NIGHTFALL

A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

NOVEMBER 2016

PRESIDENT'S NOTES

Is it November already? **Before we look at what's up let me remind you one more time that any member in good standing can run for any board position (except past president). Board member elections will take place during the November General meeting.** In addition, it is time to renew your membership for 2017. Lastly, it is time to sign up for our Holiday Party at the Mimosa restaurant scheduled for December 16. We had a good time last year

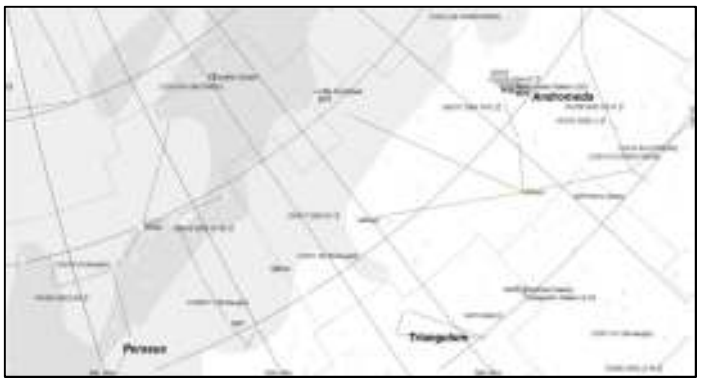
Now with that out of the way let's start planning for the cool evenings of November that beckon us out into the dark skies of southeastern Arizona. This month I'll just touch on a few objects and events that can be seen with your naked eyes or binoculars. Sorry, there are no bright comets to look at this month. The Taurids Meteor Shower runs annually from September 7 to December 10. It peaks this year on the night of November 4 and morning of the fifth. The Taurids is a minor shower with five to ten meteors and hour so don't expect a lot of fireworks instead think of them as sweetening the pot after you look for Uranus close by the moon on the fourth will make it easy to spot.

November 14 was a Full Moon that is also a super-moon. The nights of November 16, and 17 brings the Leonids Meteor Shower. The Leonids is an average shower, producing up to 15 Meteors per hour at its peak but with the moon hanging around all night, you will only see the very brightest no matter how far from city lights you may be.

For November I have singled ~~three~~, ~~five~~, ~~six~~ a handful of objects, two, (or three) are big and at times bright enough to be seen with naked eyes. Two are nearly embedded in one of the large objects and the last is small and dim but in a direct line between the two bright ones giving you a good chance of finding it even if you're star hopping. They're all in same part of the sky in the constellations of Andromeda, and Perseus. Another neat thing about all of them, they are coming towards us. We are always hearing about red shifting, but these objects are all blue shifted. They are closing ground.

Located in Perseus the first target is the famous Double Cluster, a close pair of open star clusters that stretch about two degrees across, that's the same as four full moons, and each has about 300 big blue white stars. These clusters are beautiful in binoculars of any size, spectacular if the binoculars are tripod mounted. These naked-eye open clusters are given the proper designation as NGC 869 and NGC 884. They look close together and actually, they are relatively speaking. They are both thought to be 7,500 light years away so they are neighbors and both are about the same age, just babies at 12.8 million years old.

The second, third and fourth objects are our galaxy neighbor Andromeda (M31) and its two satellite galaxies M110 and M32 all of which are in… you guessed it the constellation of Andromeda. The Andromeda galaxy can be glimpsed naked eye in dark locations and is quite easy as a fuzzy oval patch in binoculars. In wide-field telescopes and big binoculars, the three objects can usually be seen in the same field with the much larger M31 flanked by M32 and M110. The overall appearance is that of a large oval haze of light with one or both M32 and M110 inside the patch as brighter sections of the patch. The patch grows brighter towards its center until it is nearly stellar. Larger telescopes begin to show dark lanes along the patch but you will not see stars within the haze. Use as much power as you'd like; you will not resolve these into stars as you would globular clusters. M31 is just too far away (2.7 Million light years, from Earth), that's why until the 1920's everyone thought these and all the other galaxies were gaseous nebulae and not stellar concentrations containing hundreds of millions of stars. In the case of M31, the latest estimate is one trillion stars.



