

Mountaineer Skies

Volume 15, Issue 1

<http://planetarium.wvu.edu/> January – February – March 2015

On January 3 the **Quadrantids Meteor Shower** will be at maximum and is best viewed just prior to dawn. As the Moon will be at 97% illumination, viewing may be problematic.

The next day, January 4, the **Earth will be at perihelion**, 0.983 AU (147,098,291 km or 91,402,640 mi) from the Sun.

February 18 is the 85th anniversary of the **discovery of Pluto** by Clyde Tombaugh.

One day later, on February 19, the **Chinese New Year** is celebrated as the Year of the Sheep. Next year, 2016, will bring the Year of the Monkey

Daylight Saving Time begins on March 8. Set your clocks ahead one hour. This is a good time to replace your smoke alarm batteries as well.

The **Vernal Equinox** comes on March 20. This is one of the two days a year when the period of daylight and darkness is of the same length. The other day is the Autumnal Equinox.

If you go to <http://www.iphoneness.com/iphone-apps/top-astronomy-applications-for-iphone/> and read the program descriptions, you should be able to find an **astronomy app** that fits your needs. They really are remarkable. Even a free one is usually amazing.

Planets in the Night Sky

Beginning of January, 2015

	Const	Rise	Transit	Set	Mag
Sun		07:41	12:23	17:06	-26.8
Mercury	Sgr	08:45	13:24	18:05	-0.8
Venus	Sgr	08:51	13:36	18:21	-3.9
Mars	Cap	10:01	15:13	20:24	1.1
Jupiter	Leo	20:17	03:10	10:04	-2.5
Saturn	Lib	04:31	09:29	14:31	0.6

Beginning of February, 2015

	Const	Rise	Transit	Set	Mag
Sun		07:27	12:33	17:39	-26.8
Mercury	Cap	06:52	12:10	17:20	3.8
Venus	Aqr	08:40	14:08	19:36	-3.9
Mars	Aqr	08:59	14:42	20:24	1.2
Jupiter	Leo	17:57	00:55	07:53	-2.6
Saturn	Sco	02:42	07:38	12:38	0.5

Beginning of March, 2015

	Const	Rise	Transit	Set	Mag
Sun		06:52	12:32	18:12	-26.8
Mercury	Cap	05:49	10:53	15:56	0.0
Venus	Psc	08:08	14:24	20:40	-4.0
Mars	Cet	07:58	14:11	20:22	1.3
Jupiter	Cnc	15:49	22:51	05:53	-2.5
Saturn	Sco	00:57	05:53	10:49	0.5

Aqr	Aquarius, The Water Bearer
Cap	Capricornus, The Goat
Cet	Cetus, The Whale
Cnc	Cancer, The Crab
Leo	Leo, The Lion
Lib	Libra, The Scales
Psc	Pisces, The Fishes
Sco	Scorpius, The Scorpion
Sgr	Sagittarius, The Archer

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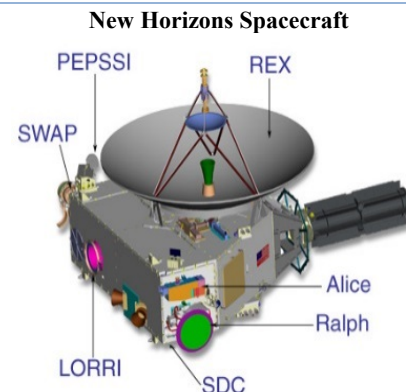
About: **New Horizons to Pluto and Beyond**

After a two day delay due to bad weather and a power failure, the **New Horizons** spacecraft finally lifted off from Cape Canaveral, Florida, on January 19, 2006, on an incredible 9.5 year, 3.6 billion mile flight to Pluto and its largest moon Charon, and then, perhaps, on to the Kuiper Belt*. This spaceship was built for NASA by the Johns Hopkins University Applied Physics Lab (APL) who will also manage this historic flight. **New Horizons** should begin taking pictures of this distant, frigid planet early in January 2015, and be at its closest, about 10,000 kilometers or 6200 miles, on Bastille Day, July 14, 2015. The reason it will not orbit the planet has to do with its excessive speed. To get to Pluto relatively quickly, that is 10 years instead of 100, it has to go as fast as we can make it, even picking up additional speed with a gravity assist as it passes Jupiter. The spacecraft does not have enough fuel to slow it down to a speed that would allow it to orbit Pluto; however, the trajectory will allow the spaceship to continue on to the even more distant Kuiper Belt.*

