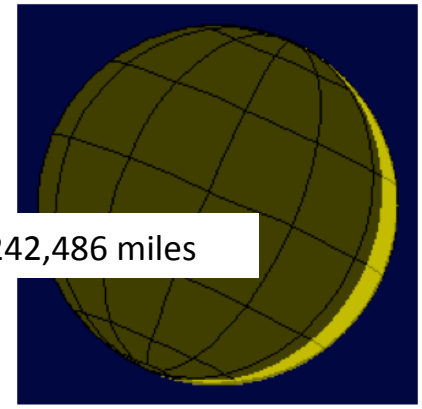
Moon

Year 2013 Month March Day 13 Time 19:30:27 Update

Position

Altitude	20.2°
Azimuth	266.2°
Right ascension	$1^h\ 10^m\ 52^s$
Declination	10° 6' 12"
Range	390,477 km / 242,486 miles
Constellation	Pisces



Appearance of the Moon, celestial north is upwards

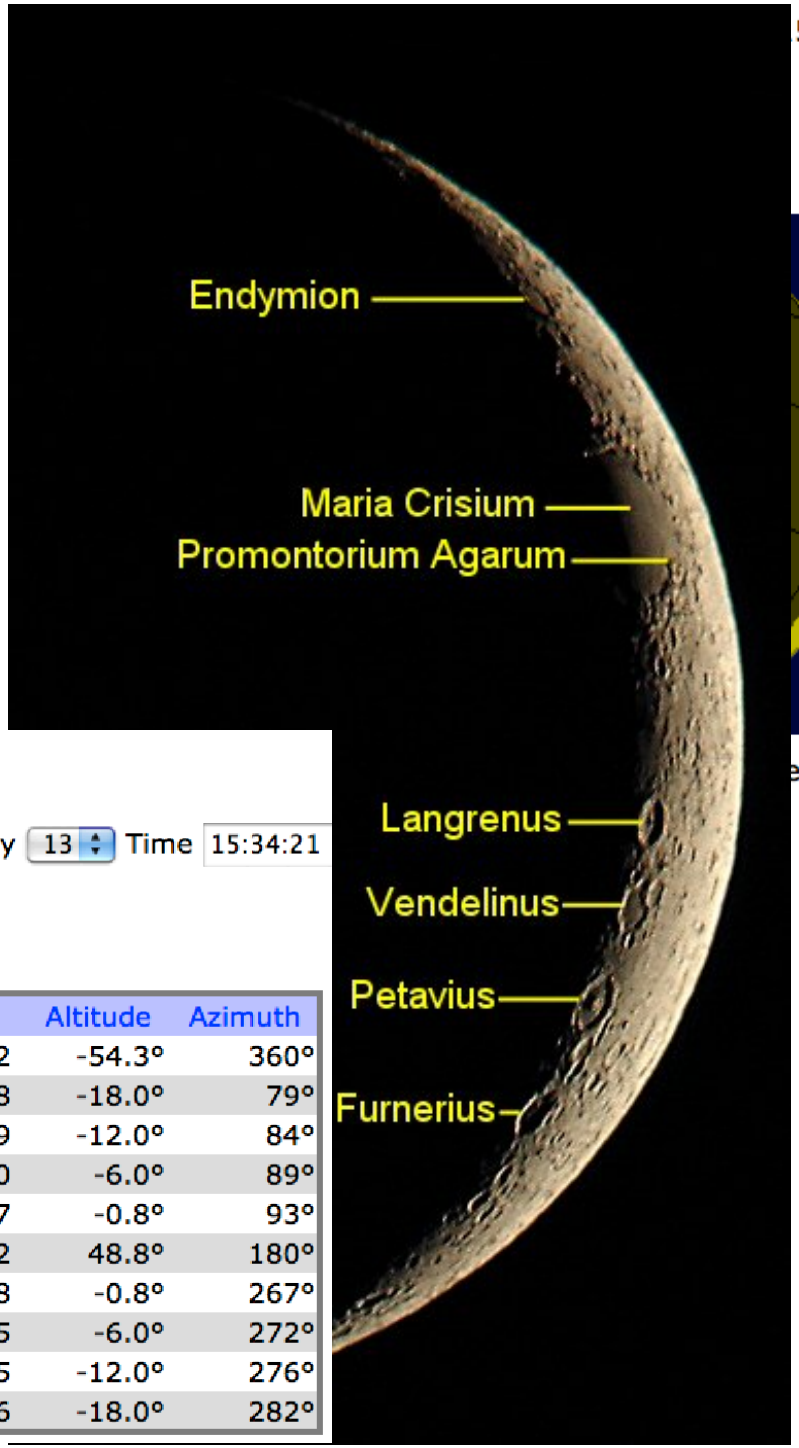
Appearance

Diameter	30.60'
Illumination of disk	5%
Libration in longitude	4.793°
Libration in latitude	-3.118°

Event	Time	Altitude	Azimuth
Sets	21:18	0.1°	283°
Rises	08:04	0.1°	80°
Maximum altitude	14:39	60.3°	181°

Monthly phases

New moon	11 March 2013 14:51
First quarter	19 March 2013 12:27
Full moon	27 March 2013 04:27
Last quarter	02 April 2013 23:37
New moon	10 April 2013 04:35



Sun

Year 2013 Month March Day 13 Time 15:34:21

Daily events for 13 March

Event	Time	Altitude	Azimuth
Minimum altitude:	01:12	-54.3°	360°
Astronomical twilight begins:	05:48	-18.0°	79°
Nautical twilight begins:	06:19	-12.0°	84°
Civil twilight begins:	06:50	-6.0°	89°
Sunrise:	07:17	-0.8°	93°
Maximum altitude:	13:12	48.8°	180°
Sunset:	19:08	-0.8°	267°
Civil twilight ends:	19:35	-6.0°	272°
Nautical twilight ends:	20:05	-12.0°	276°
Astronomical twilight ends:	20:36	-18.0°	282°

