

Mountaineer Skies

Volume 17, Issue 1

planetarium.wvu.edu

January – February – March 2017

Inside This Issue

1. Save the Date
2. In the Sky this Quarter
3. About: **Google Lunar XPRIZE**
4. Planetarium Show Schedule
5. Monthly Sky Chart - January
6. Monthly Sky Chart - February
7. Monthly Sky Chart - March

Save the Date

All are invited to the interdisciplinary “Celebrating Einstein” events in April! The Main Event, “A Shout Across Time,” is a danced lecture, film, symphony performance at the Creative Arts Center April 21st-23rd, and additional events throughout the month include:

- Einstein Lectures from physicists, mathematicians, and historians
- Einstein in the Schools field trips for local middle schools
- Space Race Fun Run to zoom across the true relative distances between planets
- Einstein artwork and physics demonstrations
- Einstein readings and book display at the WVU Downtown library

Visit Einstein.wvu.edu for details and mark your calendars now!

In The Sky this Quarter

January 1st, 2017

	Const.	Rise	Transit	Set	Mag
Sun	Sag	07:41	12:24	17:07	-26.8
Mercury	Sag	06:56	11:43	16:30	2.4
Venus	Aqr	10:22	15:37	20:51	-4.3
Mars	Aqr	10:50	16:21	21:51	0.9
Jupiter	Vir	01:18	06:54	12:30	-1.8
Saturn	Oph	06:14	10:56	15:38	1.4

February 1st, 2017

	Const.	Rise	Transit	Set	Mag
Sun	Cap	07:27	12:34	18:09	-26.8
Mercury	Sag	06:24	11:05	15:46	0.0
Venus	Psc	09:19	15:22	21:25	-4.4
Mars	Psc	09:41	15:43	21:46	1.1
Jupiter	Vir	23:22	04:59	10:33	-2.0
Saturn	Oph	04:27	09:08	13:49	1.4

March 1st, 2017

	Const.	Rise	Transit	Set	Mag
Sun	Aqr	06:52	12:32	18:12	-26.8
Mercury	Aqr	06:54	12:18	17:41	-1.2
Venus	Psc	07:41	14:17	20:54	-4.4
Mars	Psc	08:38	15:09	21:40	1.4
Jupiter	Vir	21:27	03:07	08:42	-2.2
Saturn	Sag	02:46	07:27	12:08	1.3

- Ari - Aries the Ram
- Tau - Taurus the Bull
- Gem - Gemini the Twins
- Cnc - Cancer the Crab
- Leo - Leo the Lion
- Vir - Virgo the Maiden
- Lib - Libra the Scales
- Sco - Scorpio the Scorpion
- Oph - Ophiuchus the Serpent Holder
- Sag - Sagittarius the Archer
- Cpr - Capricorn the Sea-Goat
- Aqr - Aquarius the Water-Bearer
- Psc - Pisces the Fish

Google Lunar XPRIZE: Going back to the Moon, for good!

In 2007, Google announced their sponsorship of a new project: one to bring back traffic to the moon, which had gone unvisited for more than 30 years, but do it with private funding. The aim was to give a new generation their own “Apollo moment”, engaging interest in science, and furthering private investment in space exploration.

The challenge: form a team to design and launch a commercial space mission to land on the moon, travel 500 meters away from the landing site, and transmit high-resolution images and video back to Earth. The first to do so would receive a prize of \$20 million U.S. dollars, the second \$5 million, with an additional \$5 million available for achieving secondary goals, like images of relics left behind by older moon missions, like the Apollo program. To keep the clock ticking, a deadline of December 2012 for the full prize, and December 2014 for a reduced \$15 million.

Fast-forward to 2017, and the landscape has changed somewhat. After some extensions to the deadline in the spirit of making the goal achievable, the final deadline of December 2017 was set, with the additional requirement of a verified launch contract by the end of 2016. By the end of January 2017 all of the participants still in the running will have made formal announcements.