For the last object, we travel back across the border to Perseus for just a single star, well its remnants anyway. The Little Dumbbell, is a planetary nebula also referred to as M76. It gets its common name from is resemblance to the larger, brighter namesake M27. In an eight to ten inch telescope, you should be looking for a small bar like object; the center of the bar may seem to blink out when you look directly at the center and reappear as you move your focus to the ends of the bar. Larger telescopes will brighten and fill the bar and perhaps start to show the two circular components branching off from the wide portions of the bar. In long exposure images these two components resembling a lacy halo surrounding the bar, evidence of a previous outburst. Considered by many as the hardest of Messier's list to observe the nebula M76 is dim at mag. 10, and the central star is much fainter at less than mag. 15. Still, you're going to be in the region any way so why not give it a try.

Welcome our new members

Paula Smith and her father James joined as a family membership at the October meeting. Welcome, we are glad you joined!

HAC Holiday Party

The HAC holiday party will be held on Friday December 16 in the party room at the Pizzeria Mimosa, 4755 E. Neapolitan Way, in Hereford. Mark your calendars!

Last year's event was so well received that we have arranged to do pretty much the same thing again this year.

Tickets must be purchased in advance and seating is limited. The cost is $31.50 per person (includes tax and gratuity).

Doors open at 5:00 and dinner will start at 5:30. The meal will consist of a mixed seasonal green salad, breaded stuffed chicken breast with pine nuts, sun dried tomatoes and arugula. Also a white wine butter sauce with tricolor cheese tortellini with vegetables in a light cheese sauce. There will be Tiramisu for desert.

Soft drinks are included. There will be a beer and wine bar available in the party room for credit card purchase. Mixed drinks can be purchased from the bar in the main dining room.

Persons with special dietary needs should contact Ted Forte to arrange a special meal.

Ted will be selling tickets to the party at the November meeting on Friday November 18 in the Student Union building. The meeting starts at 7 p.m. You can also mail a check (made out to HAC) to purchase tickets but PLEASE contact Ted first to let me know and to insure that seats are still available.

Dinner tickets can also be purchased on-line by using the donate button on www.hacastronomy.org but the price on-line is $32.75 (a little extra to cover the Pay Pal fee) and again – please contact Ted first to insure that seats are still available.

Let's make this a special night again. We hope to see you there!

2017 Dues

Most HAC memberships expire in December. Ted will be accepting dues payments at the November meeting. Make checks payable to "Huachuca Astronomy Club". If you do not know if you owe dues, please contact Ted at tedforte511@gmail.com

You may pay your dues by mailing a check to PO Box 922 Sierra Vista AZ 85636. You can also pay your dues on-line by visiting www.hacastronomy.org clicking on the donate button and list "2017 dues" as the purpose of the donation.

Dues are $35 Family, $25 Individual, and $10 Student. Active duty military family rate is $25 and a military individual membership is $20.

The November Meeting

The next meeting of the Huachuca Astronomy Club will be held on Friday, November 18th at 7 pm in the Community Room of the Student Union Building at Cochise College, 901 North Colombo Avenue, Sierra Vista, AZ 85635.

The speaker will be Dr. Vishnu Reddy, an assistant professor at the Lunar and Planetary Lab at the University of Arizona in Tucson.

Dr. Reddy's research focuses on understanding the behavior of solar system objects using a range of Earth and space-based assets. His work on asteroids and near-Earth objects is directed towards their impact hazard and asteroid-meteorite links. He uses the NASA Infrared Telescope Facility at Mauna Kea, Hawaii, as well as other advanced instrumentation.

Vishnu's talk will cover the threat to Earth from Near Earth Objects (NEOs).

The meeting/talk is FREE and open to the public. A door prize will be awarded but you must be present to win.

2017 Calendars and RASC Handbooks.

The 2017 Astronomy Magazine, Deep Space Mysteries calendars are in and will be distributed at the November meeting. The 2017 RASC handbooks are on order but as of this writing have not yet arrived.

Members Star Party Corner

On Friday November 4th, several HAC members gathered at the new home of members Gary and Aracelis Grue for an exciting evening of a "First Light" Star Party at their Blue Marvel Observatory. BMO is a 16 x 16 foot roll off roof observatory housing the "Blue Marvel", a 24-inch Newtonian f/4 on an equatorial mount. During the evening Gary guided the 24" to several objects, Saturn, the Ring w/central star and Dumbbell Nebulas, the Moon, Perseus cluster and several Planetary nebulas to mention just a few, all with spot on accuracy.

We also met several of Gary's new neighbors who he invited, always a good idea when trying to break in the neighbors on excessive light avoidance, and a great way to make new friends

The list of those HAC members attending were, Bob Gent, Rick Burke, Keith Mullen, Glen and Deanna Sanner, Bob and Barb Kepple, Bob Latterman, Tony Lemak, Max Mirot, Craig and LeAnne Gundy, Doug Snyder and Ted Forte, I hope I didn't miss anyone else.