Even though its flyby of Pluto and Charon will be relatively brief, there are significant questions that will hopefully be answered, such as (1) What does the surface of the planet look like? (2) What significant geological features can be seen? (3) Does the solar wind (ejected particles from the Sun) influence the planet's atmosphere? (4) Are there more than the currently known five moons around Pluto? (5) What is the composition of the atmosphere and how does it function? Besides these queries, there is a good possibility that new moons will be discovered and maybe we will even find that this frigid body has a small ring system similar to Saturn's. We will just have to wait and see.

Aboard **New Horizons** are seven scientific instruments designed to give us a much greater understanding of this most distant of our solar system worlds.

1. **RALPH**** is an instrument that has a 6 centimeter (about 2.5 inches) telescope which is designed to map the surface of both Pluto and its largest moon, Charon, in the visible as well as in the infrared spectrum.
2. **ALICE**** is the ultraviolet imaging spectrometer that will examine Pluto's atmospheric components. Current thought is that Pluto's atmosphere is probably mostly composed of nitrogen.
3. **REX**, from **R**adio **E**xperiment, is the communications center through which all of the spacecraft's messaging, including downlink of data, passes. Since this is how we back on Earth will receive information from **New Horizon**, it is essential that it works as designed.
4. **LORRI**, or **L**ong **R**ange **R**econnaisance **I**mager, is equipped with a 20.8 cm (or 8.2 inch) telescope which will take visible light pictures of Pluto's surface in 100 meter bites.
5. **SWAP**, or **S**olar **W**ind **A**round **P**luto, will measure charged particles from the solar wind to see if Pluto has a magnetosphere.***
6. **PEPSSI** is an acronym for **P**luto **E**nergetic **P**article **S**pectrometer **S**cience **I**nvestigation, and will try to capture atoms of neutral charge that leave Pluto's atmosphere periodically.
7. **SDC** (Venetia Burney **S**tudent **D**ust **C**ounter) is a student built device for measuring dust the spacecraft encounters during its long voyage. Oddly, it is not a pronounceable acronym.

