

PRIME fOCUS

1949

Celebrating 65 Years of Bringing Astronomy to North Texas

2014

Itching for Fall



*Observing got you
itching and burning?
Do some plant Learnin'!*

In This Issue

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This Month's
Celestial Events

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AL Obs Programs Highlight

Poisonous Plants (Not planets!)

Cloudy Night Library

Observers Notes

Constellation Of The Month:
Aquarius

Young Astronomers



Fisheye Milky Way
Photo by FWAS member Brian Wortham



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President – Bruce Cowles, president@fortworthastro.com

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Board Members:

2014-2016

- ◆ Mike Langohr
- ◆ Tree Oppermann

2013-2015

- ◆ Bill Nichols
- ◆ Jim Craft

Cover Photo

The Milky Way photographed through a fish-eye lens at John Rinker's family farm west of Jacksboro, Tx

Taken by FWAS member, Brian Wortham.



Observing Site Reminders:

Be careful with fire, mind all local burn bans!

Dark Site Usage Requirements (ALL MEMBERS):

- Maintain Dark-Sky Etiquette (<http://tinyurl.com/75hjajy>)
- Turn out your headlights at the gate!
- Sign the logbook (in camo-painted storage shed. Inside the door on the left-hand side)
- Log club equipment problems (please contact a FWAS board member to inform them of any problems)
- Put equipment back neatly when finished
- Last person out:
 - * Check all doors – secured, but NOT locked
 - * Make sure nothing is left out

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FWAS

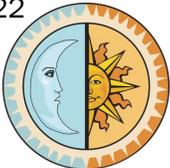
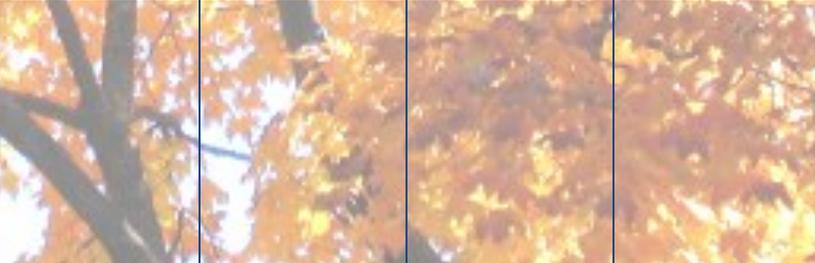
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Brian Wortham
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Lowell Martin
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AS

SEPTEMBER 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 Born: 1948 - Christa McAuliffe, teacher, astronaut killed in Challenger space shuttle explosion. ☾ FQ	3	4	5	6  FORT WORTH MUSEUM SCIENCE AND HISTORY Museum Star Party
7	8 ☉ FM	9	10	11  Bright ISS Pass	12	13
14	15 ☾ LQ	16  FWAS Monthly Meeting Starts @ 7pm	17 1962 - US space officials announce selection of 9 new astronauts (The New Nine). Born: 1857 - Konstantin Tsiolkovsky, pioneer in rocket & space research	18 1977 - US Voyager 1 takes 1st space photograph of Earth & Moon together.	19	20  Young Astronomers Meeting Starts @ 7pm-9pm
21	22  Autumnal Equinox	23	24 ● NM	25 1992 - US Mars Observer launched from Space shuttle.	26	27
28	29 1995 - US space probe Ulysses completes 2nd passage behind Sun.	30  Bright ISS Pass				
<p>See our full FWAS Event Calendar at: http://www.fortworthastro.com/meetings.html for the latest updates on what our club has scheduled</p>						

CELESTIAL EVENTS THIS MONTH

- Sep 01 Mo --:-- Venus: 14.2° W
- Sep 02 Tu 06:11 First Quarter
- Sep 03 We 08:10 Moon South Dec.: 18.6° S
- Sep 07 Su 22:29 Moon Perigee: 358400 km
- Sep 08 Mo 20:38 Full Moon
- Sep 11 Th 02:32 Moon Descending Node
- Sep 14 Su 20:01 Moon-Aldebaran: 1.5° S
- Sep 15 Mo 21:05 Last Quarter
- Sep 16 Tu 00:15 Moon North Dec.: 18.6° N
- Sep 20 Sa 08:54 Mercury-Spica: 0.5° S
- Sep 20 Sa 09:22 Moon Apogee: 405800 km
- Sep 21 Su 16:59 Mercury Elongation: 26.4° E
- Sep 22 Mo 21:30 Autumnal Equinox
- Sep 24 We 01:14 New Moon
- Sep 25 Th 12:41 Moon Ascending Node
- Sep 25 Th 19:48 Moon-Spica: 2.8° S
- Sep 26 Fr 04:32 Moon-Mercury: 4.6° S
- Sep 27 Sa 23:46 Moon-Saturn: 0.8° S
- Sep 28 Su 01:30 Mars-Antares: 3.1° N
- Sep 30 Tu 14:29 Moon South Dec.: 18.5° S

(* Times are Local)

INTERESTING OBJECTS

Deep Sky* - (C4) Iris Nebula, (C20) North America Nebula, (C63) Helix Nebula, (C65) Sculptor Galaxy, (C76) Northern Jewel Box, (M8) Lagoon Nebula, (M13) Great Globular in Hercules, (M20) Trifid Nebula, (M27) Dumbell Nebula, (M31) Andromeda Galaxy, (M57) Ring Nebula

Double/Multiple Stars** - [5 AQUILAE](#), [OMICRON CAP](#), [ETA CAS](#), [61 CYGNI](#), [STF 1516](#), [18 LIB](#), [BETA LYRA](#), [3 PEGASI](#), [COR 233](#), [14-NU SCORPII](#)

Constellations* - Aquila, Capricorn, Cassiopeia, Cygnus, Draco, Libra, Lyra, Pegasus, Sagittarius, Scorpius, Ursa Major, Ursa Minor

Asterisms*** - Tennis Racket (Aql), E.T. (Cas), Vultus Irrisorie (Cyg), Delphinus Minor (Peg), Butterfly (Sco), Ferrero 6/Eiffel Tower (Uma)

Lunar Features**** - Fra Mauro formation (R42), Flamsteed P (R40), Copernicus secondary craters (R20)

*Distant Suns—C = [Caldwell Catalog](#) / M=[Messier Catalog](#) **[Double Stars](#) ***[Asterisms](#) ****R = [Rükl Index Moon Map](#)