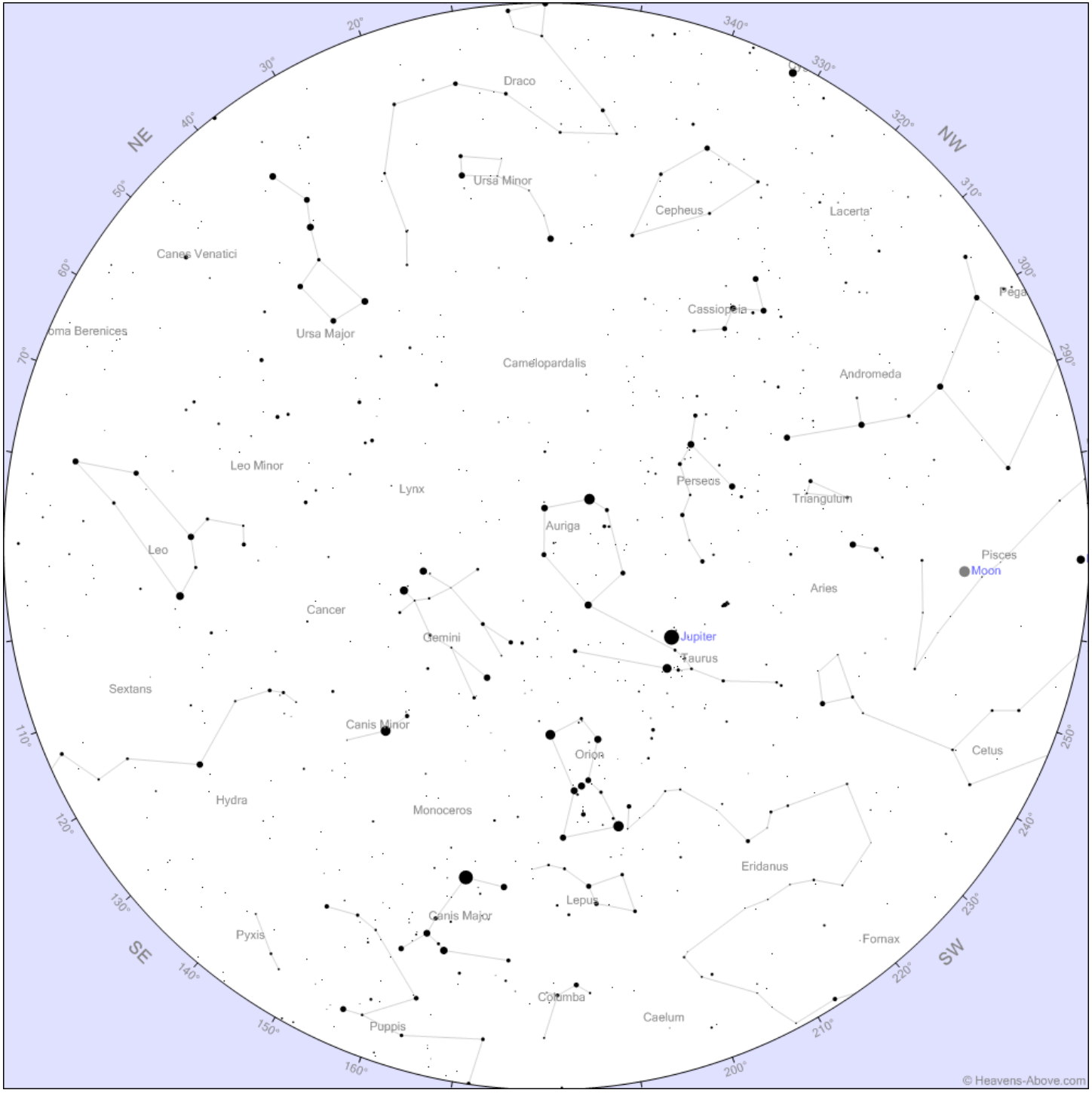
Daily predictions for brighter satellites