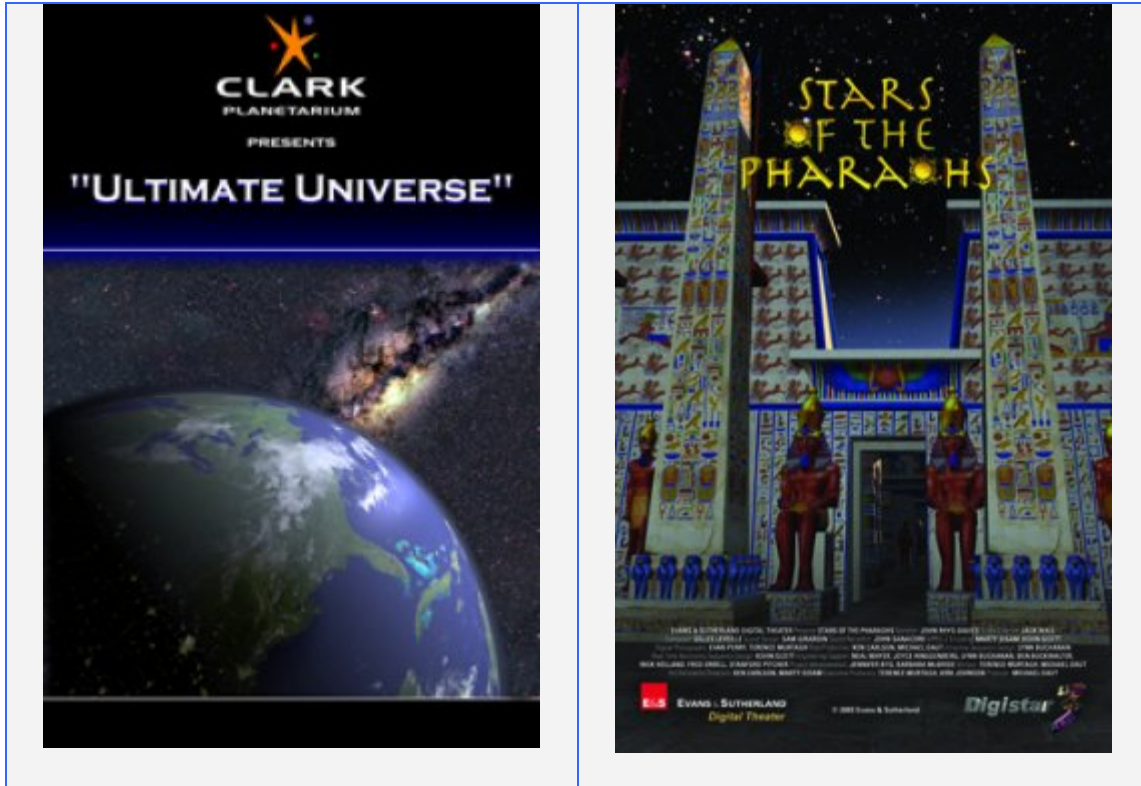


*The **Kuiper Belt** is composed of millions and millions of frozen bodies that may very well include material from the beginning days of our solar system.

****Ralph** and **Alice** originate from a mid-1950's TV comedy called *The Honeymooners*. It had nothing to do with space exploration that I know of.

*** The **magnetosphere** is an asymmetrical magnetic field that faces the Sun and controls the motion of charged particles near the planet.

