

Mountaineer Skies

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

April 2002

From the Editor

It is that time of year again. **Daylight Saving Time** begins at 2:00 A.M. on Sunday, April 7. Set your clocks ahead 1 hour. Remember the saying "Spring forward, Fall back." This is also a good time to change the battery in your smoke detector.

We change our clocks twice a year. On the **first Sunday of April**, clocks are moved one hour ahead for daylight saving time (DST), and on the **last Sunday of October**, we return to standard time (EST) by setting our clocks back one hour.

Daylight Saving Time is not observed everywhere in the U.S. Hawaii, the eastern time zone part of Indiana, and the state of Arizona (except for the Navajo Indian Reservation) do not observe DST.

In The Sky This Month

Meteor Showers

The **Lyrids**, associated with Comet Thatcher, should be visible between April 19 and April 25 with an expected maximum on April 21 at 1300 of about 10 per hour.

The **Eta Aquarids**, associated with Comet Halley, should be visible from April 24 until May 20 with an expected maximum on May 5 at 02:15 of up to 35 an hour.

Visible Planets in the Night Sky (times are for the middle of the month)

These four planets offer a spectacular alignment this month, but next month will be even better.

Venus in **Aries, The Ram** rises at 07:40, transits* at 14:46, and sets at 21:53 and should provide the brightest image in the sky.

Mars in **Aries, The Ram** rises at 08:18, transits* at 15:41, and sets at 23:03. It continues to dim.

Saturn in **Taurus, The Bull** rises at 09:04, transits* at 16:27, and sets at 23:46. Still located in the horns, it is bright and easy to see.

Jupiter in **Gemini, The Twins** rises at 10:49, transits* at 18:22, and sets at 01:52 the next morning. It is second only to Venus in brightness.

*A transit occurs when a celestial body passes an imaginary line that extends from directly overhead (the zenith) to south on the horizon.

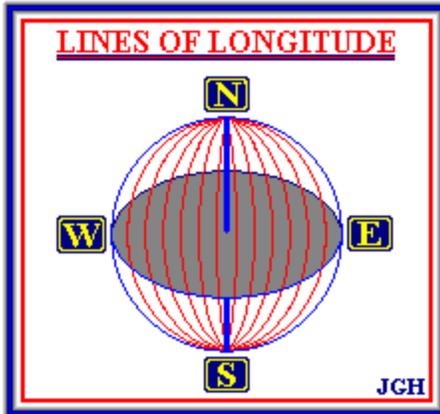
INSIDE THIS ISSUE

- 1 **In The Sky This Month**
- 2 **About: Universal Time**
- 2 **The Hubble Space Telescope (HST)**
- 3 **Planetarium Show Schedule**
- 3 **Selected Sunrise/Sunset, Moon Rise/Moon Set Times**
- 4 **Monthly Sky Chart**

About: Coordinated Universal Time

Often you will find astronomical event times with the letters **UTC** after them. This is an abbreviation for **Coordinated Universal Time**. It is also called **Universal Time** which is abbreviated **UT** or earlier it was called **Greenwich Mean Time (GMT)**. This is the time kept at Greenwich, England, zero longitude.

Lines of longitude extend from pole to pole and, unlike lines of latitude, are of equal length.



These lines are measured, beginning at Greenwich England, from 0° to 180° East and 0° to 180° West. When it is noon at Greenwich, it is noon anywhere along the zero longitude line. At exactly the same time, if you are 15° west of Greenwich, it will be 11:00 local time and if you are 15° east it will be 13:00 local time. If you live in the Eastern U.S. time zone, we are 5 hours behind Greenwich. We are 75° West (actually 80°) so $75^\circ/15^\circ = 5$ hours and West means that we are 5 hours behind. See accompanying time zone chart from the U.S. Naval Observatory.