Wildw

Month March 2013 Day 13 ○ Morning ◉ Evening Update Reset to today

Minimum brightness: ○ 3.0 ◉ 3.5 ○ 4.0 ○ 4.5 ○ 5.0

Satellite	Brightness	Start			Highest point			End		
	(mag)	Time	Altitude	Azimuth	Time	Altitude	Azimuth	Time	Altitude	Azimuth
Sich 1	3.0	19:39:37	10°	N	19:43:59	73°	E	19:48:16	10°	SSE
Cosmos 1666	2.7	19:42:30	10°	S	19:46:22	70°	E	19:50:15	10°	NNE
GOCE	3.1	19:44:10	10°	SSE	19:46:07	37°	ENE	19:48:06	10°	N
Cosmos 1707	3.4	19:51:09	10°	NNE	19:54:50	34°	ENE	19:58:28	10°	SE
GPS 2-05 Rocket1	3.3	19:54:25	10°	WSW	19:57:55	54°	S	20:00:39	16°	ESE
Genesis I	3.3	19:56:35	10°	NNW	20:00:39	82°	WSW	20:04:39	10°	SSE
ETS-7	3.0	19:57:37	10°	WSW	20:01:07	47°	S	20:03:34	18°	ESE
RESURS DK-1	3.2	20:01:46	10°	SSE	20:05:24	29°	ESE	20:09:03	10°	NE
FREGAT/IRIS	3.4	20:05:16	10°	SE	20:08:34	40°	ENE	20:11:54	10°	N
Coronas F rocket	2.9	20:06:15	10°	SSE	20:09:03	25°	E	20:11:54	10°	NE
CZ-2C R/B	3.1	20:12:57	14°	SE	20:16:40	35°	ENE	20:21:06	10°	N
Gbstr 26 Del rocket	3.1	20:16:44	10°	NW	20:22:00	73°	NE	20:24:24	27°	ESE
Cosmos 1953	2.3	20:17:10	10°	S	20:21:18	80°	E	20:25:27	10°	N
Cosmos 2278 Rocket	2.5	20:24:12	10°	NNW	20:29:42	48°	ENE	20:32:38	26°	ESE
Cosmos 1766	3.2	20:24:32	10°	S	20:28:32	78°	E	20:32:35	10°	N
Cosmos 2237 Rocket	2.1	20:33:27	10°	SSW	20:39:01	73°	ESE	20:44:40	10°	NNE
Cosmos 1707 Rocket	3.4	20:49:25	17°	S	20:48:21	10°	S	20:48:21	10°	S
Cosmos 1844 Rocket	2.6	20:48:57	10°	NNW	20:54:37	77°	ENE	20:56:53	38°	SE
Cosmos 1242 Rocket	2.9	20:53:37	10°	SSW	20:57:33	75°	W	21:01:31	10°	N
Cosmos 2219 Rocket	2.7	21:12:08	10°	SW	21:17:40	60°	WNW	21:23:14	10°	NNE
SL-16 R/B	2.0	21:14:41	10°	SSW	21:20:19	84°	ESE	21:26:00	10°	NNE
Cosmos 2333 Rocket	2.1	21:19:24	10°	SSW	21:25:03	84°	WNW	21:30:47	10°	NNE



Sky at 19:33

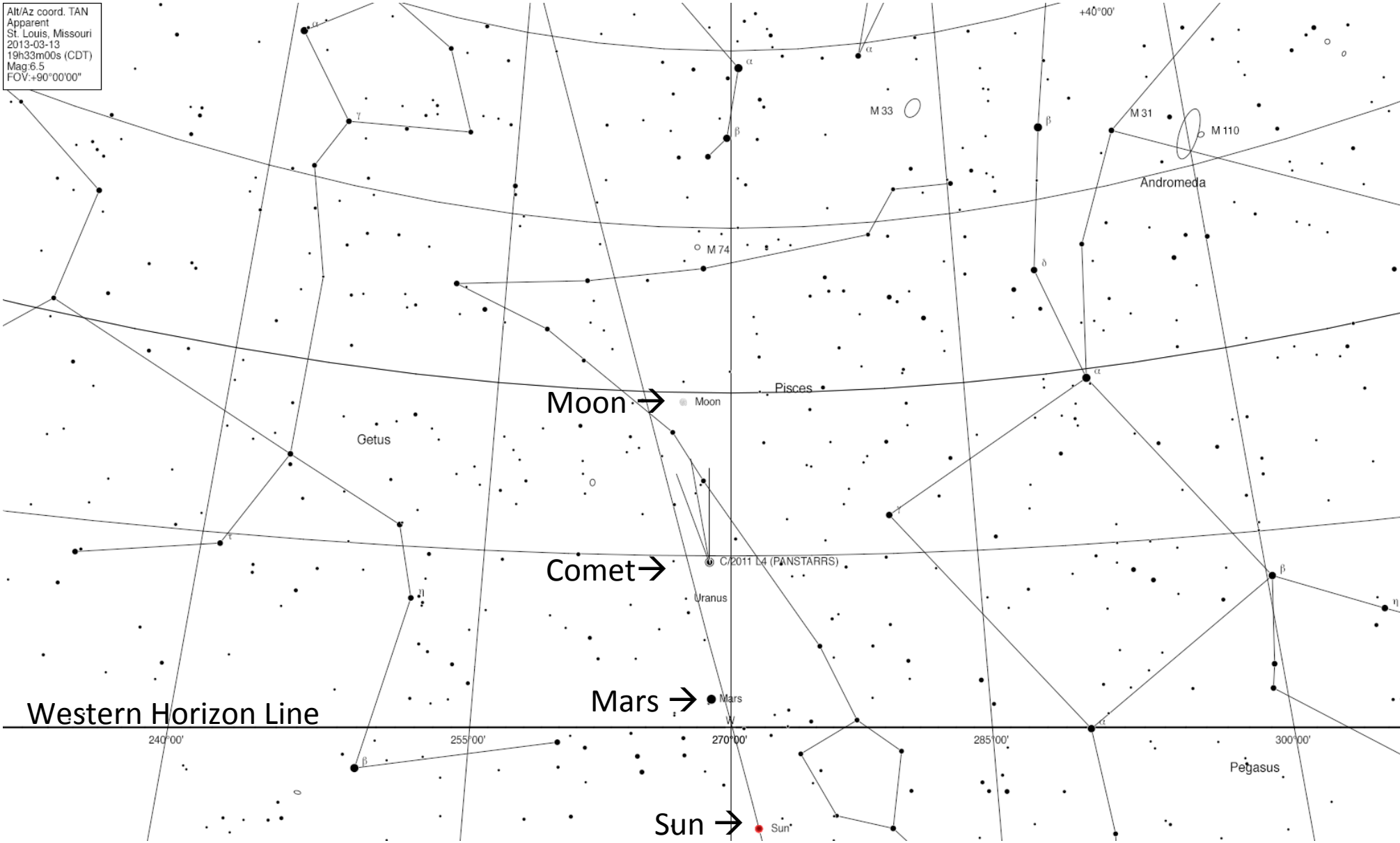
Sunset: 19:06; Civil twilight ends: 19:33; Astronomical twilight ends: 20:35

Comet PanSTARRS sets at 20:21 (8:21pm)

A 5% illuminated crescent moon will set at 9:16pm. Jupiter will be very high in the sky, well placed for observing