2015 Planetarium Shows



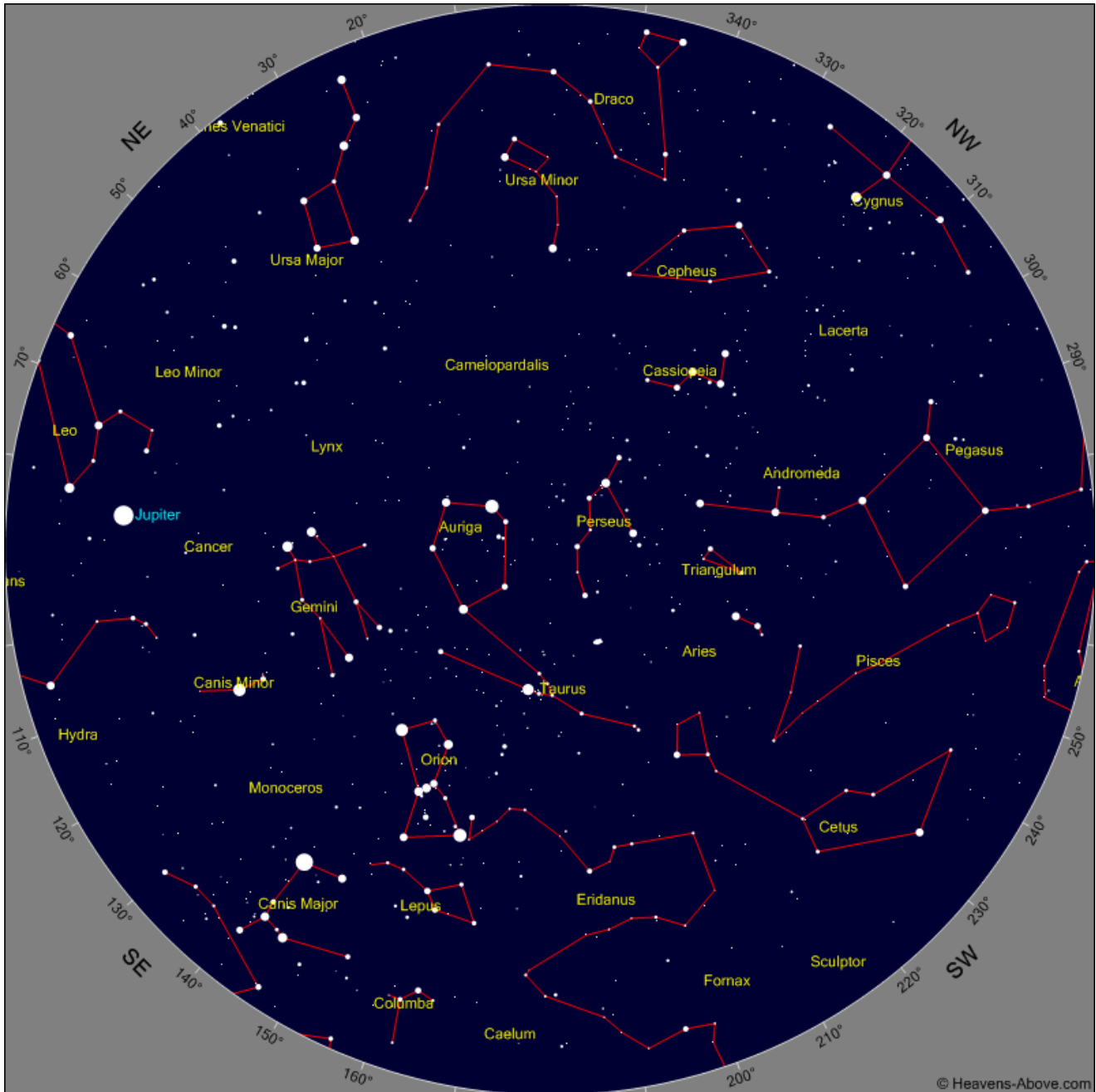
January 9 & 23 7:00 P.M. <i>Ultimate Universe</i> 8:00 P.M. <i>Stars of Pharaohs</i>	February 20 & 27 7:00 P.M. <i>Ultimate Universe</i> 8:00 P.M. <i>Stars of Pharaohs</i>	March 13 & 27 8:00 P.M. <i>Ultimate Universe</i> 9:00 P.M. <i>Stars of Pharaohs</i>
April 10 & 24 8:00 P.M. <i>Ultimate Universe</i> 9:00 P.M. <i>Stars of Pharaohs</i>	May 8 & 22 8:00 P.M. <i>Ultimate Universe</i> 9:00 P.M. <i>Stars of Pharaohs</i>	June 12 8:00 P.M. <i>Ultimate Universe</i> 9:00 P.M. <i>Stars of Pharaohs</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)293-4961, 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 4	7:41 A.M.	5:08 P.M.	5:08 P.M.	6:53 A.M.	Full
Jan 13	7:40 A.M.	5:17 P.M.	12:34 A.M.	11:58 A.M.	Last Qtr
Jan 20	7:37 A.M.	5:24 P.M.	7:19 A.M.	6:01 P.M.	New
Jan 26	7:33 A.M.	5:31 P.M.	11:17 A.M.	NA	First Qtr
Feb 3	7:26 A.M.	5:41 P.M.	5:47 P.M.	6:54 A.M.	Full
Feb 11	7:18 A.M.	5:50 P.M.	12:19 A.M.	11:07 A.M.	Last Qtr
Feb 18	7:09 A.M.	5:58 P.M.	6:38 A.M.	5:59 P.M.	New
Feb 25	7:00 A.M.	6:06 P.M.	11:21 A.M.	12:54 A.M.	First Qtr
Mar 5	6:48 A.M.	6:15 P.M.	6:28 P.M.	6:32 A.M.	Full
Mar 13	7:36 A.M.	7:23 P.M.	2:04 A.M.	12:19 P.M.	Last Qtr
Mar 20	7:24 A.M.	7:31 P.M.	7:28 A.M.	8:10 P.M.	New
Mar 27	7:13 A.M.	7:38 P.M.	12:46 P.M.	2:29A.M.	First Qtr

