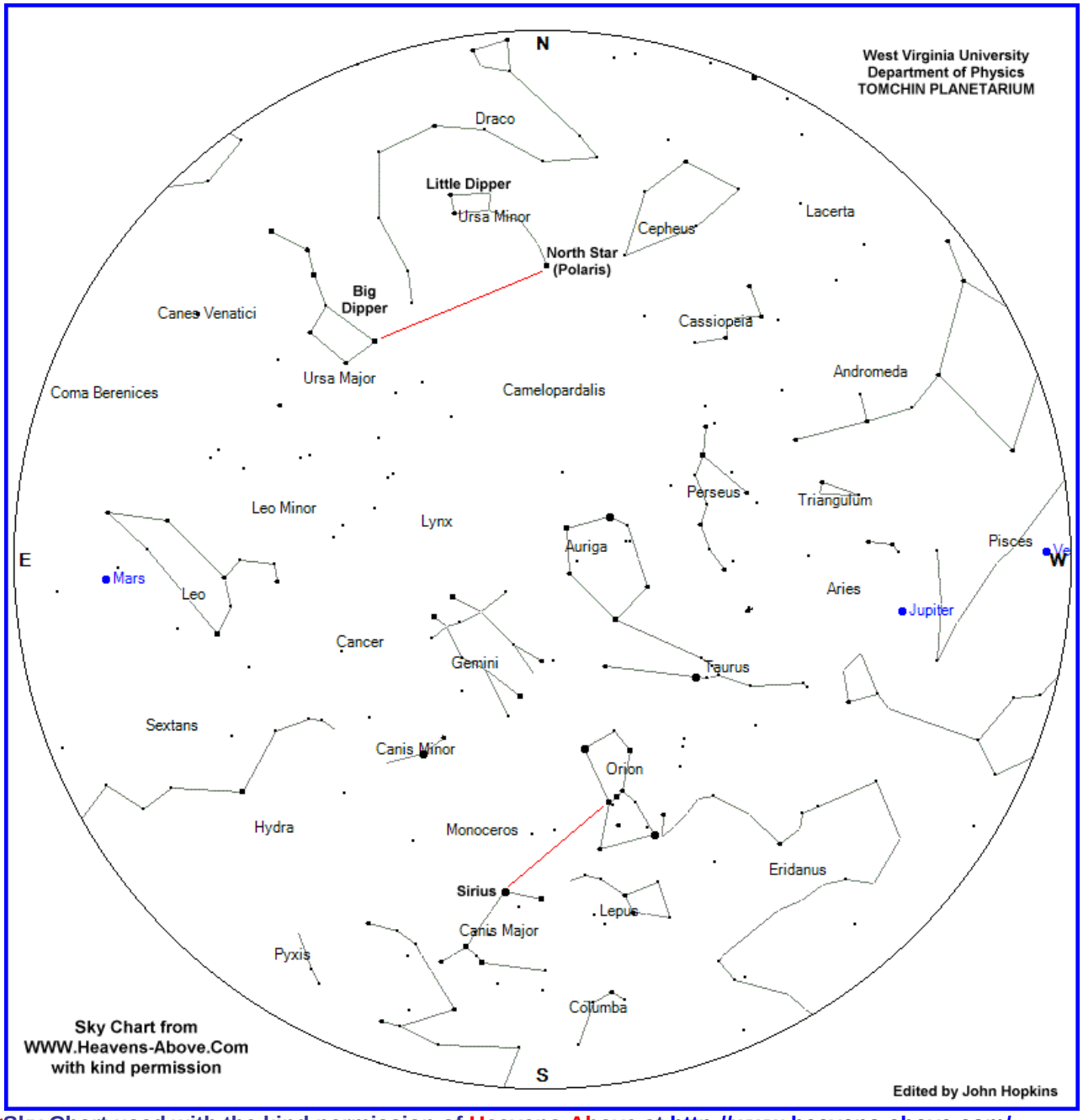


*Sky Chart used with the kind permission of Heavens-Above at http://www.heavens-above.com/

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)293-4961
jghopkins@mail.wvu.edu