Gary and Aracelis are examples of what the quintessential Star Party host should be, lots of munchies, tours of their beautiful new home and just right on top of everything. I think we're going to be seeing a lot of the BMO and the Grue's in the years to come. Attached is the only pic I think was taken, but it does give one an idea of the size of the Blue Marvel.

Similar to Last month's star party, December's Member star party represents another "First". LeAnne and Craig Gundy will host their first HAC event at the Mesquite Ranch Observatory (MRO) in 3 Canyons.

MRO is a 20 x 20 foot roll-off roof observatory, housing a 20-inch f/5 Obsession. Craig currently has it set up for video astronomy with a Mallincam Xtreme at the prime focus, and a second Mallincam x-2 operating through a piggybacked 80-mm f/2 refractor. For the star party, Craig may remove the Mallincam Xtreme so that we can use the prime focus for visual observation.

There is also a C-11 Edge HD with a HyperStar on site. If there is sufficient interest, and the sky is clear, Craig will also demonstrate this instrument.

Sunset on December 3rd is at 5:17. You're welcome to arrive about 5:00 PM if you'd like to have plenty of daylight to set up equipment, so bring a scope with you.

LeAnne and Craig will provide snacks and drinks, but feel free to bring your favorite snack as well

Driving directions and a gate code will be available on the HAC-LIST at a later date. So mark your calendars for Sat. Dec, 3rd 5:00 pm for what will be a most memorable event

Keith Mullen

HAC Star Party Coordinator

Space Place Article **October 2016**

Is Proxima Centauri's 'Earth-like' planet actually like Earth at all?

By Ethan Siegel

Just 25 years ago, scientists didn't know if any stars—other than our own sun, of course—had planets orbiting around them. Yet they knew with certainty that gravity from massive planets caused the sun to move around our solar system's center of mass. Therefore, they reasoned that other stars would have periodic changes to their motions if they, too, had planets.

This change in motion first led to the detection of planets around pulsars in 1991, thanks to the change in pulsar timing it caused. Then, finally, in 1995 the first exoplanet around a normal star, 51 Pegasi b, was discovered via the "stellar wobble" of its parent star. Since that time, over 3000 exoplanets have been confirmed, most of which were first discovered by NASA's Kepler mission using the transit method. These transits only work if a solar system is fortuitously aligned to our perspective; nevertheless, we now know that planets—even rocky planets at the right distance for liquid water on their surface—are quite common in the Milky Way.

On August 24, 2016, scientists announced that the stellar wobble of Proxima Centauri, the closest star to our sun, indicated the existence of an exoplanet. At just 4.24 light years away, this planet orbits its red dwarf star in just 11 days, with a lower limit to its mass of just 1.3 Earths. If verified, this would bring the number of Earth-like planets found in their star's habitable zones up to 22, with 'Proxima b' being the closest one. Just based on what we've seen so far, if this planet is real and has 130 percent the mass of Earth, we can already infer the following:

- It receives 70 percent of the sunlight incident on Earth, giving it the right temperature for liquid water on its surface, assuming an Earth-like atmosphere.
- It should have a radius approximately 10 percent larger than our own planet's, assuming it is made of similar elements.
- It is plausible that the planet would be tidally locked to its star, implying a permanent 'light side' and a permanent 'dark side'.
- And if so, then seasons on this world are determined by the orbit's ellipticity, not by axial tilt.

Yet the unknowns are tremendous. Proxima Centauri emits considerably less ultraviolet light than a star like the sun; can life begin without that? Solar flares and winds are much greater around this world; have they stripped away the atmosphere entirely? Is the far side permanently frozen, or do winds allow possible life there? Is the near side baked and barren, leaving only the 'ring' at the edge potentially habitable?

Proxima b is a vastly different world from Earth, and could range anywhere from actually inhabited to completely unsuitable for any form of life. As 30m-class telescopes and the next generation of space observatories come online, we just may find out!

Looking to teach kids about exoplanet discovery? NASA Space Place explains stellar wobble and how this phenomenon can help scientists find exoplanets: http://spaceplace.nasa.gov/barycenter/en/

An artist's conception of the exoplanet Kepler-452b (R), a possible candidate for Earth 2.0, as compared with Earth (L). Image credit: NASA/Ames/JPL-Caltech/T. Pyle.