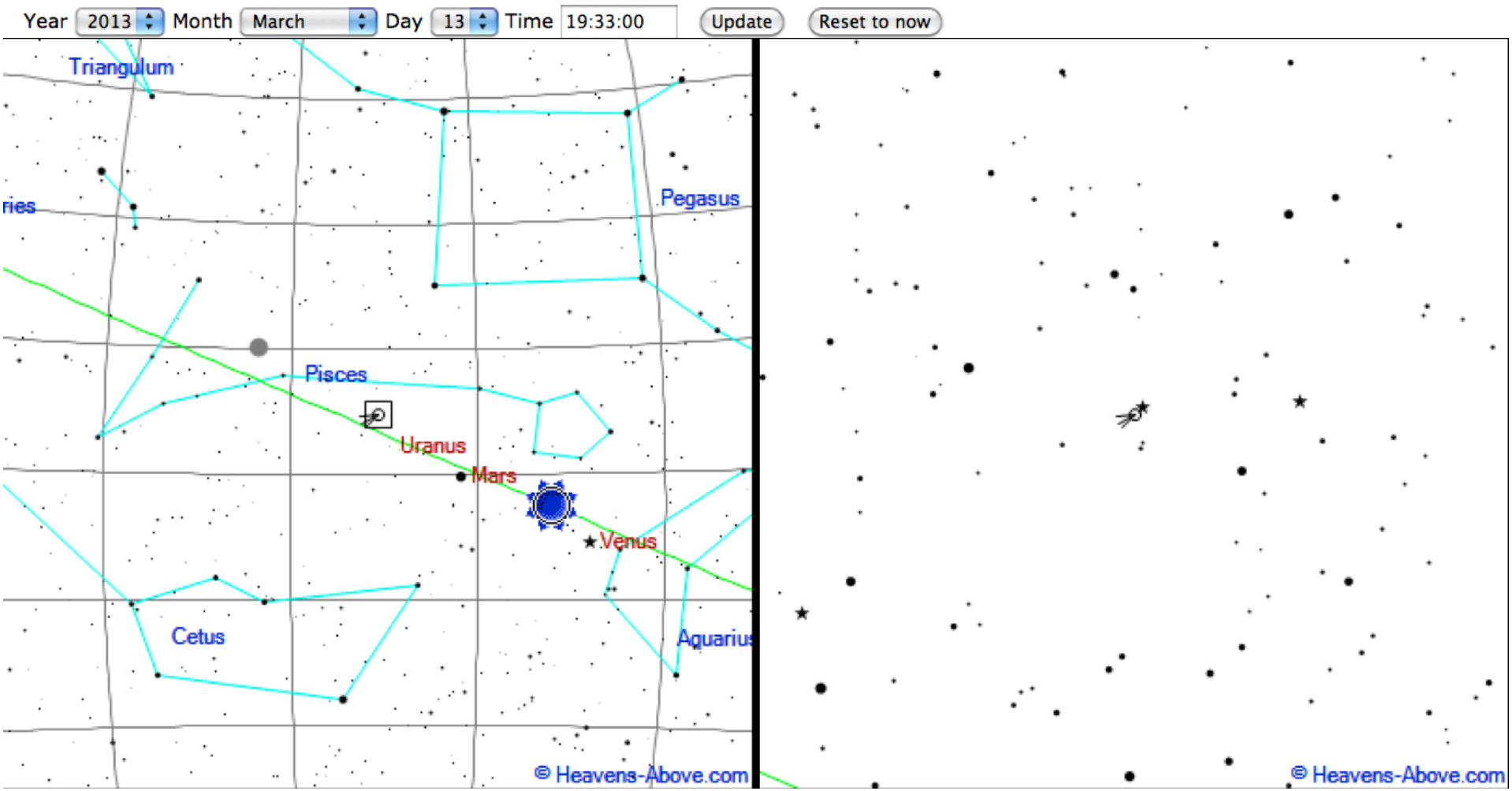
Western Sky at 19:33 - March 13, 2013 CDST

Sunset: 19:06; Civil twilight ends: 19:33; Astronomical twilight ends: 20:35; Comet PanSTARRS sets at 20:21 (8:21pm)