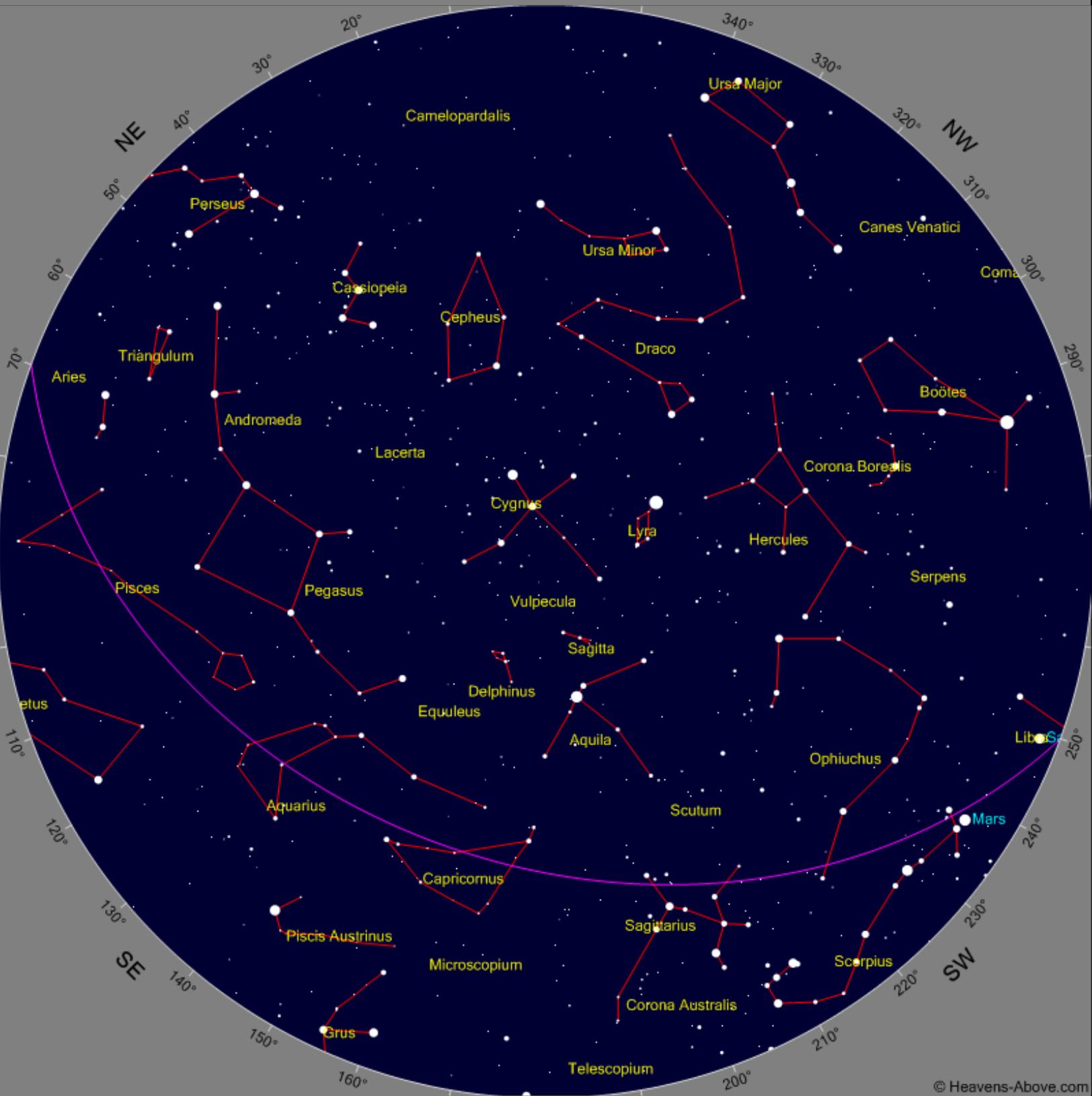
Geocentric Ephemeris for Moon : 2014

Date (0 UT)	Apparent			Distance km	Hor. Par.	Ang. Diam.	----Libration----			Sun Colng	P.A. Limb	Phase Age	Phase Illum	Solar Elong	Lunar_Events
	R.A. h m s	Declination ° ' "	km				l	b	c						
Sep 01	15 15 40.32	-15 20 47.8	387128	3398.5	1852.0	-7.1	-3.4	16.5	349.3	284.3	6.4	0.347	72.1E		
Sep 02	16 09 35.31	-17 21 31.2	382044	3443.7	1876.7	-7.3	-4.6	11.8	1.5	280.3	7.4	0.450	84.2E	FIRST 11:12	
Sep 03	17 05 55.92	-18 28 13.7	376689	3492.7	1903.3	-7.0	-5.6	6.2	13.7	275.9	8.4	0.558	96.7E	MAX.S 13:11	
Sep 04	18 04 19.50	-18 31 22.7	371360	3542.8	1930.7	-6.2	-6.3	0.1	25.9	271.3	9.4	0.667	109.6E		
Sep 05	19 04 04.14	-17 25 03.8	366442	3590.3	1956.6	-5.1	-6.7	353.8	38.1	267.0	10.4	0.771	122.8E		
Sep 06	20 04 17.99	-15 09 09.0	362375	3630.6	1978.5	-3.5	-6.6	347.9	50.3	263.5	11.4	0.862	136.4E		
Sep 07	21 04 13.07	-11 50 33.4	359588	3658.8	1993.9	-1.7	-6.1	342.7	62.5	261.6	12.4	0.935	150.3E		
Sep 08	22 03 17.00	-07 43 01.8	358425	3670.7	2000.3	0.3	-5.1	338.7	74.7	263.9	13.4	0.981	164.4E	PERI 03:30	
Sep 09	23 01 17.07	-03 05 21.8	359076	3664.0	1996.7	2.3	-3.8	336.1	86.8	319.2	14.4	0.999	176.9E	FULL 01:39	
Sep 10	23 58 16.81	+01 41 20.4	361542	3639.0	1983.1	4.1	-2.2	335.1	99.0	59.2	15.4	0.987	166.8W		
Sep 11	00 54 28.25	+06 16 32.9	365616	3598.5	1961.0	5.5	-0.5	335.7	111.2	66.4	16.4	0.946	153.2W	D.NOD 07:33	
Sep 12	01 50 03.83	+10 22 34.9	370920	3547.0	1932.9	6.6	1.2	337.8	123.4	70.4	17.4	0.882	139.9W		
Sep 13	02 45 03.90	+13 45 58.8	376961	3490.1	1902.0	7.2	2.7	341.2	135.5	74.2	18.4	0.801	127.0W		
Sep 14	03 39 45.61	+16 17 55.5	383214	3433.2	1870.9	7.4	4.1	345.5	147.7	78.2	19.4	0.708	114.6W		
Sep 15	04 33 39.69	+17 53 59.2	389200	3380.4	1842.2	7.2	5.2	350.6	159.9	82.5	20.4	0.609	102.6W		
Sep 16	05 26 37.52	+18 33 28.4	394537	3334.7	1817.2	6.7	6.1	356.0	172.1	86.8	21.4	0.509	91.0W	LAST 02:06	
Sep 17	06 18 24.14	+18 18 35.8	398962	3297.7	1797.1	5.8	6.6	1.4	184.3	90.9	22.4	0.411	79.7W		
Sep 18	07 08 49.33	+17 13 36.7	402323	3270.1	1782.1	4.8	6.8	6.7	196.5	94.7	23.4	0.318	68.6W		
Sep 19	07 57 50.55	+15 24 04.3	404560	3252.0	1772.2	3.6	6.8	11.6	208.7	98.0	24.4	0.233	57.7W		
Sep 20	08 45 33.90	+12 56 16.6	405688	3243.0	1767.3	2.3	6.4	15.8	220.9	100.7	25.4	0.158	46.9W	APO 14:23	
Sep 21	09 32 13.38	+09 56 58.0	405792	3242.2	1766.8	1.0	5.8	19.4	233.2	102.5	26.4	0.096	36.0W		
Sep 22	10 18 09.42	+06 33 13.3	405002	3248.5	1770.3	-0.3	4.9	22.2	245.4	103.1	27.4	0.047	25.2W		
Sep 23	11 03 47.09	+02 52 30.6	403478	3260.8	1777.0	-1.5	3.8	24.0	257.6	101.2	28.4	0.015	14.2W		
Sep 24	11 49 34.48	-00 57 10.3	401373	3277.9	1786.3	-2.7	2.5	24.9	269.8	80.0	29.4	0.001	3.5W	NEW 06:15	
Sep 25	12 36 01.12	-04 47 09.7	398813	3298.9	1797.8	-3.7	1.1	24.7	282.1	298.8	0.7	0.005	8.3E	A.NOD 17:42	
Sep 26	13 23 36.10	-08 28 01.8	395887	3323.3	1811.0	-4.6	-0.3	23.4	294.3	291.0	1.7	0.029	19.6E		
Sep 27	14 12 45.61	-11 49 35.0	392650	3350.7	1826.0	-5.3	-1.8	20.9	306.5	287.1	2.7	0.072	31.2E		
Sep 28	15 03 49.52	-14 41 02.9	389136	3380.9	1842.5	-5.8	-3.2	17.4	318.7	283.4	3.7	0.134	42.9E		
Sep 29	15 56 57.20	-16 51 31.3	385376	3413.9	1860.4	-6.1	-4.5	12.9	331.0	279.3	4.7	0.213	54.9E		
Sep 30	16 52 03.61	-18 10 46.3	381420	3449.3	1879.7	-6.0	-5.5	7.6	343.2	274.9	5.7	0.306	67.1E	MAX.S 19:30	

KEY TO GEOCENTRIC EPHEMERIS OF THE MOON: <http://astropixels.com/ephemeris/moon/moonkey.html>

September Sky Chart

Fort Worth, TX (32.7555°N, 97.3308°W)



© Heavens-Above.com

Chart displayed is for September 15, 2014 @ 22:00 Local Time

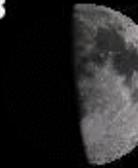
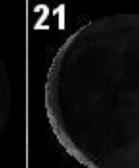
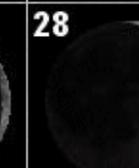
M



N

MR: Moon rise time - MS: Moon set time

September 2014

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1  MR 1:29pm MS ---	2  MR 2:27pm MS 12:18am	3  MR 3:24pm MS 1:10am	4  MR 4:19pm MS 2:08am	5  MR 5:11pm MS 3:11am	6  MR 6:00pm MS 4:18am	7  MR 6:45pm MS 5:27am
8  MR 7:28pm MS 6:36am	9  MR 8:10pm MS 7:45am	10  MR 8:52pm MS 8:53am	11  MR 9:34pm MS 9:59am	12  MR 10:17pm MS 11:03am	13  MR 11:02pm MS 12:04pm	14  MR 11:50pm MS 1:02pm
15  MR --- MS 1:55pm	16  MR 12:39am MS 2:45pm	17  MR 1:29am MS 3:30pm	18  MR 2:21am MS 4:12pm	19  MR 3:13am MS 4:50pm	20  MR 4:05am MS 5:26pm	21  MR 4:58am MS 6:00pm
22  MR 5:51am MS 6:32pm	23  MR 6:44am MS 7:05pm	24  MR 7:38am MS 7:39pm	25  MR 8:33am MS 8:13pm	26  MR 9:29am MS 8:51pm	27  MR 10:26am MS 9:31pm	28  MR 11:24am MS 10:16pm
29  MR 12:21pm MS 11:06pm	30  MR 1:17pm MS ---					

First and Last Lunar Crescent Visibility

Monday 22 September 2014 4—6.42h

Lunar Crescent visible, 41.9 hours before new moon

Elongation: 19°, 3% illuminated, Position angle of crescent (from Zenith to East): 159.6° - crescent points to the lower left, Width of the crescent: 0.81', Length of the crescent: 156°, Moon rises at 5:51am, 87 minutes before the Sun

Thursday 25 September 2014 —19.42h

Lunar Crescent visible, 42.5 hours after new moon

Elongation: 19.5°, 3% illuminated, Position angle of crescent (from Zenith to East): 237.2° - crescent points to the lower right, Width of the crescent: 0.87', Length of the crescent: 126°, Moon sets at 8:13pm, 51 minutes after the Sun.