Pictures from HAC Members

Super Moon Setting Against the Huachucas - By Gary Grue

Super Moon – by Rick Burke

Super Moon Over Dragoons - by Eric Allen

NGC 288 – by David Roemer

Helix Nebula – by David Roemer

IC 1805 – by Jay La Blanc

WANT ADS

FOR SALE: MEADE EXT60AT NEVER USED BEFORE, INCLUDES TRI-POD.

Asking $200.00 B/O

Contact Keith Mullen at 266-4230

FOR SALE: MEADE 10" LX200 CLASSIC TELESCOPE

In very good condition, with tripod, 120v AC and 12v DC power converters with 25' power cords, dew shield, 8x50 finder scope, electric focuser, piggy back bracket, and soft sided carrying case.Also includes a set of Meade CCD color filters, Meade CCD 3.3 focal reducer and CCD variable T-adapter. Plus some other equipment. Asking $ 1,800.

Contact Bob Stroxtile at strox@ssvecnet.com or call 520-249-0875.

FOR SALE: PIER TECH ELECTRIC TELESCOPING PIER WITH LATI-WEDGE MADE FOR THE LATITUDE OF SIERRA VISTA

All the hardware, bolts, nuts, washers and plates are with the pier. Pier Tech can make new legs for it to make it correct for anywhere in the world. The pier and wedge have never been used and the only time the pier was out of the box was to take the photos. New today, the pier and wedge are $3,400. Asking $2,800.

Contact Bob Stroxtile at strox@ssvecnet.com or call 520-249-0875.

FOR SALE: PLANEWAVE CDK14 CORRECTED DALL-KIRKHAM TELESCOPE.

Includes the OTA, new November 2014, optional truss rod shroud and optional upper dovetail and the accessories that were included with the telescope (primary to secondary spacing tool). There is NO FOCUSER (they do not come with one, you need to add one) but the adapter for an Optec TCFS3i (which is the focuser I used) is included. I also have the factory wooden shipping crate. The telescope has been in use every clear night in the observatory in Sonoita. This is an outstanding instrument and a great imaging scope.

FOR SALE: STELLACAM

I have a StellaCam II video camera with video to computer adapter to view on a computer monitor. $150.00.

Contact Bob Kepple at 520-366-0490, or Astrocards@aol.com.

FOR SALE: MEADE STARFINDER 8" REFLECTOR TELESCOPE

Will Sell at a very reasonable price. Included are a Telrad Finder, Filters, and additional Lenses.

Contact Mr. Jim Moses at (520) 803-0913 or by email jjmoses2@gmail.com

FOR SALE: CELESTRON CELESTAR 8 INCH S/C DELUXE - $1200.

Will also sell pieces individually

Contact Rhonda and Terry Taylor at (520) 366-2378 or by email at twrl2@yahoo.com. Or See Craigslist at http://sierravista.craigslist.org/bar/4523742100.html

FOR SALE: OLDER OPTICAL GUIDANCE SYSTEMS 12.5" F/9 RITCHEY-CHRETIAN TELESCOPE.

Very good Paul Jones ceramic optics, Robofocus secondary focuser, will include Takahashi collimating telescope. Some of the images through the scope are at Mshadephotography.com.

Contact Mike J. Shade at mshade@q.com

FOR SALE: 8" CELESTRON NEX STAR

Good condition with all original accessories.

Contact Mae Childs at maechilds2014@aol.com

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Our sponsors 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:

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HAC Nov/Dec Calendar of Events

SU	MO	TU	WE	TH	FR	SA
13 Nov	**14** 8:52 AM Moon at Perigee	**15**	**16** Leonid meteors	**17** Leonid meteors	**18** Hac Meeting Student Union Vishnu Reddy Leonid meteors	**19**
20	**21** 3:33 AM	**22**	**23**	**24** 	**25**	**26**
27	**28**	**29** 7:18 AM	**30**	**1 DEC**	**2**	**3** Member Star Party at the Gundys
4	**5**	**6**	**7** 4:03 AM	**8** Patterson Public Night 6PM	**9**	**10**
11	**12**	**13** 7:06 PM	**14**	**15**	**16**  5PM Pizzeria Mimosa	**17**
18	**19**	**20** 8:56 PM	**21**	**22**	**23**	**24**
25 	**26**	**27**	**28**	**29** 1:53 AM	**30**	**31** 
1 January 	**2**	**3**	**4** Quadrantid Meteors	**5** 2:47 PM	**6**	

All event times MST. Join Haclist to keep up to date with all of the Huachuca Astronomy Club events
Send an email to: haclist-subscribe@yahoogroups.com