

Mountaineer Skies

Volume 10, Issue 2

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

April - June 2010

During this quarter (April – June, 2010), **Venus** will be especially bright. See the table in the right column. Remember that the smaller the magnitude (Mag), the brighter the object. So at the beginning of April, Mars will not be very bright at **0.2**, but Venus will be at **-3.9**.

On April 22, the **Lyrids Meteor Shower** will peak at about 10 per hour. Not very enthusiastic.

The **Eta Aquarids Meteor Shower** will be at its maximum on May 5. This will probably be a very spectacular display.

The **Moon occults Venus** on May 16. Unfortunately, it will only be visible in northern Africa and southern Asia.

The **Summer Solstice**, or the first day of summer, begins on June 21. This is the day with the longest period of daylight.

In The Sky This Quarter

Visible Planets in the Night Sky

Beginning of April, 2010

	Const	Rise	Transit	Set	Mag
Sun		07:00	13:23	19:45	-26.8
Mercury	Psc	07:36	14:24	21:13	-0.8
Venus	Ari	07:52	14:36	21:21	-3.9
Mars	Cnc	13:38	21:02	04:26	0.2
Jupiter	Aqr	06:07	11:52	17:40	-2.1
Saturn	Vir	18:32	00:43	06:54	0.6

Beginning of May, 2010

	Const	Rise	Transit	Set	Mag
Sun		06:17	13:16	20:15	-26.8
Mercury	Ari	06:02	12:57	19:47	4.9
Venus	Tau	07:39	15:05	22:32	-3.9
Mars	Cnc	12:33	19:44	02:55	0.7
Jupiter	Aqr	04:25	10:18	16:14	-2.2
Saturn	Vir	16:25	22:38	04:52	0.8

Beginning of June, 2010

	Const	Rise	Transit	Set	Mag
Sun		05:51	13:17	20:43	-26.8
Mercury	Ari	04:49	11:43	18:36	0.1
Venus	Gem	08:12	15:46	23:20	-4.0
Mars	Leo	11:45	18:38	01:29	1.1
Jupiter	Psc	02:36	08:36	14:39	-2.3
Saturn	Vir	14:19	20:34	02:48	1.0

Gem	Gemini, The Twins
Leo	Leo, The Lion
Psc	Pisces, The Fishes
Ari	Aries, The Ram
Aqr	Aquarius, The Water Bearer
Vir	Virgo, The Maid
Tau	Taurus, The Bull
Cnc	Cancer, The Crab

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About: Ancient Egyptian Astronomy

Egypt. The name evokes the great pyramids, sand, lots of sand, the Nile River, the pharaohs, and of course, mummies. Additionally, if you watch the History Channel, you are also familiar with Dr. Zahi Hawass, the outspoken Secretary General of the Supreme Council of Antiquities and Director of the Giza Pyramids Excavation.

Egypt is one of the oldest continuing civilizations on Earth, with the First Dynasty beginning around 3050 B.C., although some individual parts of the country probably date from as early as 5500 B.C. That is over 7500 years old. The United States, as a country, has been in existence less than 250 years.

The Ancient Egyptians were a very pragmatic people when it came to astronomy, if not in their religion. If you can recall your fifth grade geography, you remember that when the Nile floods annually, it brings suspended material, essentially a large quantity of top soil, and deposits it on the banks of the river as the water retreats, effectively fertilizing the land that is near the Nile. Being farmers in an agriculture country, they were mostly concerned about when to plant, when to cultivate, and when to harvest. So they needed a calendar that would help them with these functions.