Data and Image Source: <http://www.calsky.com/>

LUNAR OCCULTATIONS

PLANETS AND STARS

Data and Image Source: <http://www.calsky.com/>

Monday 1 September 2014

Time (12-hour clock)	Object (Link)	Event
	Observer Site	On center line, United States WGS84: Lon: -97d22m09.91s Lat: +32d44m38.09s Alt: 160m All times in CST or CDT (during summer)

Saturday 6 September 2014

Time (12-hour clock)	Object (Link)	Event
2:47.2am	Moon 	Immersion of Dabih, Bet Cap, SAO 163481 (Multiple star system), 3.0mag, Position angle=70.7°, Azimuth az=239.9°, Altitude h=16.2°, RA=20h21.9m Dec=-14°43.8', Moon phase=88.9%, Sun elevation hsun=-46.5° (dark limb)
3:47.3am	Moon 	Emersion of Dabih, Bet Cap, SAO 163481 (Multiple star system), 3.0mag, Position Angle=250.7°, Azimuth az=249.1°, Altitude h=4.8°, RA=20h21.9m Dec=-14°43.8', Moon phase=89.2%, Sun elevation hsun=-38.7° (bright limb)

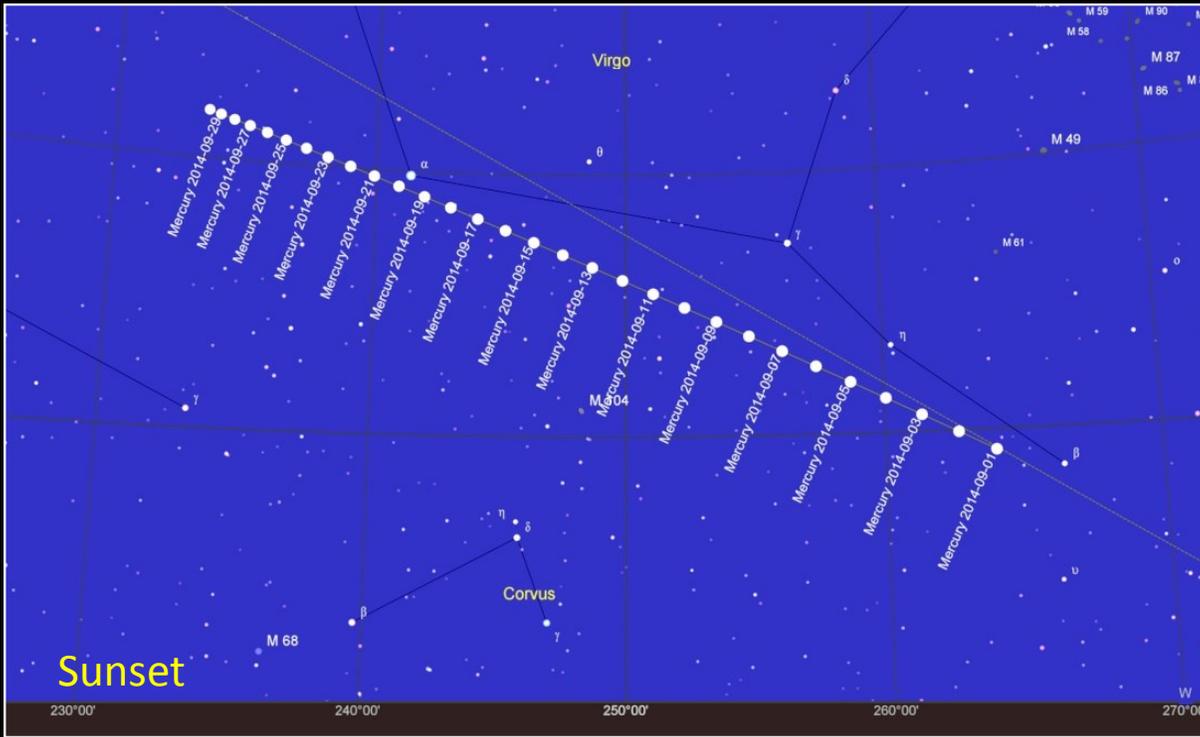
Thursday 11 September 2014

Time (12-hour clock)	Object (Link)	Event
3:35.3am	Moon 	Immersion of Zet Psc, SAO 109739, 5.2mag, Position angle=15.2°, Azimuth az=187.3°, Altitude h=64.8°, RA= 1h14.5m Dec= +7°39.3', Moon phase=92.6%, Sun elevation hsun=-41.8° (bright limb)
4:28.4am	Moon 	Emersion of Zet Psc, SAO 109739, 5.2mag, Position Angle=294.1°, Azimuth az=214.9°, Altitude h=60.7°, RA= 1h14.5m Dec= +7°39.3', Moon phase=92.4%, Sun elevation hsun=-33.0° (dark limb)

Wednesday 17 September 2014

Time (12-hour clock)	Object (Link)	Event
5:03.5am	Moon 	Immersion of 26 Gem, SAO 96015 (Close double star), 5.2mag, Position angle=91.2°, Azimuth az=95.4°, Altitude h=41.9°, RA= 6h43.3m Dec=+17°37.7', Moon phase=37.2%, Sun elevation hsun=-27.6° (bright limb)
6:29.5am	Moon 	Emersion of 26 Gem, SAO 96015 (Close double star), 5.2mag, Position Angle=270.6°, Azimuth az=112.5°, Altitude h=59.5°, RA= 6h43.3m Dec=+17°37.7', Moon phase=36.7%, Sun elevation hsun=-10.2° (dark limb)

