NIGHTFALL
Huachuca Astronomy Club of Southeastern Arizona

September 2012

President's Notes

Next Meeting: The next meeting of the Huachuca Astronomy Club will be Friday, September 7, 2012 at the Student Union Building, Community Room at Cochise College at 7 pm. The guest speaker will be Dr. Dante Lauretta, professor of planetary science at the University of Arizona's Lunar and Planetary Laboratory. Dr. Lauretta was selected as a Kavli Fellow of the National Academy of Sciences in 2008, and received the Antarctica Service Medal of the United States of America in 2010 for his service as a member of the 2002-2003 Antarctic Search for Meteorites. He is the OSIRIS-REx Principal Investigator for the OSIRIS-REx Asteroid Sample Return Mission. The US National Research Council has identified sample return from an asteroid as a high priority mission. The NASA New Frontiers program selected the OSIRIS-REx mission for implementation in 2011, and it will return samples from an organic-rich asteroid of a type not available in our meteorite collections.

What's DUTS? Dine under the Stars at the University South Foundation's Patterson Observatory is scheduled for September 8. This is a big fundraiser for the University of Arizona South Foundation and income is used to support scholarships among other activities. HAC members operate the Patterson Observatory, while other members give night sky tours with their or HAC's telescopes. We look forward to seeing you at DUTS!

Star Night at Kartchner Caverns State Park: Our next Star Night at Kartchner Caverns is Saturday September 15, and our guest speaker will be Jeremy Moss from the National Parks who specializes in astronomy and archeology. Jeremy's talk will begin at about 5:30 pm, and afterward, we will be joining the Astronomers of Verde Valley to set up telescopes. The last two astronomy events at Kartchner Caverns have been well attended with hundreds of people looking through our telescopes.

Starizona: I dropped by the "Starizona" astronomy shop in Tucson a few days ago. The owner, Dean Koenig gave us a boatload of door-prizes including books, Telrads, planispheres, and more. That was very kind of Dean, and we appreciate his generous support. In addition to visiting Starizona in person, we can also order much needed astronomy items from their website: www.starizona.com.

Public Night at the Patterson: The next Patterson Observatory public night is September 20. We had a large crowd at the last public night before the monsoons, so we might expect a similar attendance for this public night.

HAC annual Picnic: The 30th anniversary HAC picnic will be at Glen and Deanna's place on Saturday, October 13. Stay tuned for more details on this gala event.

Audubon Research Ranch: We are also planning an astronomy night with a talk and telescopes at the Audubon Society's Research Ranch near Elgin on Oct 20. If you would like to bring a telescope and need directions, please let me know at RLGent@cox.net.

Return to Douglas: Yes, it's a long drive to Paul Huber Middle School in Douglas, but last year's star party extravaganza was so exciting, we are doing it again. This event is planned on Tuesday evening October 23. Last year we had about 300 students, teachers, parents, and friends, so we will need a lot of help again this year.

HAC Meeting Schedule for 2013: We will be meeting on the fourth Friday of the month next year. That's generally closest to the full moon. Again, we will meet in the Community Room of the Student Union at Cochise College on the following dates: Jan 25, Feb 22, March 22, April 26, May 24, June 28, July 26, August 23, Sept 27, Oct 25, and Nov 22. The fourth Friday of December is too close to Christmas, so instead of a regular meeting, we will hold a party on December 14 -- location TBD.

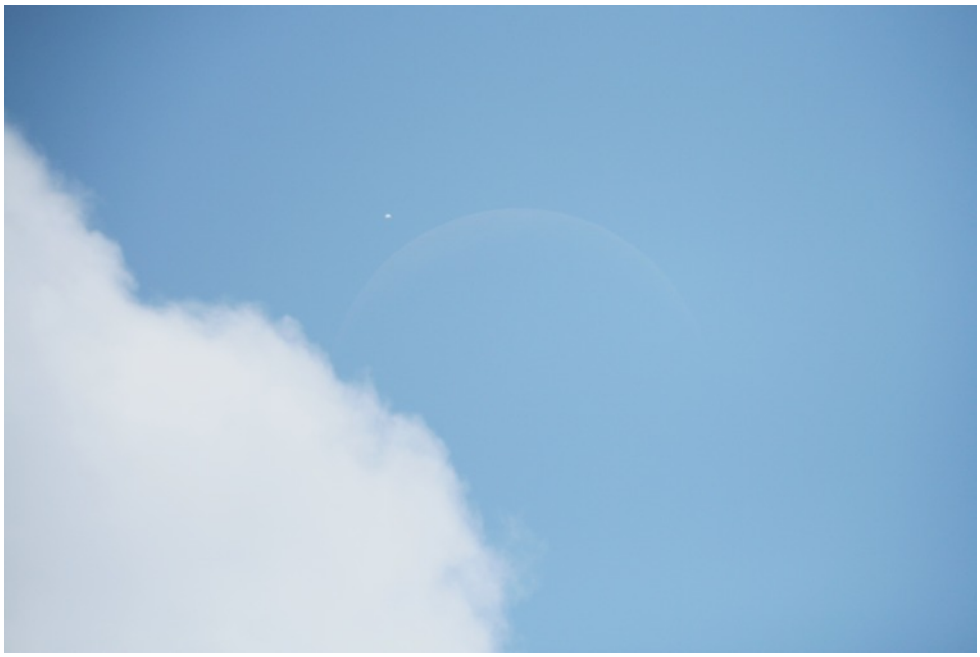
Candidates for HAC Board of directors: I'd like to thank Robert Kelher for his outstanding work with the nominating committee. We have put the slate together, and the elections will be held at our November meeting. For those running for reelection, thank you for your service, and for those stepping down, like Glen Sanner and Keith Mullen, we greatly appreciate all you have done and continue to do for HAC!