Conversion from UT to Eastern Standard Time

If you want to convert **UT to EST**, use

$$\text{EST} = \text{UT} - 5 \text{ hours}$$

So if UT = 15:00 (3:00 P.M.), then

$$\text{EST} = 15:00 - 5 = 10:00 \text{ (10:00 A.M.)}$$

Conversion from UT to Daylight Saving Time

If you want to convert **UT to EDT**, use

$$\text{EDT} = \text{UT} - 4$$

So if UT = 15:00 (3:00 P.M.), then

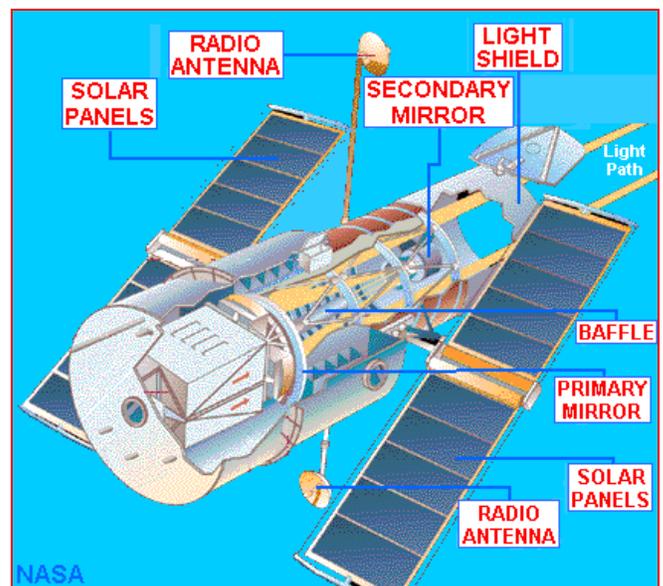
$$\text{EDT} = 15:00 - 4:00 = 11:00 \text{ (11:00 A.M.)}$$

FYI: Kandahar, Afghanistan is 9:30 hours ahead of Eastern Standard Time (EST) and 8:30 hours ahead of Eastern Daylight Saving Time (EDT). So if it is 10:00 EST here, it is 19:30 in Kandahar and if it is 10:00 EDT, then it is 18:30 there.

The Hubble Space Telescope

The Hubble Space telescope is really just a type of reflector telescope. If you look closely, you will notice that it has a primary and secondary mirror, just as any simple Newtonian does. Put into orbit in 1990, it was readily apparent from the beginning that there was a problem with the primary mirror. Although the defect was smaller than a human hair, the images were fuzzy. In 1993 astronauts installed small mirrors that would correct the light from the flawed mirror before it got to the focus point. This fixed the problem.

Hubble Space Telescope (HST)



The telescope weights 12 tons and is about the size of a yellow public school bus. It has the potential of seeing a lighted match in Tokyo from Washington, D.C. and takes just over an hour and a half to go round the earth once.

It has provided many incredible deep space photographs. Here are two sites that contain some of the better images from Hubble.

1. Hubble Space Telescope Public Pictures

<http://oposite.stsci.edu/pubinfo/Pictures.html>

2. The Best of the Hubble Space Telescope

<http://www.seds.org/hst/>

2002 Planetarium Shows

Magellan: Report from Venus - The Magellan radar-mapping mission to Venus was extraordinarily successful; the spacecraft returned more data than all NASA's previous planetary missions combined. During this half-hour planetarium show, we follow Magellan's progress, from its launch through the most significant discoveries. Included are spectacular images of volcanoes, impact craters and landslides. Important planetary science topics of volcanism, tectonism, and impact cratering are covered, and radar imaging is discussed.

Coming in Late August



Narrated by Patrick Stewart

April 12 & 26, 2002 <i>Magellan from Venus</i>	May 10 & 24, 2002 <i>Magellan from Venus</i>	June 14, 2002 <i>Magellan from Venus</i>
July, 2002 Closed	August 23, 2002 <i>MarsQuest</i>	September 13 & 27, 2002 <i>MarsQuest</i>