M E R C U R Y



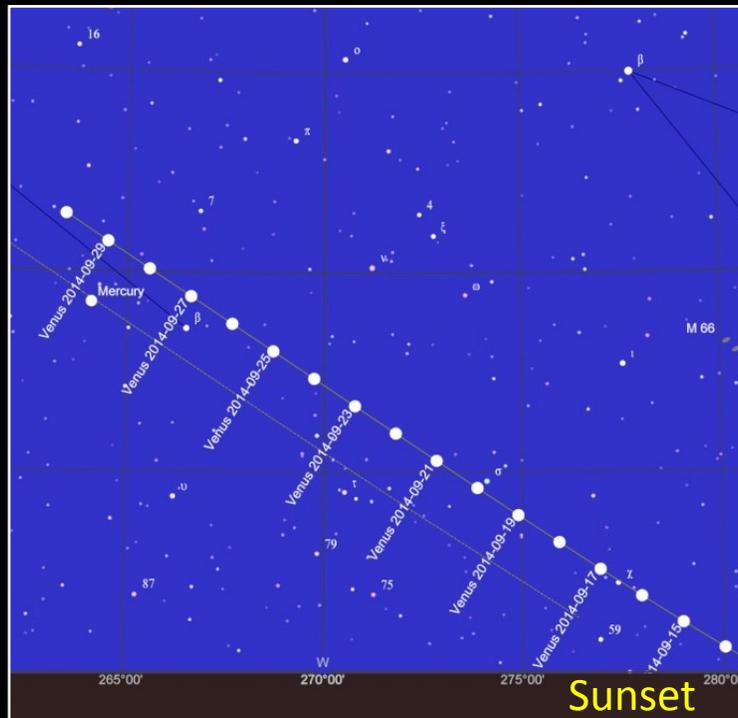
Sep 01

Sep 15

Sep 30

Image Sources: Cartes du Ciel & <http://www.calsky.com/>

V E N U S



Sep 01

Sep 15

Sep 30

Image Sources: Cartes du Ciel & <http://www.calsky.com/>

MARS

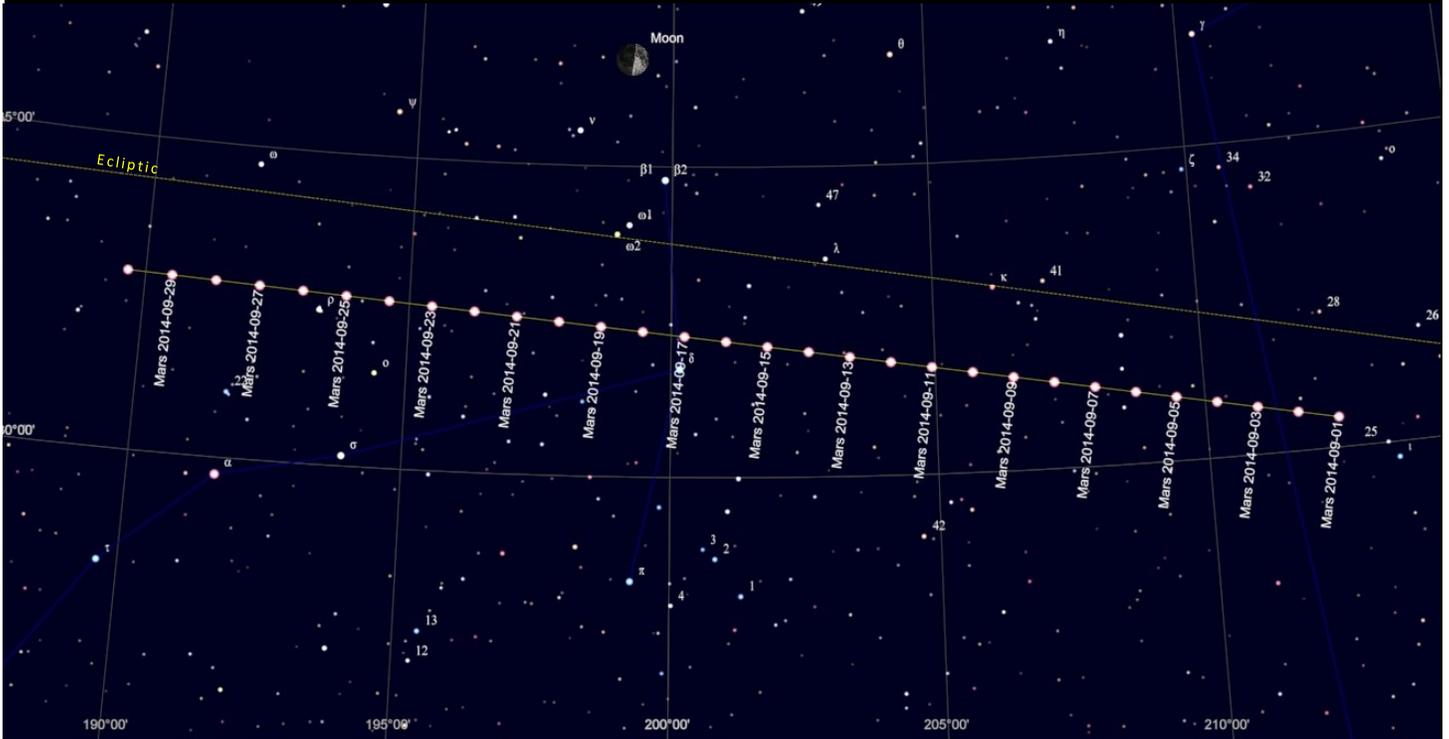


Image Sources: Cartes du Ciel

All Times Are 20h Local

Minor Planets - 4 Vesta & 1 Ceres

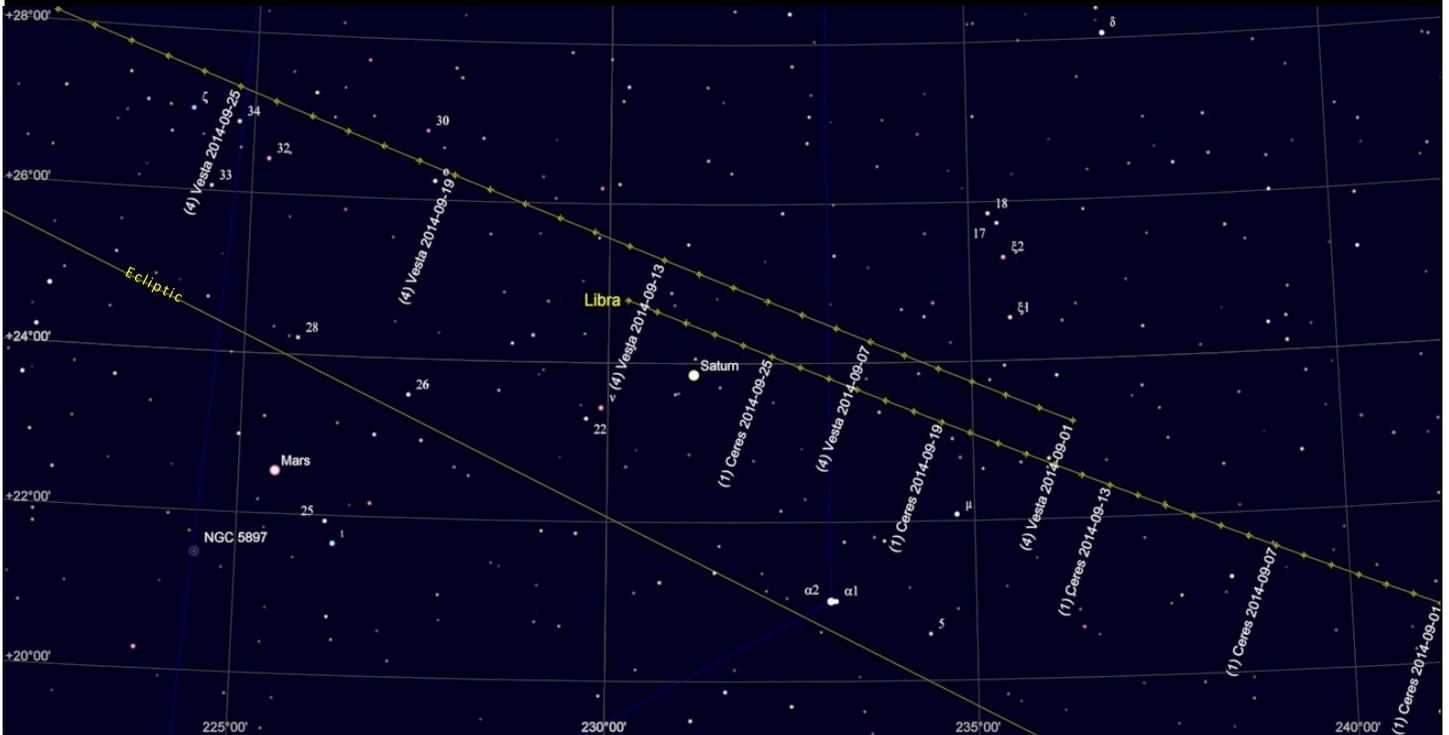


Image Sources: Cartes du Ciel

Planet visibility

2014-09-15 (UTC-5)