President: Bob Gent
Vice President, Kim Rogalski
Secretary: Ted Forte
Treasurer: Bob Kepple

Members at Large:

Duke Glishke
Bob Hoover
Ken Kirchner
Doug Snyder

Past President: Wayne Johnson (not elected position)



Here's one of my photos of the Venus lunar occultation on the afternoon of August 13, 2012. This was in broad daylight, so the contrast is not so good. To capture this, I used a C8 Newtonian with a Canon Digital Rebel shooting at 1/2,500 second exposure. The clouds were rolling by just before the occultation. Luckily the sky cleared just as the occultation began.

PERSEID METEOR SHOWER AND OCCULTATION OF VENUS

Ted Forte

It was an astronomy twofer. First the monsoon clouds parted to allow us a peak at the Perseid meteor shower, then we were treated to a rare daytime event; the occultation of Venus.

The evening didn't start out too promising on Saturday, August 11. A few scattered clouds evolved into a solid canopy that obliterated my western sky and scattered the sky glow from Sierra Vista, brightening everything. A little perseverance paid off though, the sky cleared and I enjoyed a productive night of deep sky observing before settling in to watch the Perseids.

The window of opportunity was rather narrow; meteors of all varieties are pretty scarce before the wee hours when the Earth turns its night side into the wind so to speak. The moon would rise about 1:30 am and within an hour would be bright enough to mimic the dawn, so my best opening was barely an hour wide. I had high hopes nonetheless. An observing session earlier in the week was punctuated with a few spectacular early Perseids, and I thought perhaps they were a herald of a strong showing for this shower. In the end it was a little disappointing; I enjoyed only a dozen or so bright streaks before the moon washed out my sky. Yet meteor watching is a unique sort of experience rife with anticipation and full of surprise. To paraphrase Forrest Gump, you never know what you're going to get. It is always worth your time.

Part two of this report starts about noon on Monday, August 13, a bright sunny day with some scattered cumulus clouds, but quite hot. Binoculars in hand, I stepped out to find the moon. The bright sun made it difficult to find the small waning crescent, but once I located the moon, Venus was an easy naked eye target due to its proximity. The two made a stunning sight in binoculars. I spent the next 90 minutes alternating from the computer where other HAC members were reporting on the progress, to the porch where Halina and I were watching the event through binoculars. I set up my 10-inch DOB in the shade of my back porch and by 1:15, Venus and the limb of the moon shared the same field of view. The illusionary impression is that of Venus racing toward the moon, but of course the opposite is true, the moon's easterly progress closing the distance as both bodies race west toward the horizon. The drama was enhanced by the threat of clouds that seemed intent on spoiling the view at just the critical moment. My luck held. The moon inched its way forward, the bright limb of the moon overtaking the dark limb of Venus. I spent the last few seconds watching intently for any glimpse of lunar features momentarily backlight by Venus, but at best all I could discern is the slightest impression that the moon's rim was not too sharply defined. The contrast was insufficient to do more than that.

Egress, the reappearance of Venus from behind the moon was at 2:52MST. The moon was just 15% above the horizon and from my location it was lost in the low hanging clouds. Still half of an occultation is better than no occultation. Two astronomical events in as many days complete with anticipation, drama, success and disappointment. What more could one ask?

Perseid Meteors from Winslow Arizona **by Bob Gent**

Concerning the Perseids, I wanted to get to dark skies before the rising of the moon, so I drove Saturday night at 11:30 pm to the entrance of Homolovi State Park a few miles outside Winslow. From there, I could see the Milky Way easily. Speaking of light pollution, Winslow's Hotels and gas stations were so bright I could not see the night sky very well from town,; hence the drive to the park.

I saw a few bright Perseids before and after midnight. At one point, there were three bright (mag -1) meteors within five seconds, and they were closely grouped. Over my brief time watching, I'd estimate we had a ZHR of 40 from our area. A few clouds rolled in, a couple mosquitoes were buzzing me, and I had a long drive to make, so I called it a night about 12:40 am. Although the skies were dark from my location and there was no moon, the rate was not nearly what the average rate is for Perseids.

MY FAVORITE FALL OBJECTS

Cindy Lund

I have done a lot of observing in the fall. The Monsoons are over, and the sky is clear. My favorite fall sky object, and indeed my favorite sky object of all is the Veil Nebula. I also like the Andromeda Galaxy, the Double Cluster, the ET cluster, the Dumbbell Nebula, and the Barred Spiral Galaxy NGC 7479.