At the time of writing, the teams with confirmed launch contracts are the U.S.-based Moon Express, the Japanese team HAKUTO, Israel’s Team SpaceIL, India’s Team Indus, and the international Synergy Moon. Five other teams have announced launch contracts of their own or jointly with other teams, but these have yet to be officially confirmed by the

XPRIZE committee. Which, if any, will successfully complete their mission remains to be seen.

The confirmed teams have also chosen four different launch platforms to arrive at the moon. Japanese team HAKUTO has a ride-share contract with Team Indus, which plans to launch aboard an Indian Space Research Organization Polar Satellite Launch Vehicle (PSLV) through a contract with ISRO’s commercial arm. SpaceIL has a contract with U.S. company SpaceX to launch aboard their Falcon 9 rocket, in the news this past year for successfully launching and then landing a Falcon 9. Moon Express has chosen the Rocket Lab Electron rocket, which will have its first test flight in 2017. Synergy Moon has also opted for an untested platform constructed by one of its team members, the Interorbital Systems NEPTUNE.

Since the announcement of the contest, the three-decade gap in visits to the lunar surface has been broken. NASA and ISRO have launched impactors that slammed into the moon, while the China National Space Administration successfully landed their Chang’e 3 mission on the moon in 2013, China’s first lunar rover and the first rover to land on the moon since the Soviet Lunokhod 2 in 1973. These, as well as the Lunar XPRIZE, may be the sign of a new era of moon exploration.

For more information on the Google Lunar XPRIZE, including participating teams, visit their official website at <http://lunar.xprize.org/>

A fulldome show, entitled *Back to the Moon for Good* has also been produced in promotion of this competition, which can be seen at our WVU Planetarium. A version for flat screen devices has been made available for free on YouTube at <https://www.youtube.com/watch?v=OkivPFtLOj4>

Planetarium Shows

All WVU Planetarium shows are free admission

Special Event

In addition to our regular show times below, we'll also be giving a special showing of Back to the Moon on **January 13 at 7:00 PM** so we can take promotional photos for the WVU Planetarium. For more information and to RSVP, visit this form:

<https://docs.google.com/forms/d/e/1FAIpQLSewhmDRIOreVm5PXxTIMNZrCmCj0mZLBzt3-sNIKTIWDBVstg/viewform>

Regularly Scheduled Shows

January 20th	February 3rd, 17th	March 3rd, 17th, 31st
8:00 P.M. <i>Back to the Moon</i> 9:00 P.M. <i>Supervolcanoes</i>	8:00 P.M. <i>Back to the Moon</i> 9:00 P.M. <i>Solar Superstorms</i>	8:00 P.M. <i>TBD</i> 9:00 P.M. <i>TBD</i>