Comet C/2011 L4 PANSTARRS

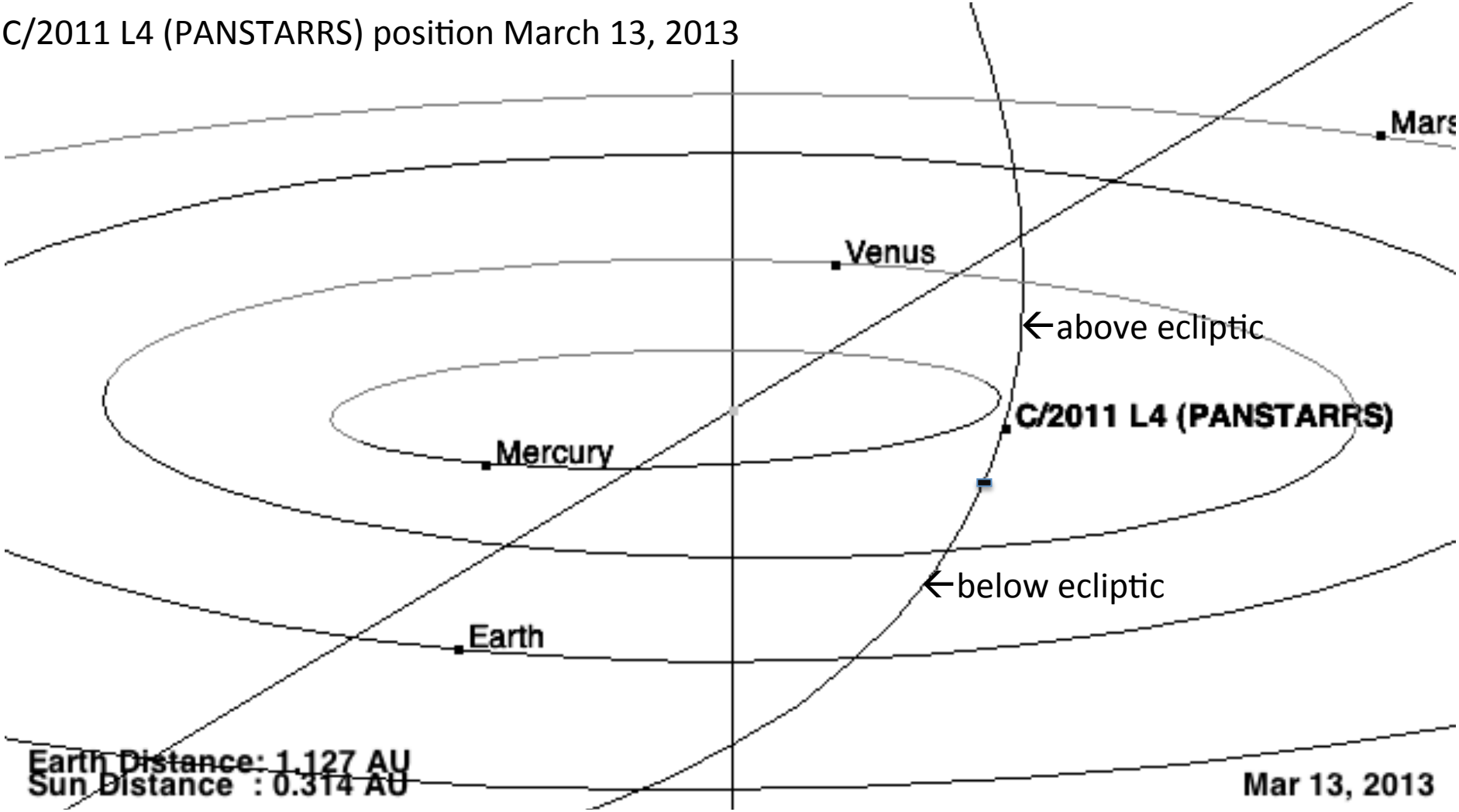
Pan-SATRRS data for 19:33 CDST 3/13/13



Geocentric Data	
Right Ascension (J2000)	$0^h\ 31.9^m$
Declination (J2000)	4° 50'
Constellation	Pisces
Distance from Earth	1.134 AU
Last observed magnitude	5.9
Last reported observation	21-Feb-2013

Orbital Data	
Distance from Sun	0.325 AU
Perihelion	0.302 AU (10-Mar-2013)
Aphelion	not applicable
Period	not applicable
Eccentricity	1.000032
Inclination to ecliptic	84.2°

C/2011 L4 (PANSTARRS) position March 13, 2013



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Declination (J2000)	4° 49'
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Last observed magnitude	5.9
Last reported observation	21-Feb-2013

/ 105.37 million miles

C/2011 L4 (PANSTARRS) from Kronk's Comet website:

Discovery: The 1.8-m Pan-STARRS 1 Ritchey-Chretien telescope (Haleakala, Hawaii, USA) discovered this comet on four CCD images acquired during 2011 June 6.39-6.43. The magnitude was given as 19.4-19.6.

The comet reached a maximum solar elongation of 35 degrees on 2013 February 2 and attained a southerly declination of -46 degrees on February 5, before turning northward.