NGC 6992 and NGC 6960: Eastern and Western Veil Nebula: Right Ascension 20h 45m 38.0s, +30° 42′ 30″

The supernova remnant called the Veil Nebula is large and varies in appearance. The eastern Veil is like a bright ribbon, shaped like the integral sign ∫. In some parts a dust lane runs though the Veil so it looks like a double integral ∬. Either way, it looks so elegant. The Western Veil is wispier, like clouds. Further down, it looks like a creepy ghost branch, with short smaller branches extending from the main branch. I like the contrast between the eastern and western parts of the Veil.

M31: Andromeda Galaxy: Right Ascension: $00^h\ 42^m\ 44.3^s$, Declination: +41° 16′ 9″

I like the Andromeda Galaxy for its astronomical and historical significance more than for its appearance in a telescope. It just looks like a fuzzy lens shape with a bright core in the center. Sometimes I can see a dust lane going through it. The Andromeda Galaxy was the first galaxy to be recognized as a galaxy outside the Milky Way and not just a nebula within the Milky Way, when Edwin Hubble found a Cephid Variable star in it and used that star to measure the distance to Andromeda.

NGC 457: ET Cluster: Right Ascension: $01^h\ 19^m\ 32.6^s$, Declination: +58° 17′ 27″

The ET cluster is aptly named. It looks like a connect-the-dots of ET, the little alien from the Steven Spielberg movie. There are two bright stars for his eyes, and other stars form his body and long arms. I find it quite amusing to have a little ET in the sky.

M27: Dumbbell Nebula: Right Ascension: $19^h\ 59^m\ 36.340^s$, Declination: +22° 43′ 16.09″

The Dumbbell Nebula is a bright planetary nebula with an unusual shape. It doesn't look like a dumbbell to me; it looks more like a pair of overlapping disks, so that it is brightest in the center. One time I described it as looking like a football that a sumo wrestler sat on. I like that it is bright and has an inserting shape.

NGC 884 and NGC 869: Double Cluster: Right Ascension 2^h2^m, Declination 57° 08′

Viewing the double cluster allows me to see two objects at once. There are so many stars! The open clusters are similar in size, so I see two small concentrated cores of stars, both surrounded by a halo of more thinly spread stars. I like the unique view.

NGC 7479: Right Ascension: $23^h\ 04^m\ 56.6^s$, Declination: +12° 19′ 22″

I have only observed NGC 7479 once, when there was a Supernova in it. It is a face-on barred spiral galaxy, so I saw a bright white S shape, with a bright core. I don't think I've seen any other galaxies with that appearance. I'm sure I've seen other barred spiral galaxies, but none that are face on, so the compact S shape is unique in my viewing. The supernova, which is the only one I've seen, was at the top of the S and looked like a bright star. I know the supernova would not be visible anymore, but I'd still like to view NGC 7479 again.

My fall observing notes follow:

9/20/2008 at UAS

Object	What it is	Observations
NGC 7662 Blue Snowball	Planetary Nebula	Small light blue disk
M22	Globular Cluster	Fairly faint, lots of stars, no prominent core
M13 Hercules Globular Cluster	Globular Cluster	More prominent core, lots of tiny stars, like shattered glass
M31 Andromeda Galaxy	Spiral Galaxy	Diffuse thin lens shape, small bright core in middle
M57 Ring Nebula	Planetary Nebula	Gray ring around darker gray disk, radius 2/3 dark, 1/3 light
M11 Wild Duck Cluster	Open Cluster	Lots of bright stars, all about the same brightness
Jupiter	Planet, Gas Giant	2 dark brown bands Hertz one bit below equator other 2/3 to top
4 Galilean Moons	moons of Jupiter	Closest and farthest on left, other 2 on right, in Hertz line
2 Satellites	Artificial Satellites	Going east to west, 1 chasing other, saw for a few seconds, then they got fainter

10/25/2008 at Junk Bond Observatory

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	bright area surrounding brighter core, dark dust lane to the left \
M33 Triangulum Galaxy	Spiral Galaxy	Saw 3 clumps of super-giant stars in it? Saw stars, which galaxy?
NGC 604 (H2 region in M33)	Diffuse Emission Nebula	Fuzzy Spot
NGC 7331	Spiral Galaxy	Edge on spiral, w tiny sat. galaxy 90 degrees from main, perpendicular to core

11/29/2008 at Mr. Galaxy Observatory

Object	What it is	Observations
NGC 457 ET Cluster	Open Cluster	2 bright stars, others surrounding them. Noticeable ET pattern
NGC 884 & 869 Double Cluster	2 Open Clusters	2 clusters of stars in same field, both clusters and space same size
NGC 253	Spiral Galaxy	Thin lens shape, bright dot at the center
M103 "Christmas Tree"	Open Cluster	Lots of stars, some in Christmas tree pattern with brightest on top
M38 & NGC1907	2 open clusters	Big cluster and little cluster, little 1/3 size of big
M31 Andromeda Galaxy	Spiral Galaxy	Lens shape, brighter in center, still brighter dot at very center
Companion to M31	Galaxy	Parallel to M31, perpendicular to core of M31.

