



NIGHTFALL

A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

JANUARY 2019

PRESIDENT'S NOTES

HAPPY 2019 EVERYBODY!

I hope you had a great 2018 and are ready for a roaring new year. We start off running with the **Telescope Clinic** at the Patterson Observatory, 12 January, 3pm. Bring scopes in need of sprucing up and or your expertise in sprucing up to get everyone in the valley ready to stare in 2019. We've had good participation at the clinics in the past and expect the same to be true this year.

Then, on the night of January 20-21, there will be a lunar eclipse. Although the eclipse takes place on a Sunday night, Monday is Martin Luther King Jr. Day, so you can stay up for this one. Besides, it is no ordinary lunar eclipse. This time it is a Super Moon, Blood Moon, and Total Lunar Eclipse all wrapped into one, so how can you pass that up? To add even more to this momentous occasion HAC and UA South Foundation are opening the Patterson Observatory for the event. We'll make a party of it. You can see the eclipse through an assortment of binoculars and telescopes, several with setups to take photos with your cell phone. In fact, bring your own telescope and binoculars if you'd like. It will be sort of an event event!

Event	UTC Time	Time in Sierra Vista*
Penumbral Eclipse begins	Jan 21 at 02:36:29	Jan 20 at 7:36:29 pm
Partial Eclipse begins	Jan 21 at 03:33:54	Jan 20 at 8:33:54 pm
Full Eclipse begins	Jan 21 at 04:41:17	Jan 20 at 9:41:17 pm
Maximum Eclipse	Jan 21 at 05:12:14	Jan 20 at 10:12:14 pm
Full Eclipse ends	Jan 21 at 05:43:15	Jan 20 at 10:43:15 pm
Partial Eclipse ends	Jan 21 at 06:50:39	Jan 20 at 11:50:39 pm
Penumbral Eclipse ends	Jan 21 at 07:48:02	Jan 21 at 12:48:02 am

* The Moon is above the horizon during this eclipse, so with good weather conditions in Sierra Vista, the entire eclipse is visible.

Source: <https://www.timeanddate.com/eclipse/lunar/2019-january-21>

Lastly, I want to make sure everybody gets word of our upcoming **Astronomical/Optical Swap Meet and Sale**. Set your calendars and keep your day cleared for March 23. Then, begin collecting, sorting and pricing your precious optics for the sale -- or start writing your wish list. After we held our first swap meet, we seemed to have primed a pump. People who had not attended realized they had additional items that they could have sold. Others who had taken part in the swap meet began thinking what they would bring next time. Still others are just always collecting and awaiting that next chance to buy something. Moreover, some things that didn't sell that day sold soon after because of the contacts that were made. These are but a few reasons why we are having another swap meet, and again you are invited to come, socialize, sell, swap, and -- yes -- purchase. I'll keep you updated.

Almost forgot the Banner header at the top of the page is a crop from Ted Forte's pretty morning post.

Now get out there -- and stare

WELCOME OUR NEW MEMBER

Aaron Light of Sierra Vista joined the club on the last day of 2018. Welcome to the club Aaron, we're glad you joined.

AT THE JANUARY MEETING

The January meeting of the Huachuca Astronomy Club will



be held on January 18 at 7 pm in the Student Union building at Cochise College. Our speaker is Dr. Everett Schlawin a Post Doc researcher at the University of Arizona. Everett is interested in what planets and their atmospheres are made of. He studies planet composition by observing transiting planets - planets that cross in front and behind their host stars.

Everett is a member of the James Webb Space Telescope NIRCAM team, led by Marcia Rieke. The unprecedented Webb telescope will enable giant leaps in our understanding of planet composition.

We will take Everett to diner at outback before the meeting. RSVP to Bill Howard (howardwj51 at gmail.com) if you would like to join us for dinner.

2019 DUES

As of this writing, there are 17 HAC members whose memberships expired in December. If you are unsure about whether or not you are one of them, you should contact the treasurer at tedforte511 at gmail dot com. Ted will collect dues (cash or check made out to Huachuca Astronomy Club) at the January meeting and at the three events we have at the Patterson Observatory this month.

You may also pay your dues by mailing your check to PO Box 922 Sierra Vista 85636 or pay with your credit card or Pay Pal account by visiting the website and pulling down the membership menu and clicking on Renew.

Annual dues are \$35 family and \$25 regular individual. Active duty military members pay \$25 family and \$20 regular. Students with valid ID pay \$10.

2019 MEETING DATES

For 2019, our meetings are back to the formula of falling on the Friday closest to the full moon so as not to interfere with observing opportunities. Where possible we meet in the Student Union at Cochise College. When the Student Union is unavailable, we will meet in the library commons. There is no Cochise College venue available in February and consequently we will meet in the Patterson Observatory classroom.

2019 MEETING DATES ARE:

January 18 (Student Union Community Room),

February 22 (Patterson Observatory), March 22 (Student Union Community Room),

April 19 (Library Commons),

May 10 (Student Union Community room),

June 14 (Student Union Community Room),

July 19 (Student Union Community Room),

August 16 (Library Commons),

September 13 (Student Union Community Room),

October 18 (Student Union Community Room),

November 8 (Student Union Community Room),

December 13 (Student Union Community Room).

The August meeting may move to the Student Union if it becomes available and the December meeting might be superseded by a Holiday party.

OUTREACH SCHEDULE FOR JANUARY

We have a busy month on tap. Our regular public night open house observing event at the Patterson Observatory is Thursday Jan 10 at 6 pm.