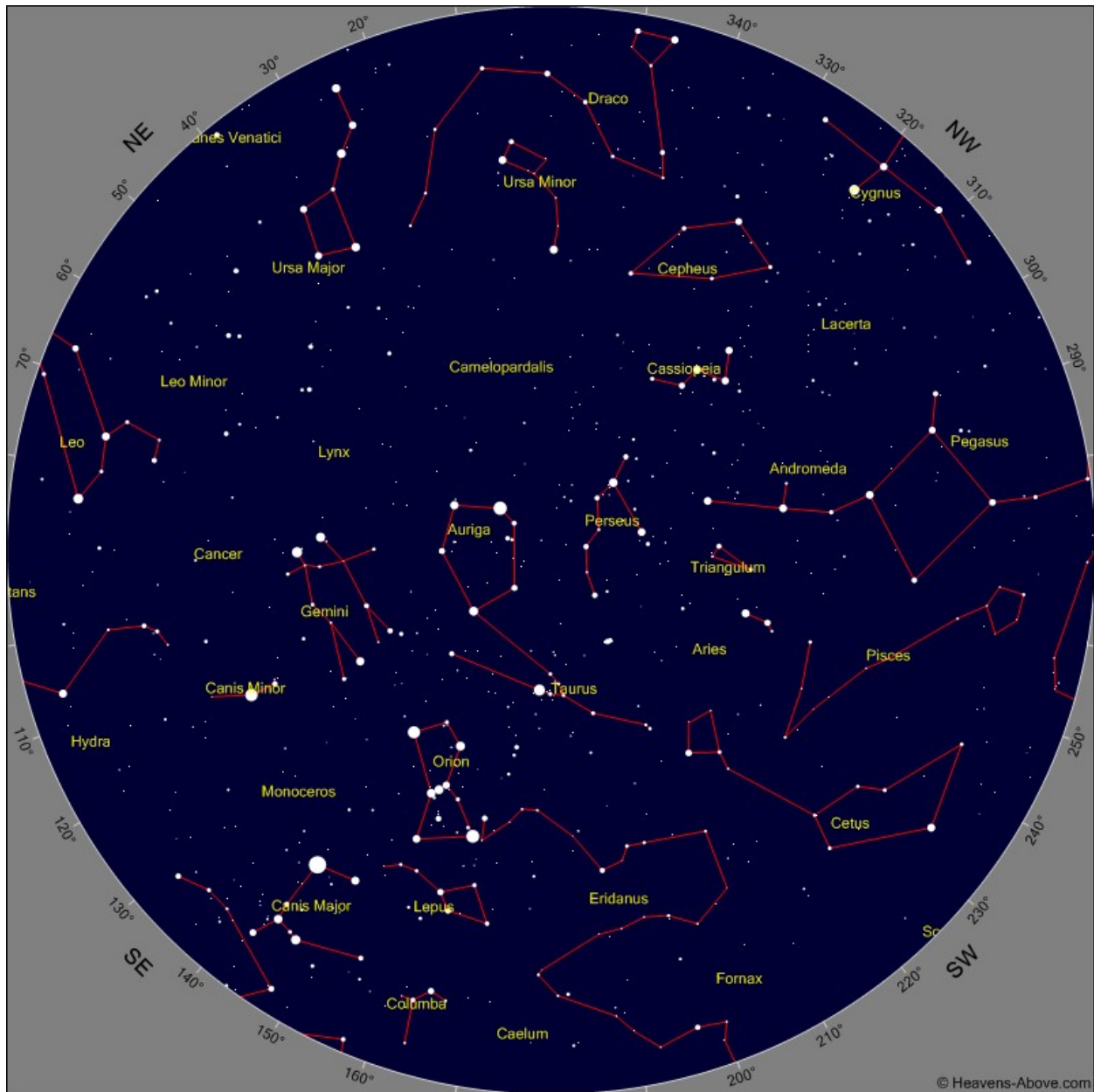
For regularly-scheduled evening shows, be sure to send in a reservation from the Public Shows page of our website so we can get a head count: <http://planetarium.wvu.edu/shows>

For those who are interested in bringing a group such as schools or scouts, please visit our Field Trips page on the website and send us an email: <http://planetarium.wvu.edu/fieldtrips>

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Jan. 20	7:36 AM	5:26 PM	1:03 AM	12:19 PM	Third Quarter
Feb. 3	7:25 AM	5:42 PM	11:22 AM	1:03 AM	First Quarter
Feb. 17	7:09 AM	5:59 PM	10:50 AM	12:43 AM	Third Quarter
Mar. 3	6:49 AM	6:14 PM	10:03 AM	12:03 AM	First Quarter
Mar. 17	7:28 AM	7:29 PM	10:22 AM	12:27 AM	Third Quarter
Mar. 31	7:05 AM	7:43 PM	9:42 AM	11:59 PM	First Quarter