10/16/2009 at Junk Bond Observatory

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	Fuzzy lens shape. Bright dot in the center.
M11 Wild Duck Cluster	Open Cluster	Bright core, dimmer outer region, lots of stars.
NGC 884 & 869 Double Cluster	2 Open Clusters	2 cores of stars, 1 above the other. Lower more concentrated. Few stars in the area between the cores.
M15	Globular Cluster	Bright core. Very pretty.
M76 Little Dumbbell Nebula (Peanut)	Planetary Nebula	Shaped like an unshelled peanut, 2 lobes. Left a bit brighter.
M27 Dumbbell Nebula	Planetary Nebula	Brightest in middle 1/3, outer 1/3s dimmer, like 2 overlapping disks.
M2	Globular Cluster	Bright core surrounded by less bright area surround by still less bright area
NGC 7479	Barred Spiral Galaxy	Spiral structure clear. Flattish S shape. Small bright core.
Supernova in NGC 7479	Supernova	Dim "Star" at the very top of the S. (not the end, the top)
Veil Nebula	Supernova Remnant	A ribbon. Like a backwards ∫. Height to width ratio about 12:1. Wow Beautiful
NGC 6888 Crescent Nebula	Planetary Nebula	Faint fuzzy C shape. Thin C.
NGC 7331	Spiral Galaxy	Fuzzy lens shape. Noticeable core.
Jupiter	Planet, Gas Giant	Large bright disk, 2 horizontal brown bands near center 1 on each side of equator
4 Galilean Moons	moons of Jupiter	2 farthest on left, 2 closest on right, in a horizontal line

10/23/2009 at Junk Bond Observatory

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	Bright dot with fuzz around it mostly to the side and somewhat below
M45 Pleiades (in Galileo Scope)	Open Cluster	Like an upside down connect the dots fish
M15	Globular Cluster	Bright core, quickly fades out
Albireo	Double Star	blue star above yellow star, both quite bright, but yellow one a bit brighter
Double Double Epsilon Lyrae	Multiple Star System	Saw two stars far apart the left one was a bit elongated side to side
M13	Globular Cluster	bright large core, fainter outside
Veil Nebula	Supernova Remnant	Like a ∫. Outside 1/4s brighter than inner 1/2. So like a double integral ∬
M57 Ring Nebula	Planetary Nebula	Small grey disk with tiny hole in center
NGC 457 ET Cluster	Open Cluster	2 bright dots made eyes, streams of stars made body and outstretched arms
M??	Globular Cluster	No core but slightly more concentrated towards the center
Earth's Moon (in Galileo Scope)	moon	Noted three small craters at the terminator (3 circles in triangle shape)
Jupiter	Planet, Gas Giant	2 horizontal brown bands
4 Galilean Moons	moons of Jupiter	3 closest on left, farthest on right, in horizontal line
Neptune	Planet, Gas Giant	Small blue green disk like a small turquoise bead
Uranus	Planet, Gas Giant	Small sea-green disk (about 2x the area of Neptune's disk)

9/11/2010 at Kartchner Caverns

Object	What it is	Observations
Albireo	Double Star	1 orange, 1 blue, orange brighter, & seemed larger, close together, but distinct,
M13 Hercules Globular Cluster	Globular Cluster	Core bright, 1/3 diameter, in center, no definite edge, stars defined
NGC 457 ET Cluster	Open Cluster	2 bight stars 'eyes' 2 lines of stars below eyes (vert. perp.) bunch of stars at bottom of lines. 2 fainter lines of stars below 'eyes' horizontal out like arms.
M101 Pinwheel Galaxy	Spiral Galaxy	Tiny smudge, could barely see anything
NGC 884 & NGC 869 Double Cluster	2 Open Clusters	Same size, same size cores, cores offset towards each other, separated by approximately their own diameter
M31 Andromeda Galaxy	Spiral Galaxy	Lens shape, med thick, tiny bright core, white nebulosity, dark lane across 'front side'
M17 Swan Nebula	Refection Nebula	Swan upside down. Horizontal rectangle of nebulosity, (1 x 6) at left a small hook extending out and away from rect. (Like a duck, loon or short-necked swan)
Jupiter	Planet, Gas Giant	Bright yellow-white disk w/ brown horizontal band, starts at equator and extends 1/6 of diameter down
4 Galilean Moons	moons of Jupiter	Closest and farthest on right, middle 2 on left

9/24/2011 at Kartchner Caverns

Object	What it is	Observations
Vega	Star (Blue Main Sequence)	Supposed to be blue, Dad and Regina saw the blueness, I saw white, out of focus
Mizar	Multiple Star System	Saw 4 stars, 2 at top, looked as though they touched, 3rd below, 4th to the right. formed triangle with longest side vertical, height approximately 1/2 of base
Albireo	Double Star	2 stars, larger yellow-orange star on left, smaller blue on right, yellow 1.5x diameter of blue
M57 Ring Nebula	Planetary Nebula	Small gray ring, center not visibly luminous, luminous ring outer 1/2 of disk
NGC 457 ET Cluster	Open Cluster	Looks like ET, 2 bright stars for eyes, lots of other stars make long arms, torso, short legs
M31 Andromeda Galaxy	Spiral Galaxy	Fuzzy football shape, dimmer at edge, brighter towards center, bright dot at very center