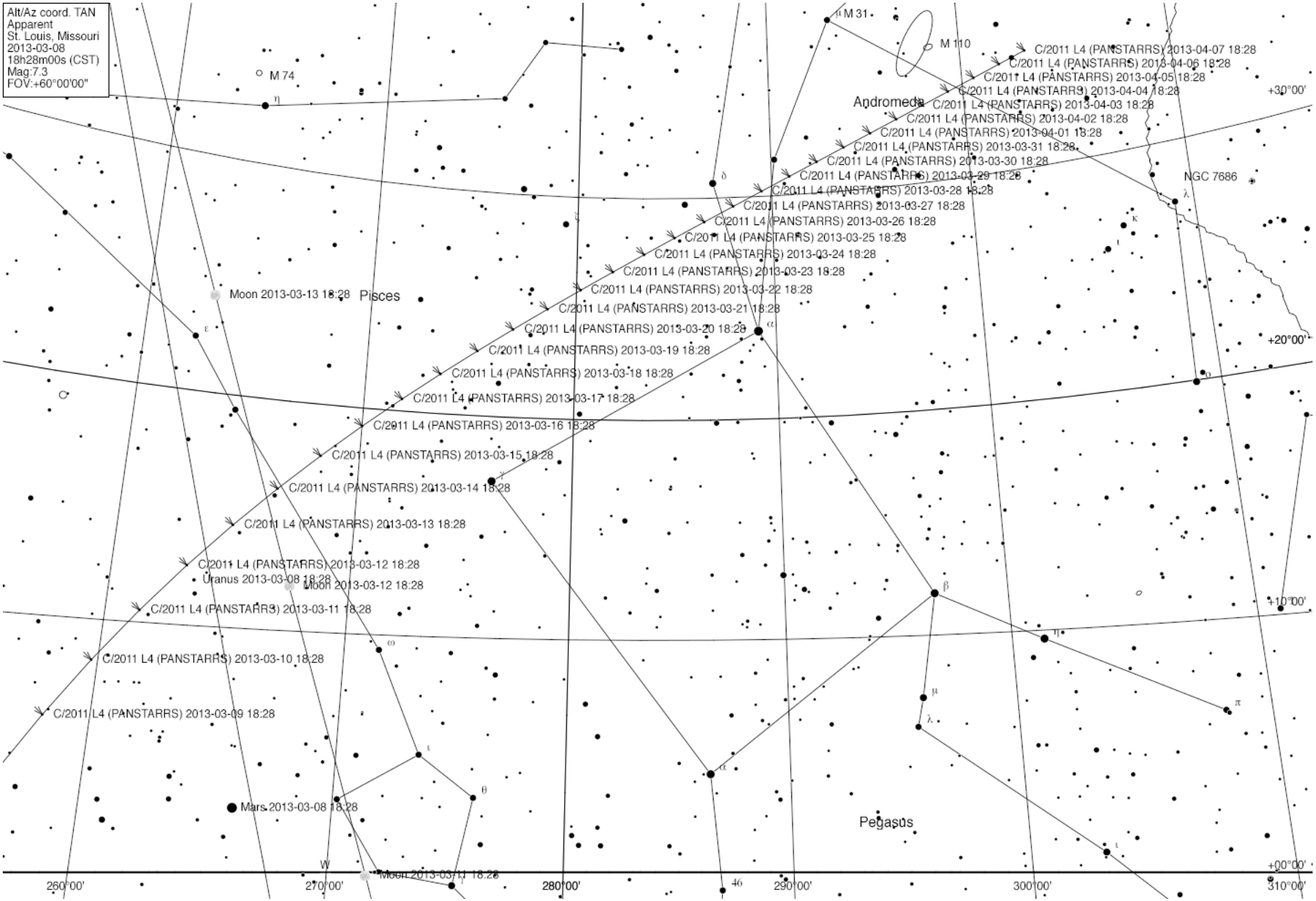
The comet passed closest to Earth (1.10 AU) on 2013 March 5 and was closest to the Sun (0.30 AU) on March 10. It was finally spotted by observers in the Northern Hemisphere on the night of March 9/10. Mike Linnolt (Ocean View, Hawaii, USA) saw the comet using 7x35 binoculars on March 10.21, when it was 5 degrees above the horizon. He estimated the magnitude as -1.0, noting a coma 2 arc minutes across and a tail 0.25 degree long. J. J. Gonzalez (Llanfranc, Girona, Spain) saw the comet using 10x50 binoculars on March 10.77, and gave the magnitude as 1.4. He said the coma was 2.5 arc minutes across, while the tail was 0.3 degree long. The comet was then still visible to observers in the Southern Hemisphere. A magnitude estimate by Wyatt on March 10.38, using 7x50 binoculars, was -0.3, when the comet was only 1.3 degrees above the horizon. He also noted the coma was 2 arc minutes across, while the tail was 15 arc minutes long toward the east-southeast. The comet reached a minimum solar elongation of 15 degrees on March 11.

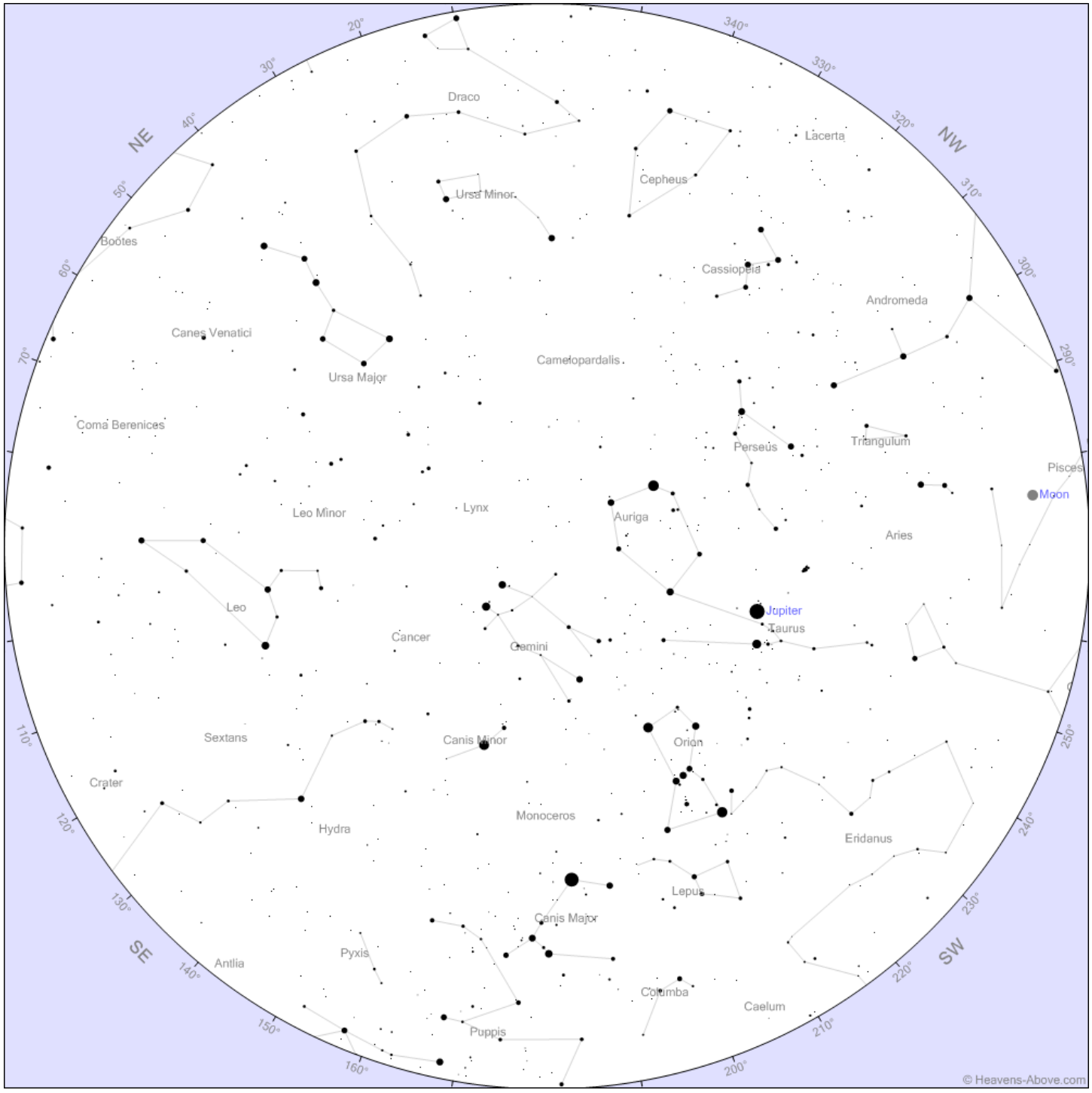
Upcoming Highlights

The comet will attained its most northerly declination of +85.2 degrees on 2013 May 28.