Fort Worth, TX

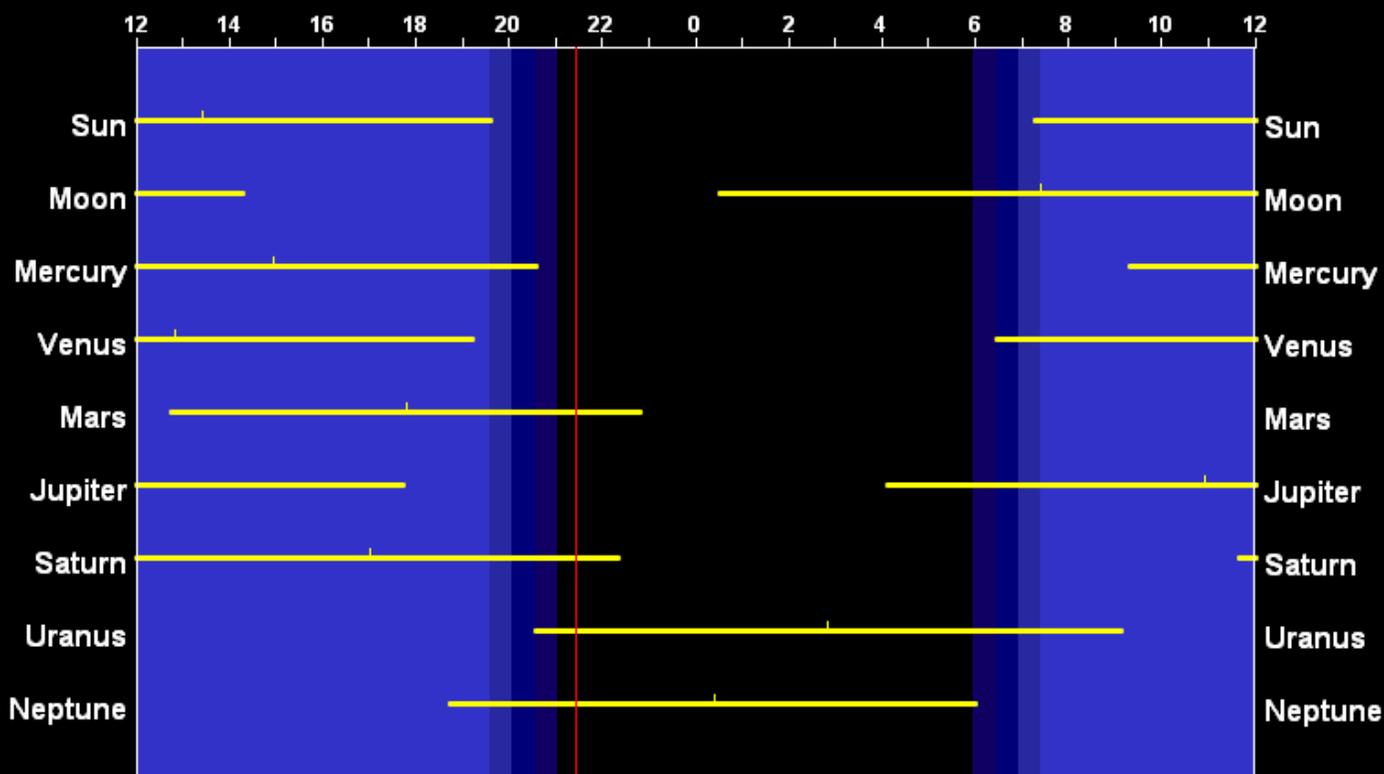


Chart Source: Cartes du Ciel



Visibility of International Space Station ISS

Date	Brightness (mag)	Start			Highest point			End			Pass type
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.	
09 Sep	-1.1	06:13:43	10°	S	06:16:24	23°	SE	06:19:05	10°	ENE	visible
10 Sep	-0.4	05:26:23	10°	SSE	05:27:38	12°	SE	05:28:54	10°	ESE	visible
11 Sep	-3.3	06:12:41	18°	SW	06:15:03	85°	SE	06:18:22	10°	NE	visible
12 Sep	-2.2	05:26:13	39°	SE	05:26:13	39°	SE	05:29:16	10°	ENE	visible
13 Sep	0.2	04:39:37	11°	E	04:39:37	11°	E	04:39:46	10°	E	visible
13 Sep	-2.1	06:12:30	21°	WNW	06:13:50	29°	NW	06:16:47	10°	NNE	visible
14 Sep	-2.0	05:25:47	36°	NNE	05:25:47	36°	NNE	05:28:02	10°	NE	visible
15 Sep	0.3	04:38:57	11°	NE	04:38:57	11°	NE	04:39:03	10°	NE	visible
15 Sep	-0.9	06:11:50	11°	NW	06:12:46	12°	NNW	06:14:16	10°	N	visible
16 Sep	-0.8	05:24:55	15°	N	05:24:55	15°	N	05:26:01	10°	NNE	visible
26 Sep	-0.5	06:54:42	10°	N	06:56:44	15°	NNE	06:58:46	10°	ENE	visible
28 Sep	-1.8	06:51:55	10°	NNW	06:55:02	37°	NE	06:58:08	10°	ESE	visible
29 Sep	-0.9	06:02:58	10°	NNW	06:05:36	21°	NE	06:08:13	10°	E	visible
30 Sep	-0.3	05:15:49	13°	NNE	05:16:04	13°	NNE	05:17:47	10°	ENE	visible
30 Sep	-3.2	06:49:44	10°	NW	06:53:01	62°	SW	06:56:17	10°	SE	visible

WELCOME NEW MEMBERS

NEW STARS IN THE FWAS UNIVERSE

Cody & Kristi Butler

Jeff Vermette

Kurt & Lynne Calendar

Brad Riza

ΨA FWAS Young Astronomers

This month the young astronomers will focus on the left overs of our solar system's formation—Asteroids. Two of the largest, (1)Ceres and (4)Vesta are easily visible in small telescopes right now. We will discuss the ongoing DAWN spacecraft mission and how to observe these fascinating objects.



Last month (August), Si Simonson lead the group in learning how to measure angular dimensions (useful in finding objects near each other) using your hands and fingers held at arms length. He taped some stars to wall, and I showed them how to measure between various stars in the big dipper. Then we practiced with the cross staff I build and brought.

They all practiced measuring between two stars in the Big Dipper on the wall.

I demonstrated how to build a cross-staff, and then gave them a hand out which allows them to make their own using a standard yard stick and the template print-out. He told them that they had a "homework" assignment to build a cross staff, and take the measurements for the Big Dipper as laid out in the handout.

They then went outside. Although it was still light, they were able to see Mars and Saturn. So they all took turns measuring the separation between the two with their hands.

While they were waiting to see the planets through Beth Hayes' (FWAS/YA! Member/Mom) telescopes, they took turns using the cross staff to measure between Mars and Saturn.

He also introduced the group to some of the more famous astronomers in history. This was all to help them earn their Masters & Measurements badge. 🪐



Check out the Young Astronomers Web Page at: http://www.fortworthastro.com/young_astronomers.html



Book/Video Reviews

By: Matt McCullar, FWAS

Messages from the Stars Communicating and Contact with Extraterrestrial Life

by Ian Ridpath

“Does life exist elsewhere in space? This is the single most important scientific question which we are currently capable of answering, and certainly the most exciting.” Thus begins *Messages from the Stars*, a thought-provoking book that explores in detail the possibility and probability of extraterrestrial life.

Messages from the Stars is more than about searching for life on other worlds; it is also about critical thinking. It looks intensely at the nuts and bolts of stellar and planetary life development. Why should life develop on this world but not on any others in our solar system?

The book describes the early history of the Search for Extra-Terrestrial Intelligence (SETI), a program of listening to the distant stars with radio telescopes in search of possible radio signals. It was written before today's explosion of extra-solar planet discoveries, but discusses critically the theoretical reasons for many stars having planets circling them. More theory discusses what may be involved in the development of intelligent life. Today astronomers think planetary development is very common around most stars, as if planets are a regular by-product of star formation.

Some stars are more likely to have life-bearing plan-

ets circling them than others. This is due to the stars' sizes and temperatures: supergiants tend to burn up their nuclear fuel rather quickly and die out, so life never gets the chance to develop on those planets. A great many stars are actually double-star systems, making planetary dynamics even more complicated. The size of a planet has a definite effect on its life forms. So far as we know, water is essential for life, and a planet must be able to support liquid water in order to support life; this limits the “habitable zones” around stars.

The author, Ian Ridpath, points out that it makes greater economic sense for an alien race to investi-

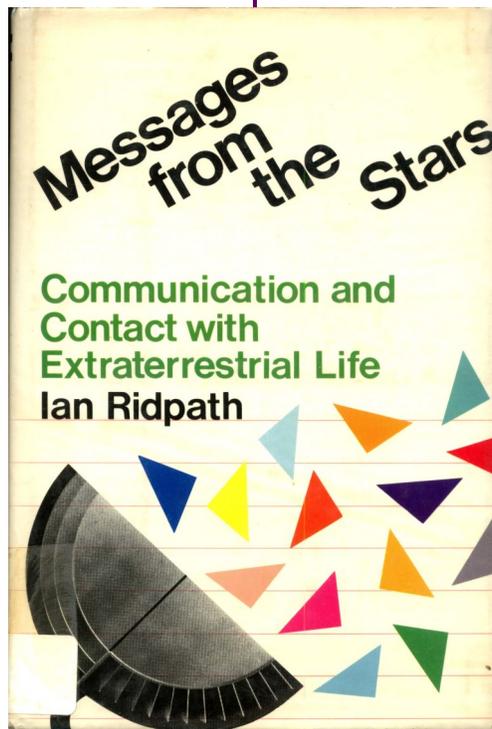
gate other worlds by first sending out robotic probes before sending people in ships. If we suddenly should detect an alien spacecraft, therefore, it would likely be robotic in nature with no one aboard (if it allowed itself to be detected). [After all, we have already sent unmanned probes to all the other planets in our own solar system.]

My favorite part of this book carefully describes a famous unusual story that appeared in books and magazines some years ago; I remember reading it in my youth. “One interesting case concerns TV station KLEE in Houston, the test pattern of which was allegedly received on TV sets in England in 1953, years before the advent of communications satellites or even the first Sputnik. What made the achievement even more remarkable was the

fact that KLEE-TV had changed hands three years previously and was by 1953 transmitting under a different call sign, KPRC.

“This fascinating case has been thoroughly

(Continued on page 21)



[Messages from the Stars: Communication and Contact with Extraterrestrial Life by Ian Ridpath](#)
[Published 1978 by Harper & Row](#)
[241 pages](#)
[ISBN 0-06-013589-1](#)

HOW TO IDENTIFY Poison Ivy, Poison Oak, and Poison Sumac

By FWAS member Trista "Tree" Opperman

Last month we brought you how to identify poisonous and non-poisonous snakes in an attempt to help make country side observing here in North Texas a little safer during the warm summer months. However, even after the summer heat has died down, there are a number of other natural obstacles you have to look out for that don't actively react to your presence but can cause some major discomfort if you don't pay attention.