10/20/2011 at Patterson Observatory

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	Very vague. Hard to make out edges. Did see bright dot core
NGC 869 (1/2 of Double Cluster)	Open Cluster	Stars varied in brightness. Large group in center, with 2 very bright stars, smaller group below left, another, even smaller, bellow right. Gaps between groups, More stars all around
NGC 2360 Caroline's Cluster	Open Cluster	Noticed crooked line of bright stars going across the cluster.
Jupiter	Planet, Gas Giant	3 brown strips. 1st close to pole, very faint and light tan. 2nd mid latitude. Wide, light tan, 3rd slightly below equator, dark brown, tiny show of moon on strip
3 Galilean Moons	moons of Jupiter	All on right side, 1 very close to Jupiter. Saw its shadow near the left edge of Jupiter
Uranus	Planet, Gas Giant	Small tan disk, Tiny hint of blue green
Neptune	Planet, Gas Giant	Tiny tan disk, 1/2 apparent size of Uranus (by dia.) No noticeable blue

10/21/2011 at Brown Canyon Ranch

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	Lens shape. Tiny bright core, dimmer round area around it, rest dimmer still, (bit like eye)
Albireo	Double Star	2 Stars, Larger yellow orange left, blue right. Seemed 3 yellow star diameters apart
M15	Globular Cluster	Clear bright core, 1/4 diameter of cluster. Cluster very round.
M27 Dumbbell Nebula	Planetary Nebula	2 overlapping circles, Brightest area in overlap - hour glass shaped - like)(
Jupiter	Planet, Gas Giant	2 brown strips. In same line as three of the moons
4 Galilean Moons	moons of Jupiter	1 on left, 3 on right. All in line except the closest, which was on right and below others

10/27/2011 at Desert Starlight Observatory

Object	What it is	Observations
M31 Andromeda Galaxy	Spiral Galaxy	Edges indistinct, bright core, got gradually dimmer further out, seemed to radiate from core
M32	Dwarf Elliptical Galaxy	Small round smudge, with tiny core, at 8:00 if core of M31 at center, 1/10 M31's height
????	????	Small rectangle smudge, very faint, at 3:00, flat and thin, length 1/4 M31's height
NGC 884 & 869 Double Cluster	Open Clusters	2 round clumps of stars, top bigger than bottom, separated by bottom's size, stars all around
M57 Ring Nebula	Planetary Nebula	Squashed cream filled donut, darker inner 1/2, lighter & brighter outer 1/2, eccentricity 0.5
M71	Globular Cluster	Equilateral triangle of stars
NGC 6960 Western Veil Nebula	Supernova Remnant	Thin strip shaped like ~ titled 45 Counter Clockwise, Nebulosity wispy, like thin clouds. Pretty!
NGC 6995 Eastern Veil Nebula	Supernova Remnant	Shaped like Japan. Only more like____/ At the top it branches out like a hand, or flames, "thumb" going up and right, (it's a right hand with back facing out)
Jupiter	Planet, Gas Giant	2 brown bands, lower thin bright brown w/ lump near left side at equator, upper thicker but fainter, at mid latitude Great Red Spot on upper band on right side. Not red but oval shape notable in rect. band. About as thick as band. 2/3 in band, 1/3 above band
4 Galilean Moons	moons of Jupiter	1 on right very close, one farther out, 2 on left, outer 2, (left and right) bigger and brighter

SKY-CALENDAR UPDATE FOR SEPTEMBER 2012

Doug Snyder

Note: Not a very busy upcoming month for known celestial events pertaining to visibility in Arizona; however, a supplemental table of HAC asteroids is included in this months' issue; in the table, September, 2012 oppositions are highlighted in RED.

Note: Unless otherwise noted, all dates and times are shown in Arizona's Mountain Standard Time – NOT in Universal Time (U.T.) nor in Eastern Time (E.T.). MST is behind UT by 7 hours.

September 8 (Saturday): A really nice visual and photo 'op' in the eastern morning sky with a close encounter between a last quarter moon and Jupiter. Between about 2 am and the later morning twilight, the two objects are uncommonly together. Get that photo, or two, and post them!

September 9 (Sunday): Occultation of minor planet (1)Ceres by the Moon; 00:05 am; just shortly after midnight on Sunday morning, this occultation occurs, but from southern Arizona, both Ceres and the Moon are VERY low in the ENE sky (about two degrees up), the Moon having just risen at 11:50 pm on Saturday night. Ceres will be at magnitude 8.8 and the Moon will have 42% illumination. Reappearance of Ceres will take place at 00:38 (38 minutes past midnight). The initial disappearance of Ceres will be a real challenge for Arizona observers!