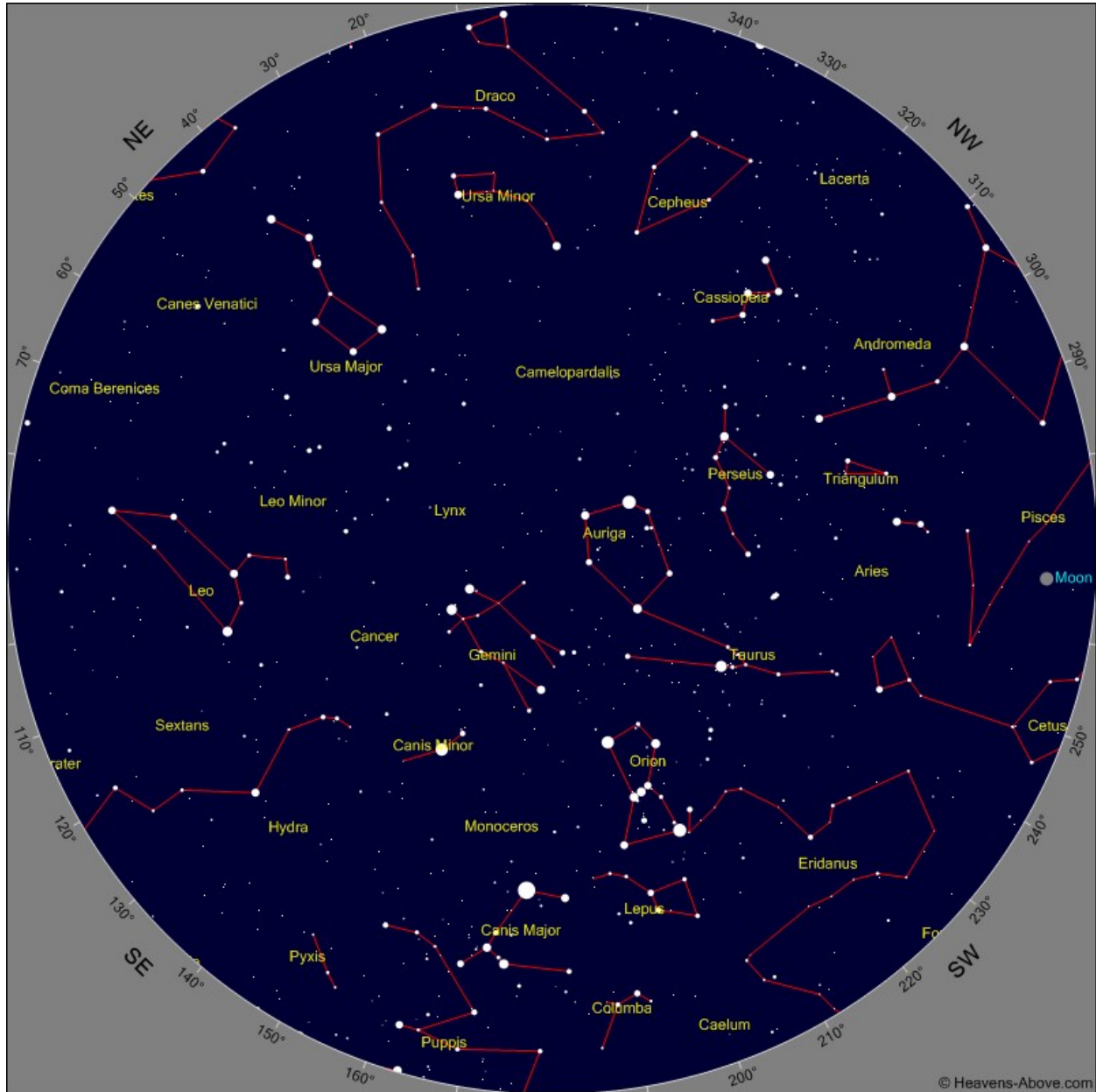
January 2017 Sky Chart* for:
10:00 P.M. at the beginning of the month
9:00 P.M. in the middle of the month
8:00 P.M. at the end of the month



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

The WVU Planetarium is for the educational benefit of WVU students, staff, and faculty members, as well as the local community. Should you wish to make a contribution to the planetarium, it can be made through the WVU Planetarium Project at the WVU Foundation, Inc., phone (304) 284-4000. Thank You.