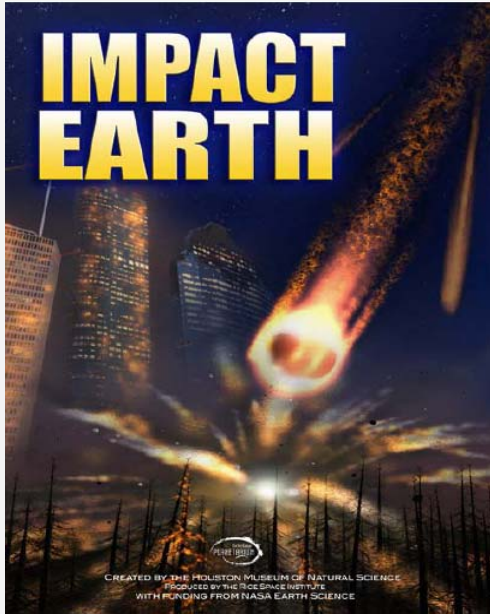
The Egyptian year was divided into three seasons and began on the day when the **Sothis**, the star we call **Sirius**, arose at the same time as the Sun. This occurred around June 21st. Each of the months contained 30 days. The first four months included the swelling of the Nile and the deposition of soil on the banks of the great river. The second four months was the time when they took care of their crops, and the last four months was when they would gather in their bounty. If you do the arithmetic, you find that this accounts for 360 days. As there are 365 and a quarter days in a year, they were about five days short. These five days, called **Epagomenal Days**, were used to celebrate the harvest. I suppose it was similar to

our Thanksgiving. The quarter of a day remained pesky to the priests who were responsible for constructing this all-important calendar. In one year, a quarter of a day is insignificant, but after four years, the calendar lagged behind by a day; in forty years, that would be 10 days, and in four hundred it would be behind by 100 days. Oddly, as brilliant as the Egyptians were in many areas, they never fixed this error. It was not until the Greek astronomers in 46 B.C. fixed the problem by adding an extra day to every fourth year. Essentially that fourth year became a leap year.

Egyptians also used the stars to orient the pyramids. These huge structures had to precisely face the four cardinal points, north, south, east, and west for the Pharaoh's soul (the Ka) to get into the next world. They used the night sky to do this as they had no compasses. (See the **accompanying diagram**.) They had, for a long time, recognized that there was a star that did not appear to move the way all of the others did. The fixed star at the time when the pyramids were constructed was **Thuban**, located in the tail of the constellation of **Draco, the Dragon**, not **Polaris in Ursa Major**, as it is today. This change of pole stars is due to a phenomenon called **precession***. They would first construct a circular brick wall and put an aiming stick at the center of the structure. Then after dark, someone would align the aiming stick with **Thuban** and make a mark on the mud brick wall (**Mark 1**). From this initial mark to the aiming stick was the **North – South** line. Next they would aim at a star that was nearly circumpolar; but it had to rise above the horizon and set below the horizon on the same night. Just as this star came above the horizon, another mark was made on the wall (**Mark 2**). They would then wait until the same star set and made the third and final mark (**Mark 3**) on the mud wall. If you connect **Mark 2** and **Mark 3**, you get the **East – West** line. Very ingenious. Now they had all of the cardinal directions and all they had to do was build the pyramid and the King's soul could get into the afterlife.

***Precession**, at its simplest, refers to a gradual but continuous change in a stars orbital path caused by gravity.

2010 Planetarium Shows



IBEX: Search for the Edge of the Solar System

April 9 & 23, 2010 8:00 P.M. Impact Earth 9:00 P.M. IBEX	May 14 & 28, 2010 8:00 P.M. Impact Earth 9:00 P.M. IBEX	June 11, 2010 8:00 P.M. Impact Earth 9:00 P.M. IBEX
	July, 2010 Closed	