January 2015 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](http://www.heavens-above.com/) at <http://www.heavens-above.com/>

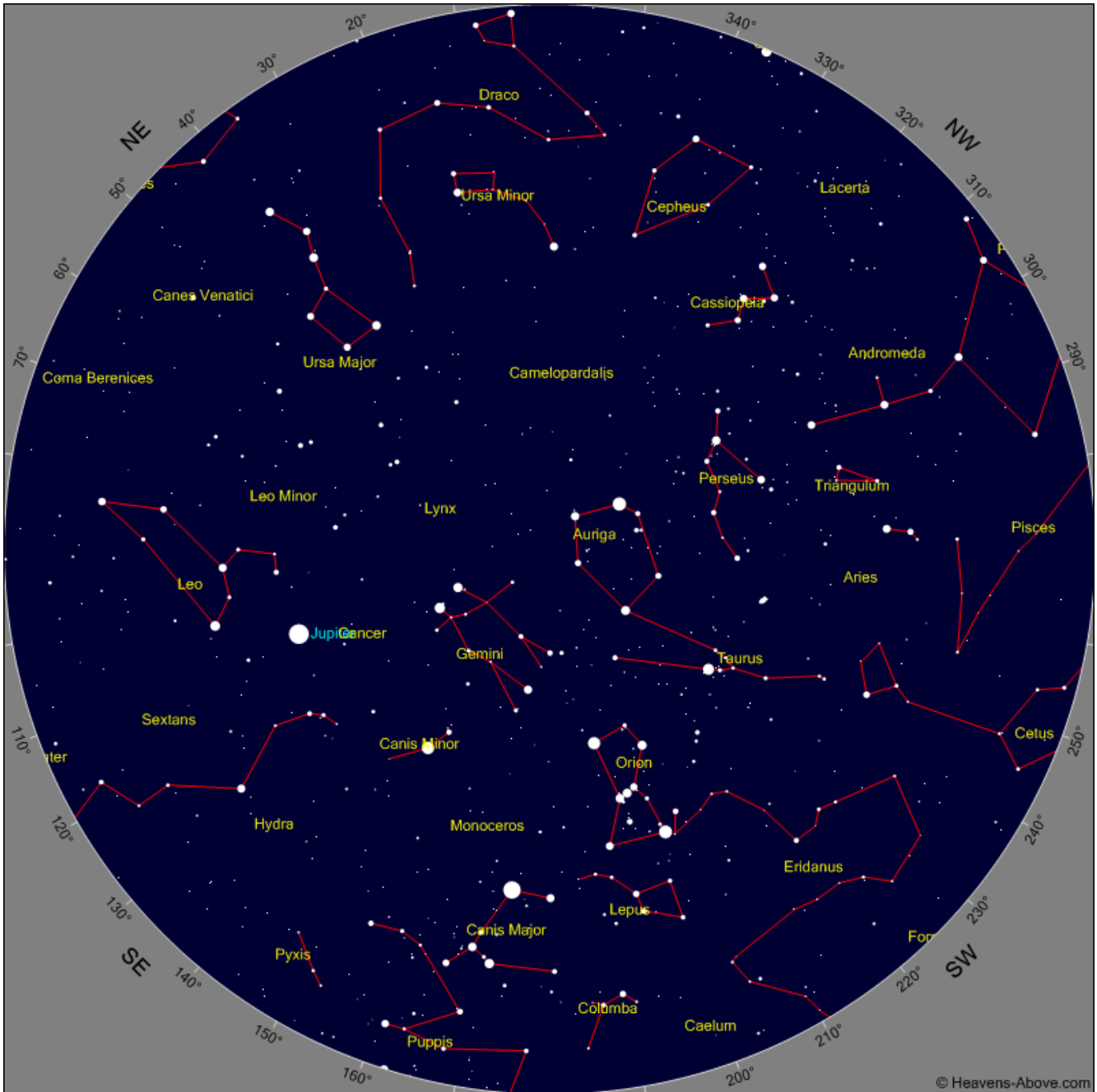