There's nothing like being out in the country and enjoying a long night out under the stars. There's also nothing like coming into contact with poison ivy, oak, or sumac. Poison ivy, oak, and sumac grow in most regions of the country; so, chances are, when you go out to a dark sky site in the country or at a local or state park, you may come into contact with one of these native plants.

If you're a city dweller, you may not know what these three plants look like. Within 12 to 72 hours of touching any one of these plants, you could develop a very uncomfortable, itchy, and unsightly red rash accompanied by swelling and blisters. The itch-inducing ingredient in all three is called "urushiol." Urushiol is an oil that's contained in the plants' leaves, stems, and roots, and it sticks to anything it touches. So if you pet your dog or hop on your bike after they've brushed up against a poison oak shrub, you could end up with a rash. To make matters worse, the toxin is easily transferred from one surface to another and will remain potent for years if not thoroughly cleaned. (Just imagine your exposed dog running through your house or jumping on your furniture!) And don't even think about burning these plants. Smoke inhalation from burning them can send you straight to the emergency room!

As there are numerous subspecies and varieties of each of these plants, it would be impossible to recognize all of them. So just try to remember these simple phrases: "Leaves of three, let it be," but there are two more to remember: "Berries white, run in fright" and "Hairy vine, no friend of mine."

Here are a few characteristics poison ivy and poison oak both share:

Grows at altitudes below 5,000 feet

- Deciduous
- Grows as a bush or a vine
- Stems do not have thorns
- Usually grow clusters of three leaves
- Leaves can range in size from the length of your thumb to the length of your hand
- The middle leaflet has a notably longer stem than the two side leaflets, though it is more obvious in poison ivy than poison oak
- Depending on the season, leaf color can range from green to orange and even a dark purplish-red
- Inconspicuous white spring flowers which usually produce clusters of small white berries that turn red in late summer
- Toxic to humans but harmless to animals
- All parts of the plant (leaves, stems, and roots) contain the toxin urushiol



(Continued on page 14)

(Continued from page 13)

Here's what to look for — and steer clear of:

Poison Ivy: The trademarks of this plant are its solid green, pointed leaves that hang from the stem in groups of three. It can have smooth or subtly toothed almond-shaped leaves that are sometimes irregularly lobed. It grows as both a vine and a shrub, and its stems and vines are hairy. Its color can change with the seasons. It produces yellow-green flowers in the spring and its



green leaves can change to yellow and red in autumn.

(Continued on page 15)

(Continued from page 14)

Poison Oak: Like its ivy counterpart, poison oak leaves also cluster in sets of three. Its leaf shape resembles an oak leaf, although it's not a member of the oak family. Leaves are duller green and usually more distinctly lobed or toothed than poison ivy. Leaves have velvety hairs on both sides, unlike poison ivy. Poison oak is most often seen in shrub form, but it can also grow as a vine.



(Images of poison oak courtesy of www.poison-ivy.org)

(Continued on page 16)

(Continued from page 15)

As there are numerous subspecies and varieties of each of poison ivy and poison oak, it would be impossible to recognize all of them. So just try to remember these simple phrases: "Leaves of three, let it be," but there are two more to remember: "Berries white, run in fright" and "Hairy vine, no friend of mine."

Poison Sumac: Thankfully, poison sumac is not very common. This plant typically grows in very wet areas or in water. It's usually found in swampy or boggy areas where it grows as a small tree or tall shrub. Poison sumac leaves are smooth and hairless and can have black or brownish-black spots. The leaf stems contain seven to thirteen leaves.



(Images of poison sumac courtesy of <http://plants.usda.gov/>)

(Continued on page 17)

(Continued from page 16)

If you come into contact with any of these poisonous plants, the sooner you take care of it, the better. As the chemicals rub off your clothes onto other surfaces you run the risk of exposing yourself and spreading the oil. Urushiol is not water-soluble, so if you can, use rubbing alcohol or strong soap to cleanse the area of contact within the first ten minutes, then rinse off with cold water. As urushiol can remain active for years, you'll want to wash any clothes, items, or furniture that may have come into contact with the invisible oily residue.

If you don't catch the exposure immediately, your only choice is to treat the resulting itchy rash and blisters as best you can. While there are countless home remedies to relieve itching and pain, standard treatment options include oatmeal baths, baking soda pastes, calamine lotion, and a number of commercial products designed specifically for these type rashes. Of course, the best remedy is always prevention. So be aware and take care! 

OBSERVERS NOTES □

Astronomical League

Hydrogen-Alpha Solar Observing Program

... notes from a successful submission

by: Lowell Martin



Hydrogen
Alpha
Solar
Observing
Program

The Hydrogen Alpha Solar Observing Program is one of the Astronomical League's newer programs. In overview, the Observer is required to make three sets of drawings (imaging is also allowed) under hydrogen-alpha light:

- 20 or more drawings of the whole solar disk covering two solar rotations
- a series of detailed drawings of the different forms of prominences on the solar limb; the program specifies 14 forms, all of which must be included
- a series of detailed drawings of features on the solar disk; the program specifies 9 features, of which 6 must be included

In addition, program-specific forms are used to document the observations, and program-specific scales are used to evaluate seeing and transparency. Complete details are given at:

<http://astroleague.org/content/hydrogen-alpha-solar-observing-program>

The Scope: a 40mm f/10 Coronado Personal Solar Telescope ("PST") was used with a 6.7mm UWA eyepiece (~60x) for all observations. The PST uses an etalon to isolate the hydrogen-alpha wavelength within a (published) bandwidth of < 1.0 Å.

Observations: started on 2/16/2014, which was about 20% through Carrington Solar Rotation # 2147 (Carrington Rotations are specified at http://alpo-astronomy.org/solar/rotn_nos.html). The first few observing sessions could be described as "technique development" sessions:

- the etalon within the PST had to be "tuned" to the hydrogen-alpha wavelength – commonly referred to as finding the "sweet spot" (that spot where prominences, filaments, etc. are most evident); "detuning" the etalon was helpful in confirming the location of smaller sunspots
- some areas within the field of view were slightly better than others for showing detail
- atmospheric convection, which manifested as "ripples" in the solar limb and loss of detail on the solar disk, could be minimized by not viewing over surface structures (e.g., roofs of houses) and observing when the Sun was at higher altitudes; for my specific location, best observing was between Local Noon and Local Noon plus 1 hour.

Observations concluded on 5/10/2014, which was about 23% into Carrington Rotation # 2150.

Memorable Occurrences: quickly-changing phenomenon is common in this program, but a couple of days were memorable:

- 3/20/2014: found a very large unconnected arch (one of the classifications of prominences) on the southeast limb. It was evident this prominence was changing quickly, so I monitored it every 45-to-60 minutes, and watched it morph into a broken arch and finally a detachment.
- 5/04/2014: found a large broken arch on the west limb, first seen the previous day, had detached and a large volume of plasma appeared to be in the process of being blown away. When I returned for a follow-up observation, the plasma had dissipated. 

AL OBSERVING CLUB HIGHLIGHT OF THE MONTH

SUNSPOTTERS PROGRAM

OBSERVING EXPERIENCE LEVEL
INTERMEDIATE

The purpose of the AL [Sunspotters Program](#) is to encourage solar observing with an eye toward educating the amateur astronomer on solar features and their evolution. By following this regimen the observer will learn the various features of solar activity, learn how these change during their passage across the disk, and learn how to develop a regular observing program.



In the League's Sunspotters program, you will make two sets of drawings. The first set is five detailed sketches of sunspot groups. The second set is 20 or more sketches of the whole solar disk during two solar rotations (one rotation is about 30 days).

Please Note: Since the purpose of this program is to learn to understand the Sun and learn how to observe solar features, at least 15 of your 20 full disk drawings must contain actual sunspots. During solar minimum, there may be days, or weeks, without any solar activity. If you are in the process of working on the Sunspotter Program during this minimum time, you need to wait till the Sun once again becomes active. Without actually having sunspots for a great majority of the days there cannot be any real learning or understanding of the Sun and that is the purpose of doing this observing program. 🪐

WARNING

Only use filters from reputable sources, and never use a "solar filter" that screws into an eyepiece. As Richard Hill states in *Observe and Understand the Sun*:

"Observing the sun is the only inherently dangerous observing an amateur astronomer can do. Be aware of this at all times and take all necessary precautions. If you do not know a filter or procedure is safe then do not use it! Always err on the side of safety. An eye once damaged is forever damaged. Filters that let too much INFRARED light through can burn an eye if used visually. There is NO PAIN when this happens. Burned retinas can not be repaired. Excessive ULTRAVIOLET light has been shown to cause cataracts. So be very careful."

Before starting this program, please review [Information Required to Complete the Sunspotter Program](#). This will help answer any question you may have.