February 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

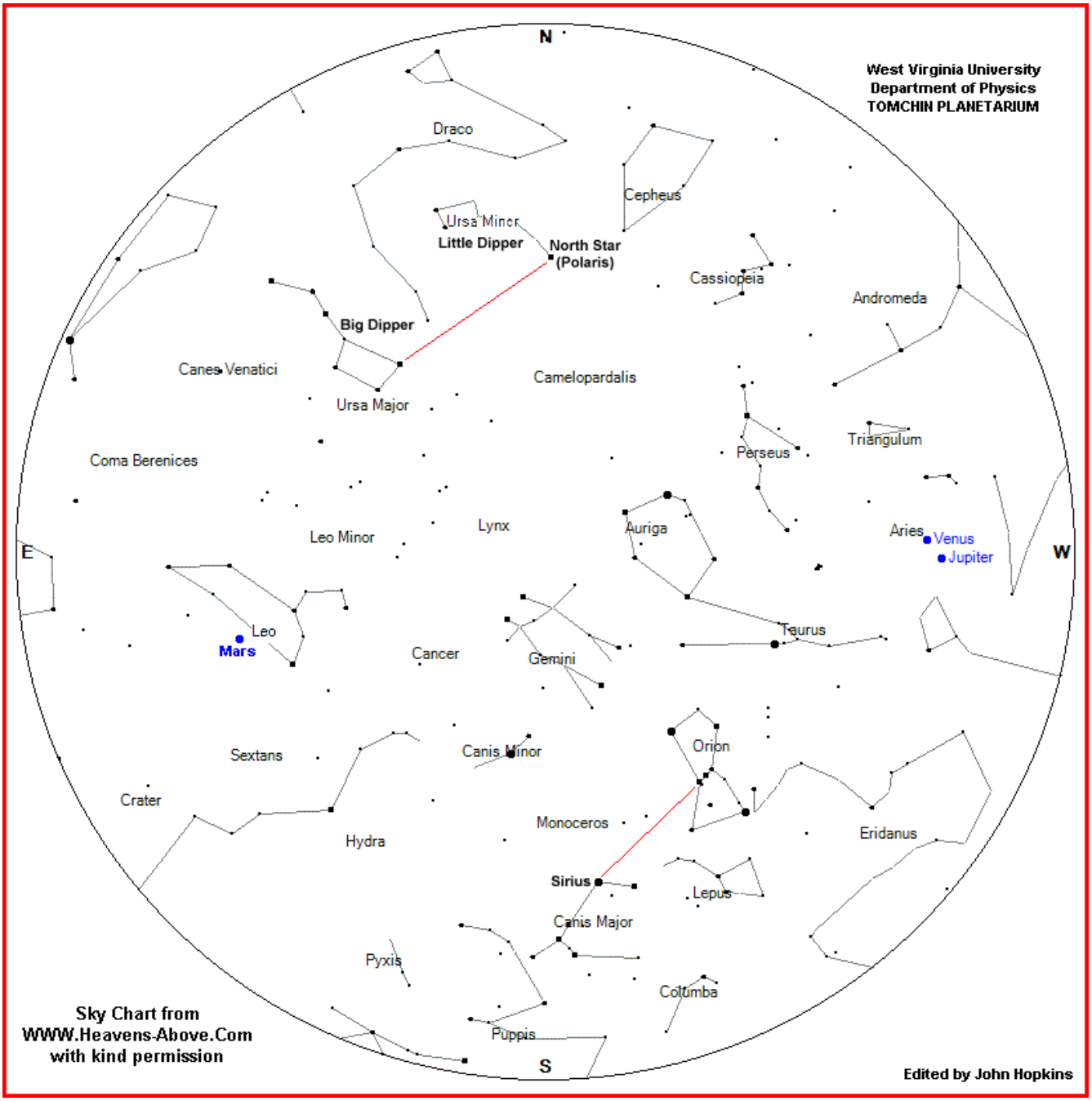


*Sky Chart used with the kind permission of Heavens-Above at http://www.heavens-above.com/

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)293-4961
jghopkins@mail.wvu.edu

March 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



*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)293-4961
jghopkins@mail.wvu.edu