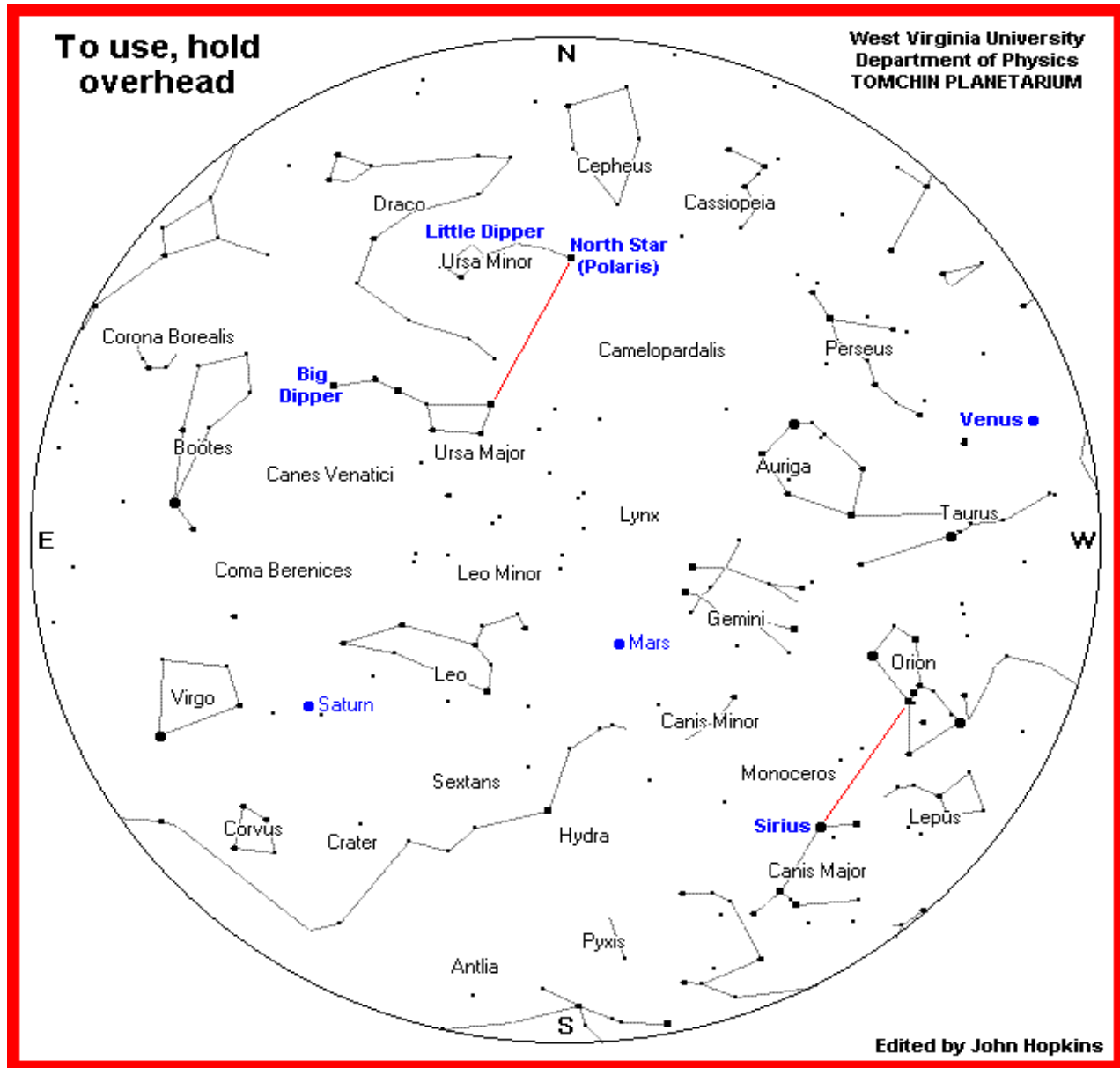
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Apr 6	6:56 A.M.	7:47 P.M.	2:48 A.M.	12:28 P.M.	Last Qtr
Apr 14	6:44 A.M.	7:55 P.M.	6:22 A.M.	8:31 P.M.	New Moon
Apr 21	6:34 A.M.	8:02 P.M.	12:27 P.M.	2:18 A.M.	First Qtr
Apr 28	6:24 A.M.	8:09 P.M.	8:51 P.M.	6:02 A.M.	Full Moon
May 5	6:16 A.M.	8:16 P.M.	1:53 A.M.	12:17 P.M.	Last Qtr
May 13	6:07 A.M.	8:24 P.M.	5:27 A.M.	8:29 P.M.	New Moon
May 20	6:01 A.M.	8:30 P.M.	12:43 P.M.	1:31 A.M.	First Qtr
May 27	5:56 A.M.	8:36 P.M.	8:48 P.M.	5:19 A.M.	Full Moon
Jun 4	5:53 A.M.	8:42 P.M.	1:12 A.M.	1:01 P.M.	Last Qtr
Jun 12	5:51 A.M.	8:47 P.M.	5:45 A.M.	9:21 P.M.	New Moon
Jun 18	5:51 A.M.	8:49 P.M.	12:56 P.M.	12:34 A.M.	First Qtr
Jun 26	5:53 A.M.	8:51 P.M.	9:14 P.M.	5:52 A.M.	Full Moon

April 2010 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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