Constellation of The Month

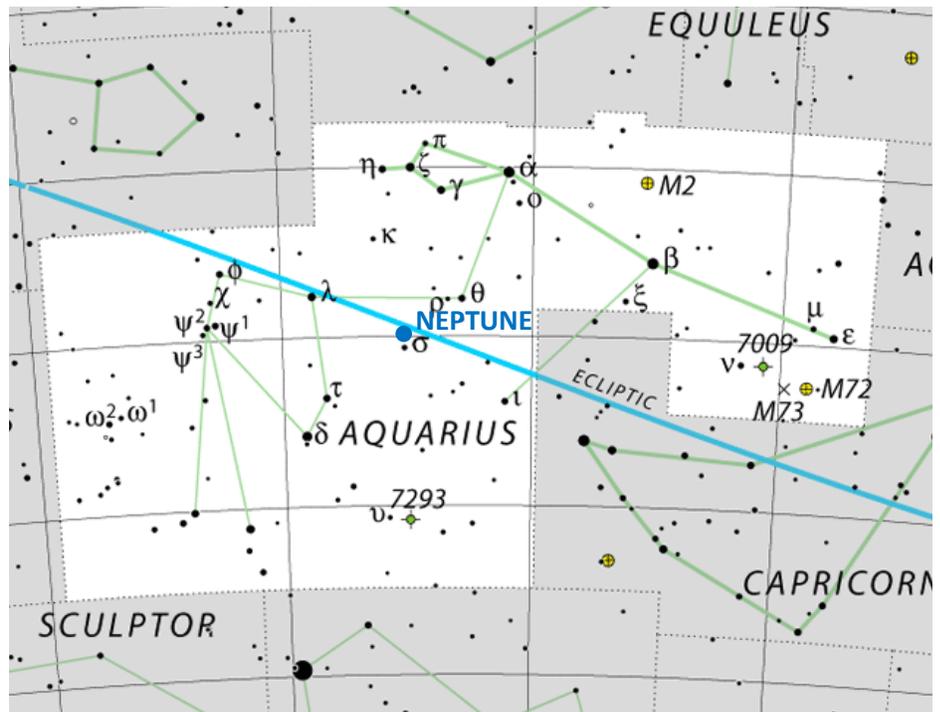
Aquarius

Aquarius constellation is located in the southern hemisphere. Its name means “the water-bearer” (or “cup-bearer”) in Latin and its symbol is ♃, which represents water.

Aquarius lies in the region of the sky sometimes referred to as the Sea, because it contains a number of constellations with names related to water; Pisces (the fish), Eridanus (the river), and Cetus (the whale), among others.

Like other zodiac constellations, Aquarius was catalogued by the Greek astronomer Ptolemy in the 2nd century.

Aquarius contains the famous supergiant star Sadalsuud (Beta Aquarii) and a number of notable deep sky objects: the globular clusters Messier 2 and Messier 72, the asterism Messier 73, the Aquarius Dwarf Galaxy, Atoms for Peace Galaxy (NGC 7252) and two well known nebulae: the Saturn Nebula and the Helix Nebula.



Aquarius contains three Messier objects – M2 (NGC 7089), M72 (NGC 6981), and M73 (NGC 6994) – and has seven stars with known planets.

The brightest star in the constellation is Sadalsuud, Beta Aquarii.

Neptune is perfectly positioned for viewing in this constellation, being less than half a degree from Sigma Aquarii on the ecliptic throughout this month.

There are four meteor showers associated with the Aquarius constellation: the March Aquariids, Eta Aquariids, Delta Aquariids, and Iota Aquariids.

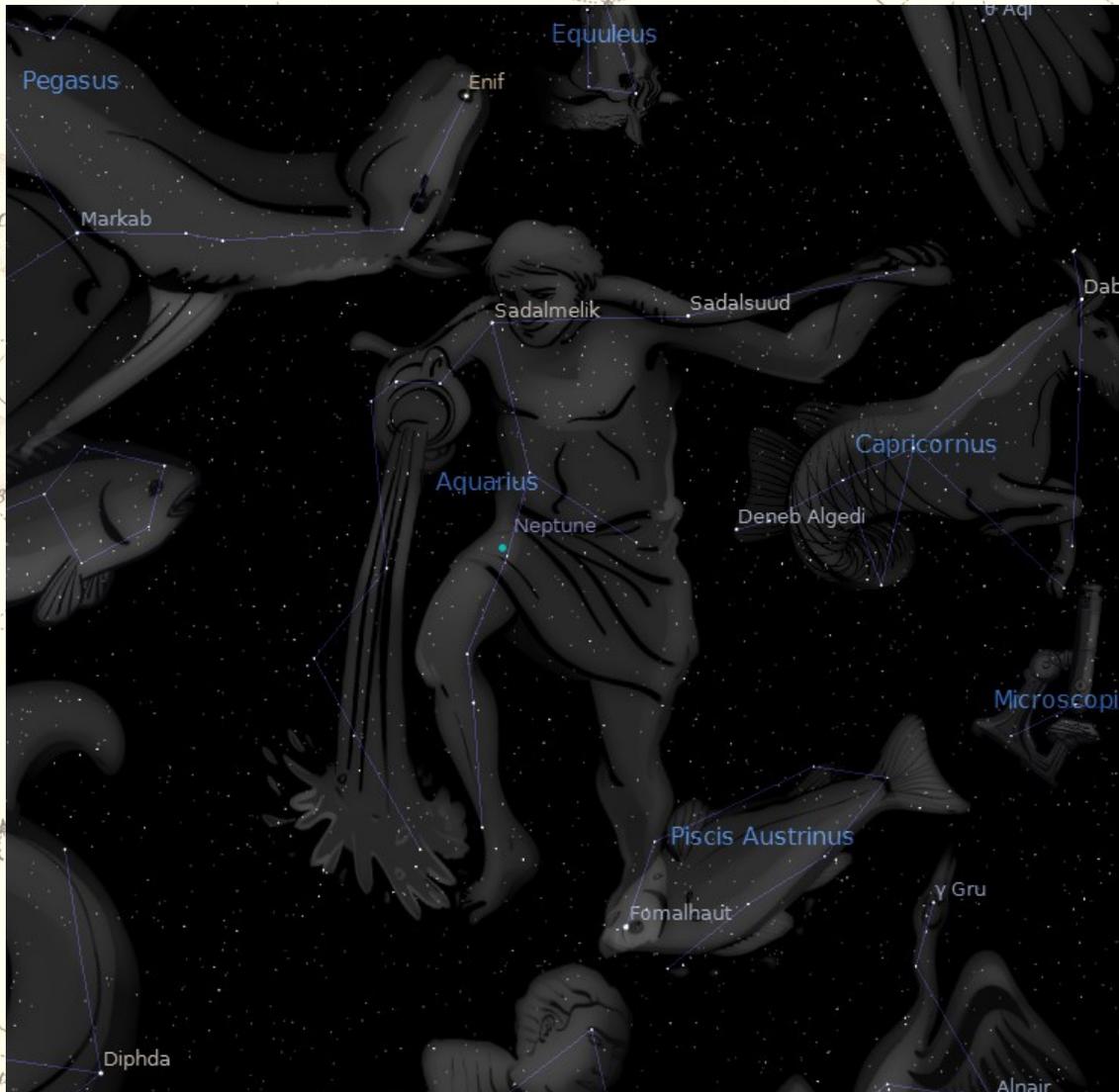
Aquarius belongs to the zodiac family of constellations, along with Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, and Pisces. 🪐

Sources:

<http://www.constellation-guide.com/constellation-list/aquarius-constellation/> —and— [http://en.wikipedia.org/wiki/Aquarius_\(constellation\)](http://en.wikipedia.org/wiki/Aquarius_(constellation))

Image Source: <http://www.iau.org/public/themes/constellations/>

MYTHOLOGY—Aquarius



Aquarius is depicted as a young man pouring water (or alternatively, nectar) from an amphora into the mouth of the Southern Fish, represented by the constellation Piscis Austrinus.

Aquarius is usually associated with Ganymede, the son of King Tros, in Greek mythology. Ganymede was a beautiful Trojan youth who caught Zeus' eye, which prompted the god to disguise himself as an eagle (represented by the constellation Aquila) and carry him off to Olympus to serve as cup-bearer to the gods. In a different story, the constellation represents Deucalion, son of Prometheus, who survived the great flood along with his wife Pyrrha.

In Babylonian mythology, Aquarius is identified as GULA (the great one), the god Ea himself and, in Egyptian tales, the constellation was said to represent the god of the Nile.

Text Source: <http://www.constellation-guide.com/constellation-list/>

Image source: Stellarium

investigated by radio astronomer Frank Drake, and the explanation is quite clear: it was a hoax which backfired. The hoaxers were two English businessmen who were demonstrating TV sets which they claimed could pick up overseas TV."

A great deal of this book (far too much, I think) discusses UFO sighting histories, pyramid pseudoscience, and the 1908 Tunguska explosion. I must point out that Ridpath is on the side of science, not pseudoscience. He carefully picks apart the claims by writer Erich von Daniken (whose books such as *Chariots of the Gods* claimed that ancient Earth civilizations were visited and influenced by aliens) and others.