The comet will reach a maximum solar elongation of 79 degrees on 2013 July 2.28.
The comet will reach a maximum solar elongation of 79 degrees on 2013 July 2.

C/2011 L4 (PANSTARRS) position at 19:28 pm CDST March 9 – April 7, 2013





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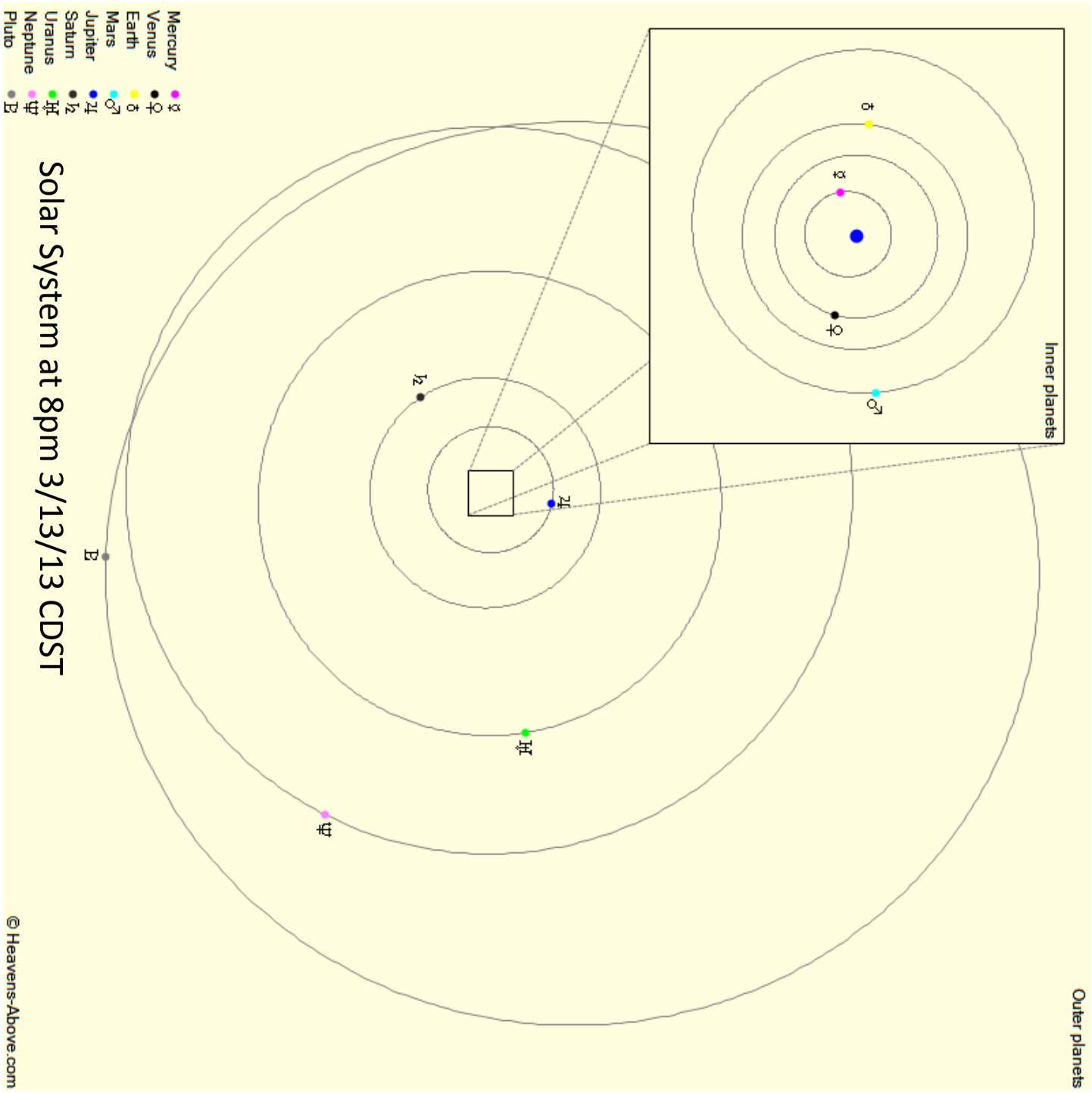
Planet Summary