January 12 is our telescope clinic at the Patterson starting at 3 pm.

We have two school field trips scheduled at Patterson from 9 am to noon on Friday January 18 (Coronado Elementary) and Wednesday January 23 (Palominas Elementary). Watch the HacAstro list for notification of other schools as they sign up.

On Sunday January 20th we will open the Patterson Observatory for the total lunar eclipse. We'll start about 7:30 PM and stay until the end of the eclipse so long as people want to observe.

On Friday, January 25, we will set up telescopes at the Boys & Girls Club of Sierra Vista for their family astronomy night. Start is 6 PM.

2019 RASC HANDBOOKS

If you have not yet picked up your RASC handbook, please see Ted at the January meeting or any of the upcoming outreach events at Patterson.



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JANUARY'S EVENING ECLIPSE AND MORNING CONJUNCTIONS
BY DAVID PROSPER

Observers in the Americas are treated to an evening **total lunar eclipse** this month. Early risers can spot some striking morning conjunctions between **Venus**, **Jupiter**, and the **Moon** late in January.

A **total lunar eclipse** will occur on **January 20th** and be visible from start to finish for observers located in North and South America. This eclipse might be a treat for folks with early bedtimes; western observers can even watch the whole event before midnight. Lunar eclipses takes several hours to complete and are at their most impressive during total eclipse, or totality, when the Moon is completely enveloped by the umbra, the darkest part of Earth's shadow. During totality the color of the Moon can change to a bright orange or red thanks to the sunlight bending through the Earth's atmosphere - the same reason we see pink sunsets. The eclipse begins at 10:34 pm Eastern Standard Time, with totality beginning at 11:41 pm. The total eclipse lasts for slightly over an hour, ending at 12:43 am. The eclipse finishes when the Moon fully emerges from Earth's shadow by 1:51 am. Convert these times to your own time zone to plan your own eclipse watching; for example, observers under Pacific Standard Time will see the eclipse start at 7:34 pm and end by 10:51 pm.

Lunar eclipses offer observers a unique opportunity to judge how much the Moon's glare can interfere with stargazing. On eclipse night the Moon will be in **Cancer**, a constellation made up of dim stars. How many stars you can see near the full Moon before or after the eclipse? How many stars can you see during the total eclipse? The difference may surprise you. During these observations, you may spot a fuzzy cloud of stars relatively close to the Moon; this is known as the "**Beehive Cluster**," **M44**, or **Praesepe**. It's an open cluster of stars thought to be about 600 million year old and a little under 600 light years distant. Praesepe looks fantastic through binoculars.

Mars is visible in the evening and sets before midnight. It is still bright but has faded considerably since its closest approach to Earth last summer. Watch the red planet travel through the constellation Pisces throughout January.

Venus makes notable early morning appearances beside both **Jupiter** and the **Moon** later this month; make sure to get up about an hour before sunrise for the best views of these events. First, Venus and Jupiter approach each other during the third full week of January. Watch their conjunction on the 22nd, when the planets appear to pass just under 2 ½ degrees of each other. The next week,

observe Venus in a close conjunction with a crescent Moon the morning of the 31st. For many observers their closest pass - just over half a degree apart, or less than a thumb's width held at arm's length - will occur after sunrise. Since Venus and the Moon are so bright you may still be able to spot them, even after sunrise. Have you ever seen Venus in the daytime?

If you have missed **Saturn** this winter, watch for the ringed planet's return by the end of the month, when it rises right before sunrise in Sagittarius. See if you can spot it after observing Venus' conjunctions!

You can catch up on all of NASA's current and future missions at nasa.gov



Caption:

*Have you ever wondered how eclipses occur? You can model the Earth-Moon system using just a couple of small balls and a measuring stick to find out! The "**yardstick eclipse**" model shown here is set up to demonstrate a lunar eclipse. The "Earth" ball (front, right) casts its shadow on the smaller "Moon" ball (rear, left). You can also simulate a solar eclipse just by flipping this model around. You can even use the Sun as your light source! Find more details on this simple eclipse model at bit.ly/yardstickeclipse*

CLUB OFFICERS AND CONTACTS

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Farpoint Astronomy <http://www.farpointastro.com/>

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HAC Jan Feb Calendar of Events

SU	MO	TU	WE	TH	FR	SA
30	31 		2	3 Quadrantid Meteors	4 Quadrantid Meteors	5  6:28 PM Venus western elongation
6	7	8	9	10 Patterson Public Night 6 PM	11	12  Telescope Clinic at Patterson 3PM
13  11:46 PM	14	15	16	17	18 Coronado Elementary at Patterson 9 am HAC Meeting Student Union 7pm	19
20  10:16 PM Total Lunar Eclipse at Pat 7:30PM	21	22	23 Palominas Elementary at Patterson	24	25 Family Astro Night Boys & Girls Club SV	26
27  2:10 PM	28	29	30	31	1 Feb	2 Moon occults Pluto
3	4  2:04 PM	5	6 Pie in the Sky JCMS Vesta 1° fm moon	7 Patterson Public Night 6:30 PM	8	9
10	11	12  3:26 PM	13	14 	15	16
17	18  Venus/Saturn	19  8:54 AM	20	21	22 HAC Meeting at Patterson Obs 7 PM	23
24	25	26  4:28 AM	27	28	1 Mar	

All event times MST. Join [HacAstro](#) to keep up to date with all of the Huachuca Astronomy Club events
Send an email to: HACastro+subscribe@groups.io