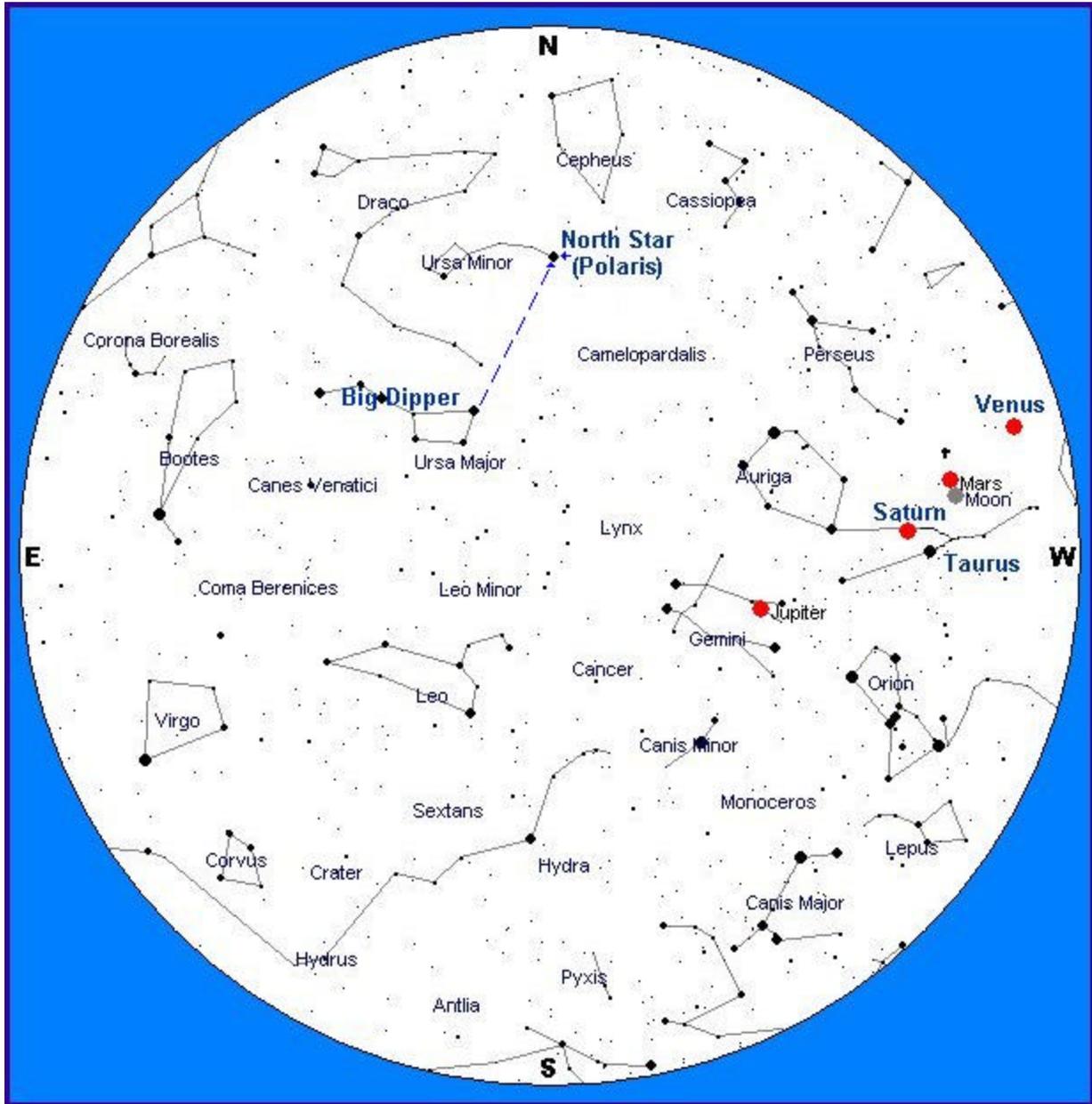
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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
April 4	5:59 A.M.	6:45 P.M.	1:44 A.M.	11:04 A.M.	Waning Gibbous
April 12	6:47 A.M.	7:53 P.M.	7:03 A.M.	7:53 P.M.	New Moon
April 20	6:35 A.M.	8:01 P.M.	12:26 P.M.	2:51 A.M.	First Quarter
April 26	6:27 A.M.	8:07 P.M.	7:49 P.M.	6:24 A.M.	Full (Pink) Moon

April 2002 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 Foundation Inc.



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