What makes this book worth reading are the topics that Ridpath brings up, should the day come when we actually do receive an extraterrestrial radio signal. How will it affect us? What should we do? How should we respond to it? Who will make these decisions? "Humanity may be united by the reception of that first message from the stars, or it may be incredibly split. Or, more likely, it will carry on much as before... But the profoundest response of all will be religious."

Ridpath points out that there is a dramatic difference between physical contact with someone and remote contact by radio. A radio message from a distant world seems relatively innocuous, but the sudden, unexpected presence of aliens would likely be perceived as hostile and threatening. We must also prepare ourselves for the possibility that their appearance or behavior may seem unacceptable or repugnant to us (or vice versa).

Other items: The danger of disease (for both sides): "The product of billions of years of evolution on one planet is entitled to feel ill at ease if transferred to an alien biosphere"; the surprise of seeing ourselves as others see us; the fact that on Earth, advanced societies have always swamped the less fortunate; and can we really hope to communicate with an alien race, when we can't even communicate effectively with animals on Earth? Scientists have already proposed basic principles of "meta-law," the legal rules which should apply to dealings with alien

racess. The author believes that "we will be more likely to find aliens with high social development but low technical development, as in many remote tribes on Earth."

Then again, it may well be possible that there is simply no one else out there in the Universe just now. Somebody has to be first; perhaps that somebody is us. But the author believes that if extraterrestrials do exist, "Contact with them is inevitable. Whatever our misgivings, we must be ready to face the existence of other beings in space. First contact will be the end of our isolation, and it will also be the end of our innocence."

This book takes a long time to get through. There are few illustrations, and no photographs at all. I'd say about 25% of the entire book could well and truly have been removed to improve the work as a whole. But Ian Ridpath is an experienced astronomical writer and really knows his subject.

The moment of truth: Do I recommend *Messages from the Stars*? Not really; I learned a lot, but I've also read other books on this subject that are far better. Two stars out of five. 

"One interesting case concerns TV station KLEE in Houston, the test pattern of which was allegedly received on TV sets in England in 1953, years before the advent of communications satellites or even the first Sputnik!"

If you have an idea for an article, have astronomical related photos or an astronomy project you've done, and you'd like to share or want to contribute to the newsletter in any other way, please contact the editor at primefocus@fortworthastro.com or through the club's Yahoo! eGroup forum.

Club Meeting Minutes— July 15th, 2014

Michelle Theisen, Secretary-Treasurer

CALL TO ORDER

The meeting was called to order by Bruce Cowles, President.

51 members and visitors were in attendance.

Bruce welcomed everyone and gave an overview of the club and a summary of the benefits of being a member.

PRESENTATION

Instead of a formal presentation program, the meeting was opened for the annual Swap Meet.

Raffle drawings were held throughout the evening.

Several boxes with supplies to build a telescope were put up for silent auction, with proceeds to support work on the Ed Calvert 19" telescope.

\$96.00 was raised with this silent auction.

NEW BUSINESS

Announcements were made for upcoming events:

- September 6th – Observe the Moon Night – There will be a Star Party at the Museum
- September 13th – We will have a fall picnic at the Thomsen Foundation Dark Site. Gathering will begin around 6:00 pm
- October 4th – The Star Party will be held in Euless
- October 18th – There will be a Star Party at the Palo Pinto Mountains State Park

There will be another informational meeting about the new Palo Pinto Mountains State Park sometime in September. Details are to be announced about date and location.

OLD BUSINESS

There was no old business discussed.

ADJOURN

There was no formal adjournment.

Palo Pinto Mountains State Park Star Party

October 18th, 2014

North Texas Hill Country Star Party

Explore the dark skies of night-time Texas at a stargazing party in our newest state park!

When: Oct 18, 2014 07:00 PM to ?

Where: Palo Pinto Mountains State Park, 2 miles west of Strawn.

(GPS Coords: 32.550986, -98.533235)

Contact Name: John Ferguson (or contact FWAS directly at info@fortworthastro.com)

Contact Email:

john.ferguson@tpwd.texas.gov

Contact Phone: (254) 210-3015

The Texas Parks & Wildlife Department, along with the Texas Astronomical Society of Dallas, and the Fort Worth Astronomical Society, will be hosting a stargazing party at Palo Pinto Mountains State Park on Saturday, October 18th, beginning at 7 p.m.

The park is located near Strawn, which is 4 miles north of Interstate 20, halfway between Fort Worth and Abilene.

To get to the event, just go west on FM 2372 or the Tucker Lake Road from Strawn.

Go two miles from town and look for the signs.

You can bring your own telescope or use one provided by volunteers, who will be on hand to share expertise, knowledge, and lore.

Food and drinks are available for purchase.



Newsletter:

The FWAS newsletter, *Prime Focus*, is published monthly. Letters to the editor, articles for publication, photos you've taken, personal equipment reviews, or just about anything you would like to have included in the newsletter that is astronomy related should be sent to: primefocus@fortworthastro.com.

Meetings:

FWAS meets at 7:00 PM on the third Tuesday of the month at the UNT Health Science Center – Research & Education Building, Room 100; 3500 Camp Bowie Blvd; Ft. Worth. Guests and visitors are always welcome.

Outreach:

Items regarding FWAS Outreach activities, or requests for FWAS to attend an event, should be sent to: outreach@fortworthastro.com.

Young Astronomers:

FWAS' youth activities (known as YA!!) meet on the 3rd Saturday of every month between 7pm and 9pm (check our calendar for time changes throughout the year - determined by seasonal sunset times). This group meets for one hour at the Parkwood Hill HOA Club House - 5573 Eastwedge Dr., Fort Worth, TX 76137. YA! Coordinators: ya@fortworthastro.com.

FWAS Annual Dues:

\$40 for adults / families & households
\$20.00 for students (half-price Dec 1 thru May 31); Membership runs June 1st through May 31st. Please make checks payable to:

Fort Worth Astronomical Society

See our Secretary/Treasurer for more info:

sec-treas@fortworthastro.com

Cash and checks should be paid in-person at the next indoor meeting, or checks can be mailed in the traditional way. Members should check the eGroup for the latest postal mailing address listed by the Secretary/Treasurer.

Credit card payments (for existing membership renewals only) can be made through our PayPal link (private link is on the club's Yahoo eGroup - no PayPal account required).

Discount Magazine Subscriptions:

Sky & Telescope, Astronomy, and StarDate (McDonald Observatory) magazines are available for discounted subscription rates through our association with the NASA Night Sky Network and the Astronomical Society of the Pacific. The link can be found on the club's Yahoo eGroup. (Members Only)

Astronomical League Membership:

Your FWAS membership gives you associate membership in the Astronomical League. This gives you access to earn various observing certificates through the AL observing clubs. You also receive their quarterly magazine, *Reflector*. AL Observing clubs: <http://tinyurl.com/7pyr8qg>.

Fort Worth Museum of Science & History Monthly Star Parties:

FWAS, as part of our historical relationship with the [Noble Planetarium](#), participates in the monthly museum star parties by supplying the telescopes and manning to expose the public to amateur astronomy as a hobby, and to possibly spark interest in joining our club. This is an excellent opportunity to socialize with and to get advice or help with your own equipment from other FWAS members. FWMSH star party schedule: <http://tinyurl.com/bosbwqa>.

That's a Fact!

As the planet nearest the sun, the surface of Mercury can reach a scorching 840 degrees F (450 degrees C). However, since this world doesn't have enough atmosphere to entrap any heat, at night temperatures can plummet to -275 degrees F (-170 degrees C), a more than 1,100 degrees F temperature swing that is the greatest in the solar system.

Source: [Bad Astronomy](#)

Seen a Fireball Lately? Report it to the American Meteor Society (AMS)

Just go to their website at <http://www.amsmeteors.org/> and hover your cursor on the Fireball menu item at the top of the page and you will see the link to report a fireball. They will ask you several questions in a web questionnaire and your observations will be added to the other witnesses for the same event. These will be compiled and analyzed to determine the location and direction from which the object entered the atmosphere.

FULL MOON NAME

September



"Full Corn Moon"

This full Moon corresponds with the time of harvesting corn. It is also called the Barley Moon, because it is the time to harvest and thresh the ripened barley. The Harvest Moon is the full Moon nearest the autumnal equinox, which can occur in September or October and is bright enough to allow finishing all the harvest chores. 

Source: [Old Farmer's Almanac](#)

FWAS FOTO FILES



The Andromeda Galaxy (M31) - Photo by FWAS mbr Manny Lois



Perseid Meteor—

Tuesday night, Aug 12, in nearly full moonlight at the dark site, I caught one of the (few) meteors that Norm and I saw. Photo by FWAS mbr. Mike Ahner

Have an interesting photo you've taken of the sky? Discovered a technique and want to show the results to fellow FWAS members? Submit your photos to primefocus@fortworthastro.com or send them in the **Yahoo! eGroup** to the attention of the newsletter editor. Your participation in showing off your personal astrophotography is greatly appreciated by all FWAS members.