Wildwood; 15:35:38
| Home |

Year 2013 Month March Day 13 Time 19:30:16 Update Reset to now

	Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Right ascension	$22^h\ 29^m\ 31.4^s$	$23^h\ 25^m\ 6.5^s$	$0^h\ 6^m\ 10.5^s$	$4^h\ 30^m\ 20.3^s$	$14^h\ 37^m\ 53.2^s$	$0^h\ 29^m\ 6.9^s$	$22^h\ 22^m\ 57.6^s$	$18^h\ 48^m\ 12.6^s$
Declination	-7° 14' 56"	-5° 19' 29"	-0° 8' 11"	21° 23' 21"	-12° 39' 55"	2° 24' 45"	-10° 45' 34"	-19° 40' 58"
Range (AU)	0.654	1.716	2.377	5.242	9.112	21.016	30.921	32.690
Brightness	2.0	-3.8	1.2	-2.0	0.8	5.9	8.0	14.1
Constellation	Aquarius	Aquarius	Pisces	Taurus	Libra	Cetus	Aquarius	Sagittarius
Meridian transit	12:06	13:00	13:41	18:05	04:15	14:05	11:59	08:25
Rises	06:30	07:18	07:43	10:53	22:53	07:58	06:35	03:32
Sets	17:41	18:43	19:40	01:20	09:33	20:11	17:23	13:17
Altitude	-21.1°	-9.1°	2.1°	65.0°	-39.4°	8.2°	-24.6°	-67.8°
Azimuth	277.8°	270.4°	268.1°	232.6°	73.0°	266.5°	275.9°	324.8°
Inferior Conjunction	2013-Mar-04 2013-Jul-09	2012-Jun-05 2014-Jan-11	-	-	-	-	-	-
Opposition	-	-	2012-Mar-03 2014-Apr-08	2012-Dec-02 2014-Jan-05	2012-Apr-15 2013-Apr-28	2012-Sep-29 2013-Oct-03	2012-Aug-24 2013-Aug-26	2012-Jun-29 2013-Jul-01
Superior Conjunction	2013-Jan-18 2013-May-11	2011-Aug-16 2013-Mar-28	2011-Feb-04 2013-Apr-17	2012-May-13 2013-Jun-19	2012-Oct-25 2013-Nov-06	2012-Mar-24 2013-Mar-28	2013-Feb-21 2014-Feb-23	2012-Dec-30 2014-Jan-01
Max. eastern elongation	2013-Feb-16 2013-Jun-12	2012-Mar-27 2013-Nov-01	-	-	-	-	-	-
Max. western elongation	2012-Dec-04 2013-Mar-31	2012-Aug-15 2014-Mar-22	-	-	-	-	-	-
Perihelion	2013-Feb-16 2013-May-15	2012-Oct-31 2013-Jun-13	2013-Jan-24 2014-Dec-12	2011-Mar-17 2023-Jan-20	2003-Jul-26 2032-Nov-28	1966-May-21 2050-Aug-16	1876-Aug-26 2042-Sep-03	1989-Sep-05 2237-Sep-15
Aphelion	2013-Jan-03 2013-Apr-01	2013-Feb-21 2013-Oct-03	2012-Feb-15 2014-Jan-02	2005-Apr-14 2017-Feb-17	1988-Sep-11 2018-Apr-17	2009-Feb-26 2092-Nov-22	1959-Jul-16 2125-Dec-01	1866-Jun-04 2114-Feb-18



Planet	D-Sun (AU)	D-Earth(AU)	D-Sun (miles)	D-Earth (miles)	Light Minutes	Light-Hours	100mph Trip (yrs)
Mercury	0.42	0.65	39,041,439	60,421,275	5.414	0.090	68.97
Venus	0.73	1.72	67,857,739	159,883,988	14.327	0.239	182.52
Earth	0.99	0	92,026,249	0	0.000		0.00
Mars	1.4	2.38	130,138,130	221,234,821	19.824	0.330	252.55
Jupiter	5.09	5.24	473,145,058	487,088,429	43.646	0.727	556.04
Saturn	9.81	9.11	911,896,467	846,827,402	75.881	1.265	966.70
Uranus	20.05	21.02	1,863,763,930	1,953,931,063	175.083	2.918	2230.51
Neptune	29.99	30.92	2,787,744,652	2,874,193,552	257.544	4.292	3281.04
Pluto	32.41	32.69	3,012,697,705	3,038,725,331	272.287	4.538	3468.86

Jupiter Events Tonight

Located in Taurus; m = -2.0; Sets at 1:20am CDST

5.24 AU / 487.5 million miles / 43.6 light minutes from earth
5.09 AU / 473.14 million miles from Sun

Oppositions: Dec. 2, 2012, Jan. 5, 2014
Superior Conjunction June 19, 2013

Jovian Moon Events

GRS transits at

03/12/2013 @ 11:19 pm CDST
03/13/2013 @ 09:15 am
03/13/2013 @ 07:11 pm

Wednesday, March 13, 2013

17:58 UT, Io begins transit of Jupiter.
19:16 UT, Io's shadow begins to cross Jupiter.
20:12 UT, Io ends transit of Jupiter.
21:32 UT / 16:32 CDST, Io's shadow leaves Jupiter's disk.

Thursday, March 14, 2013

13:26 UT/08:26 CDST, Europa enters occultation behind Jupiter.
15:16 UT, Io enters occultation behind Jupiter.
16:02 UT, Europa exits occultation behind Jupiter.
16:04 UT, Europa enters eclipse by Jupiter's shadow.
18:42 UT, Europa exits eclipse by Jupiter's shadow.
18:46 UT, Io exits eclipse by Jupiter's shadow.

Jupiter at 8pm March 13, 2013 CDST

SKY & TELESCOPE

Jupiter's Moons

This illustration shows the positions of Jupiter's four Galilean satellites — Io, Europa, Ganymede, and Callisto — in orbit about the planet for any date and time from January 1, 1900, to December 31, 2100.

Please choose your view:

N E — **Direct view** (Erect-image system)

W N — **Inverted view** (Newtonian / Dobsonian)

N E — **Mirror reversed** (SCT/Mak/refractor + diagonal)

Date: 03/14/2013 (mm/dd/yyyy) **Time:** 01:00 **UT** Time-zone offset from UT in hours (from your Web browser): -5

Reset to current date & time | Recalculate using entered date & time | -1 day | -1 hour | -10 min | +10 min | +1 hour | +1 day

Basic data about Jupiter for telescopic observers:

Magnitude: -2.2 **Angular size (arcsec):** 37.6 **Distance (a.u.):** 5.24 **System II longitude (°):** 220