September 12 (Wednesday): Epsilon (ε) Eridanids Meteor Shower (minor); peak near 6 am; favorable; may produce ZHR (Zenithal Hourly Rate) of 10, although the ZHR can range from 0 (zero) to 40. A very tentative parent comet is Comet C/1854 L1 Klinkerfues, but much research is still ongoing in that regard. The 'radiant' appears to be southeast of the constellation Orion near the position of 4 hours RA and with a declination of -12. There is an online link to the IMO site that discusses this year's possible activity. (http://www.imo.net/calendar/2012)

September 14 (Friday): Zodiacal Light in East, morning hours, next two weeks before morning twilight.

September 15 (Saturday): New Moon; 7:11 pm; beginning of lunation 1110

September 22 (Saturday): Fall, or Autumn Equinox; 7:49 am; stay alert for possible aurora activity just before, during and after the equinox as in many years, there is increased solar activity around this time. The fall equinox is the time in which the Sun, traveling along the ecliptic, crosses the equator into the southern celestial hemisphere.

September 23 (Sunday): Uranus and the almost equally bright star "44 Piscium" are within 1 arc-minute of each other; quite a close sight at 3 am MST!

September 29 (Saturday): Uranus at opposition; midnight Saturday; magnitude: +5.7, size 3.7 arc-seconds, distance of 19.1 Astronomical Units from Earth.

September 29: Full Moon, 12:41 pm; known either as the 'Full Corn Moon' or the 'Full Harvest Moon'.

September, 2012, Jupiter's Galilean Satellites: There are NO double shadow transits visible this month in Arizona. There is only one for the entire month, but it occurs on the first of the month in the middle of the afternoon, Arizona time. There are many 'single' shadow transits during the month, but NONE that involves the moon 'Callisto'; in fact, there have been 'zero' shadow transit events, single or otherwise, that have involved Callisto this entire yearof 2012. The last shadow event involving Callisto and Jupiter took place on February 4th of 2011, and that was a single shadow crossing, not a double.

Reminder: There are ALWAYS exciting and unusual sky phenomena happening in our visible universe whether WE know it or see it; make your discovery tonight! These updates are just a fraction of observable sky events! Your feedback is always welcome. THANK YOU & CLEAR SKIES UNTIL NEXT MONTH – Doug (starhaven@palominas.com)

HUACHUCA ASTRONOMY CLUB ASTEROIDS

Doug Snyder

Table of twenty (20) Named Minor Planets (M.P.), or main belt asteroids, associated with the Huachuca Astronomy Club and its current or past roster, with selected object data.

(Seventeen of twenty were discovered at Junk Bond Observatory by David Healy and Jeff Medkeff)

M.P. No.	*M.P. Name*	*Next Opposition Date (Approximate)*	*V. Mag.**	*Orbital Period*	*Note*
10498	*Bobgent*	*2013/04/11 (April 11th)*	*17.8*	*3.46 years*	**
15512	*Snyder*	*2013/04/05*	*16.5*	*5.30 "*	
37163	*Huachucaclub*	*2012/09/28*	*17.7*	*4.13 "*	
38203	*Sanner*	*2012/11/28*	*17.5*	*4.03 "*	
41450	*Medkeff*	*2014/01/28*	*18.9*	*3.69 "*	**
46053	*Davidpatterson*	*2012/12/06*	*18.1*	*3.12 "*	
48070	*Zizza*	*2012/09/30*	*17.7*	*4.82 "*	
54693	*Garymyers*	*2013/11/12*	*18.6*	*3.61 "*	
63305	*Bobkepple*	*2013/04/26*	*19.3*	*5.73 "*	
66479	*Healy*	*2012/09/01*	*18.2*	*4.41 "*	**
68218	*Nealgalt*	*2013/06/09*	*18.7*	*5.29 "*	
86279	*Brucegary*	*2014/02/21*	*18.3*	*2.69 "*	
133753	*Teresamullen*	*2013/07/20*	*19.3*	*5.58 "*	
159827	*Keithmullen*	*2013/07/13*	*18.9*	*5.48 "*	
176103	*Waynejohnson*	*2013/0731*	*20.5*	*3.50 "*	
161546	*Schneeweis*	*2013/11/02*	*20.9*	*4.20 "*	
189930	*Jeanneherbert*	*2012/09/18*	*19.3*	*4.66 "*	
189948	*Richswanson*	*2013/06/08*	*19.0*	*5.52 "*	
196938	*Delgordon*	*2013/07/12*	*20.5*	*5.67 "*	
197196	*Jamestaylor*	*2013/11/02*	*18.6*	*5.12 "*	

**** = Visual Magnitude at Opposition*** ***** = Not Discovered nor Named by Healyl and Medkeff at JBO***

From Wikipedia: **37163 Huachucaclub** (2000 WD11) is a main-belt asteroid discovered on November 19, 2000 by J. Medkeff and D. Healy at the Junk Bond Observatory.

Junk Bond Observatory is (was) located in Sierra Vista, Arizona. A commemorative plaque of this discovery and naming of Minor Planet 37163 was created and kept at JBO up until Mr. Healy's passing in 2011. Its current location and status is not known (September, 2012).