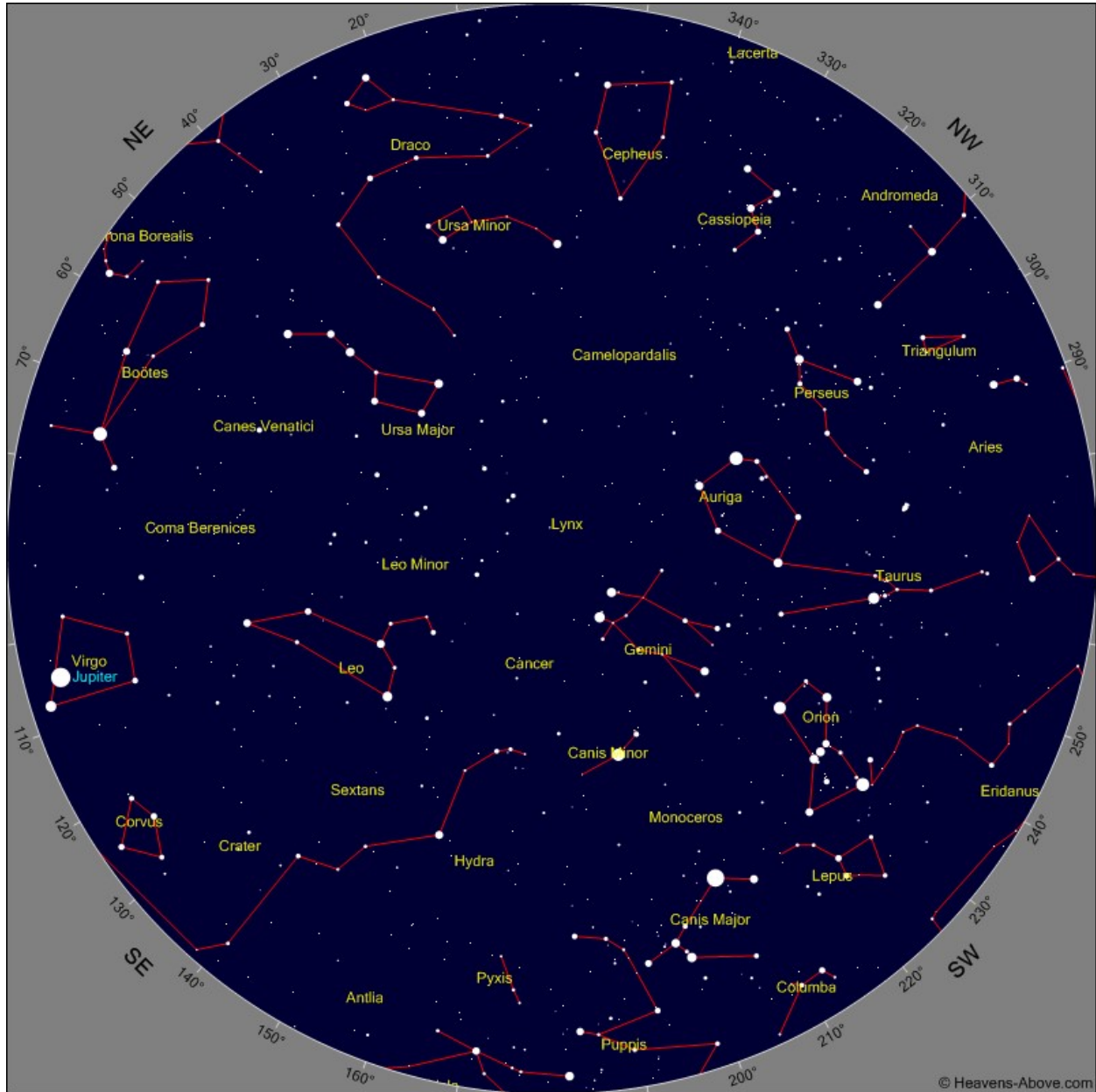
February 2017 Sky Chart* for:
10:00 P.M. at the beginning of the month
9:00 P.M. in the middle of the month
8:00 P.M. at the end of the month



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March 2017 Sky Chart* for:
10:00 P.M. at the beginning of the month
9:00 P.M. in the middle of the month
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