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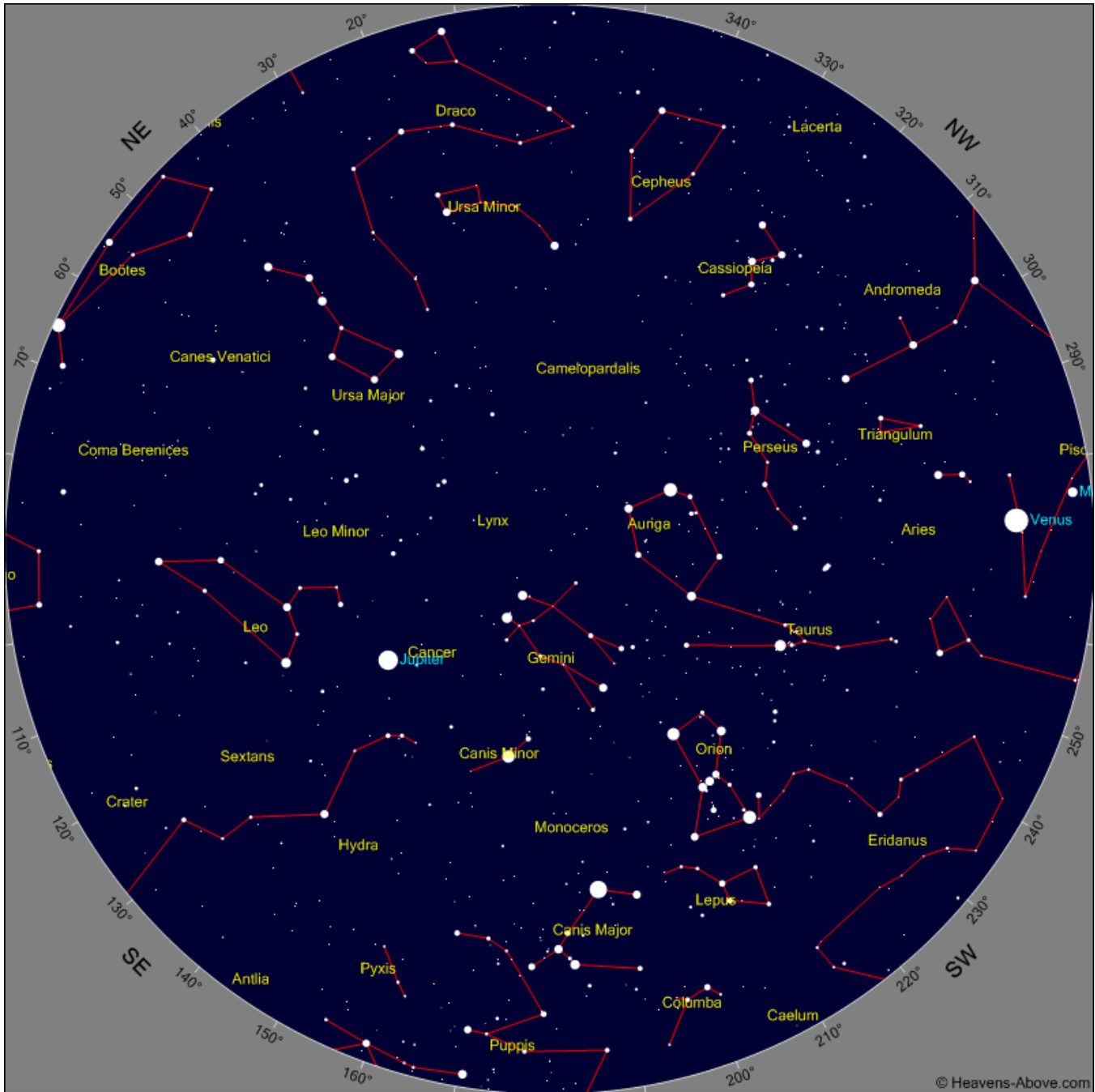
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