HAC Officers and Board of Directors:
President: Bob Gent
Vice President: Glen Sanner
Secretary: Bob Hoover
Treasurer: Bob Kepple

Members at Large:
Keith Mullen
Doug Snyder
Kim Rogalski
Ken Kirchner (Webmaster)

Wayne Johnson, Past President

www.hacastronomy.com -- A great place to visit!

Our sponsors: Please support our sponsors, ***Farpoint and Starizona***. They have been keeping us supplied in door prizes for some years. If you have not contacted them lately, please consider this. They have a lot of great astronomical products that we all need. For more information on products and contact information, their websites are:

http://www.farpointastro.com/
http://starizona.com/

How to contact the Nightfall editor, Cindy Lund:

Email: alund@juno.com
Phone 520-456-4817
Mail: 3666 Via El Soreno
Sierra Vista, AZ, 85650

2012—ARIZONA's Astronomically Handy Sky Calendar from Doug Snyder—2012

ARIZONA SKY PHENOMENA Calendar—All Times shown are MOUNTAIN STANDARD TIME*

January 2012
HIGHLITE: Shadow Transits on Jup.
01 Su New Year's Day; HNY2012 !
03 Tu Dbl. Shadow Tr., 2327hrs.,G&Eu
Quadrantid Meteors Pk@2400h. view a.m. of 4th**; an 80% moon sets just after 0300 hrs.
09 Mo ○ Full Moon 0031 hrs.
10 Tu Dbl.Shadow Tr., 2326hrs., Eu&G
11 We Comet P/2006 T1(Levy); mag.7?; perihelion@2343 hrs, 1.0074AU
16 Mo Spica 2°N. of Moon, 0100 hrs.
☾ Last Quarter Moon 0209 hrs.
21 Sa Mars at mag.-0.3, size 10.7″
23 Mo ● **NEW MOON** 0040 hrs.
30 Mo ☽ First Quarter Moon 2110 hrs.

February 2012
HIGHLITE: C/2009 P1 Garradd
03 Fr **Comet Garradd,** 0.5° from M92 Globular in Hercules, 3am
07 Tu ○ Full Moon 1454 hrs.
09 Th Venus 0.3° N. of Uranus, pm; mag. –4.1 & +5.9; size: 16″, 3.4″; eyepiece recommended
10 Fr Zodiacal Lt. in W., pm, next 2 weeks; after twilight.
14 Tu ☾ Last Quarter Moon 1005 hrs.
21 Tu ● **NEW MOON** 1535 hrs.
25 Sa Venus 3° S. of waxing Moon
26 Su Jup. 4° S. of Moon, pm
29 We ☽ First Quarter Moon 1822 hrs.
Leap-day: 2012 has 366 days

March 2012
HIGHLITE: Planetary Arrangements
03 Sa Mars @**opposition**, 1335 hrs., size at 13.9″, mag. –1.2
05 Mo Mars closest to Earth, 1000hrs
Merc. evening planet in W., 7″
08 Th ○ Full Moon 0239 hrs.
10 Sa Zodiacal Lt. in W., pm, next 2 weeks; after twilight
14 We ☾ Last Quarter Moon 1826 hrs.
19 Mo Vernal **Equinox**, 2214 hrs.
22 Th ●**NEW MOON** 0738 hrs.
Dbl. Shadow Tr., 1935hrs., I&G
27 Tu Venus G_Elong. E., 46°, in western sky after sunset
30 Fr ☽ First Quarter Moon 1241 hrs.

April 2012
HIGHLITES: Saturn, Lyrid Meteors
03 Tu **Venus** 0.5° S. of M45 (Pleiades) in early evening, western skies
06 Fr ○ Full Moon 1219 hrs.
13 Fr ☾ Last Quarter Moon 0350 hrs.
15 Su **Saturn@ opposition**, 1100hrs
18 We Merc. morning planet in E., 8″
21 Sa ● **NEW MOON** 0019 hrs.
Lyrid Meteors, Pk 2200hrs.
28 Sa **Astronomy Day #1 2012**
29 Su ☽ First Quarter Moon 0259 hrs
30 Mo Venus at brightest mag., –4.7

May 2012
HIGHLITE: Annular Solar Eclipse
05 Sa η-Aquarid Meteors; unfavorable year due to moon; pk.1200hrs.
○ Full Moon 2036 hrs.; largest in 2012
12 Sa ☾ Last Quarter Moon 1447 hrs.
20 Su ● **NEW MOON** 1648 hrs.
Annular Solar Eclipse; best Arizona site: near city of Page; low altitude Sun; starts at 1724 hrs., max. at 1834 hrs.
28 Mo ☽ First Quarter Moon 1317 hrs.

June 2012
HIGHLITE: Solar Transit of Venus
04 Mo Partial Lunar Eclipse; penumbra starts 0148 hrs.; partial at 0259 hrs; partial ends 0506 hrs
○ Full Moon 0412 hrs.
05 Tu **Transit of Venus**; start at 1510 hrs.; still in progress at sunset at 1916 hrs.
11 Mo ☾ Last Quarter Moon 0342 hrs.
19 Tu ● **NEW MOON** 0803 hrs.
20 We Summer Solstice, 1607 hrs.
26 Tu ☽ First Quarter Moon 2031 hrs.

July 2012
HIGHLITE: Jupiter's Morning Light
01 Su Merc., west sky, pm twilight, mag. +0.4, size 8.1″
03 Tu ○ Full Moon 1152 hrs.
10 Tu ☾ Last Quarter Moon 1849 hrs.
12 Th Venus, am, brightest mag., -4.7
14 Sa Comet 96P/Machholz, Perihelion
18 We ● **NEW MOON** 2125 hrs.
21 Sa Dbl.Shadow Tr., 0354hrs, Eu & I
26 Th ☽ First Quarter Moon 0157 hrs.
28 Sa Dbl.Shadow Tr., 0446hrs, Eu & I
29 Su S. δ– Aquarid meteors Pk. in am, unfavorable year, 78%Moon
30 Mo Jupiter, am, size 36″, mag. –2.1

August 2012
HIGHLITE: Perseid Meteor Shower
01 We ○ Full Moon 2028 hrs.
09 Th ☾ Last Quarter Moon 1156 hrs.
12 Su **PERSEID** Meteors: **favorable!** View pm 11th & am 12th
13 Mo Dbl.Shadow Tr., 0348hrs., I & G
Occultation of Venus by the Moon; near 1340 hrs.
16 Th Merc. morning planet in E., 8″
17 Fr ● **NEW MOON** 0855 hrs.
24 Fr Neptune @ Opposition,0600h. mag.+7.8, size 2.3″, 29AU
☽ First Quarter Moon 0654 hrs.
31 Fr ○ Full Moon (**2nd**) 0659 hrs.

September 2012
HIGHLITE: Northern Lights in AZ ?
08 Sa ☾ Last Quarter Moon 0616 hrs.
12 We Epsilon (ε) Eridanids Meteors peak near 0600hrs; favorable
14 Fr Zodiacal Lt. in E., am, next 2 weeks before twilight
15 Sa ● **NEW MOON** 1911 hrs
Alert For aurora activity before, during & after Equinox
22 Sa **Autumn Equinox** 0749 hrs.
☽ First Quarter Moon 1241 hrs.
29 Sa Uranus @ opposition, 0000hrs. mag. +5.7, size 3.7″, distance 19.1 AU from Earth
○ Full Moon 1241 hrs.

October 2012
HIGHLITE: Meteor Showers (3)
03 We Venus/Regulus Appulse—one of the best for 2012; E., 0500hrs
08 Mo ☾ Last Quarter Moon 0034hrs
Draconids Meteors: 0300 to dawn
10 We **S. Taurids** Meteors: favorable!
13 Sa Zodiacal Lt., E., am, next 2 wks.
15 Mo ● **NEW MOON** 0503 hrs.
21 Su **Orionids** Meteors: v. favorable!
☽ First Quarter Moon 2033 hrs.
29 Mo ○ Full Moon 1250 hrs.

November 2012
HIGHLITE: LEONID Meteor Shower
06 Tu ☾ Last Quarter Moon,1736hrs.
12 Mo **N. Taurids** Meteors, 0400h.
13 Tu ● **NEW MOON** 1509 hrs.
17 Sa **Leonid Meteors!** First of 2 Pks., 0200hrs.; v. favorable
19 Mo 2nd **Leonid** pk. possible 2400h.
20 Tu ☽ First Quarter Moon 0732 hrs.
27 Tu Venus/Saturn Conjunction! E., am, 0630hrs., 0.6° separation
28 We ○ Full Moon 0747 hrs.

December 2012
HIGHLITE: GEMINID Meteor Shower
02 Su JUPITER @ Opposition, 1900 h.
04 Tu Merc. morning planet in E., 7.4″
06 Th ☾ Last Quarter Moon 0832 hrs.
13 Th ● **NEW MOON** 0142 hrs.
GEMINIDS Pk: 0500 hrs.; Very Favorable for 2012
19 We ☽ First Quarter Moon 2220 hrs.
21 Th Solstice (Winter) 0412 hrs.
22 Fr **Ursid** Meteors Pk., 0100 hrs.
28 Fr ○ Full Moon 0322 hrs.

*Times/Dates= ARIZONA MountainStandardTime (UT-7hrs), NO DST; **updates/ details,** see**:** http://skycalendar.blackskies.org; **Abbr**: Tr=Transit; Pk=Peak; Merc=Mercury; E=East W=West; S=South; N=North; J, Jup.=Jupiter; V=Venus; "=arc seconds; h., hrs.=hours (24 hour time system); MP=Minor Planet; MS=Moon Set; wks=weeks; Lt=Light; pm=evening; v.= very am=morning; mag.=magnitude; **meteor shower dates reflect predicted Peak Morning, but Moon may still be present; I=Io; Eu=Europa; G=Ganymede; C=Callisto; UT=Universal Time; **bold text=**possibly a promising/worthy event or activity; G_Elong=Greatest Elongation; dbl= double; AU=Astronomical Unit; *compiler*: Doug Snyder (C/2002 E2, MP15512); V2.0.2012