



**JUNE 2019**

# NIGHTFALL

A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

## PRESIDENT'S NOTES

June! My scopes are all cleaned up and collimated. Their mounts are balanced, wired, polar aligned and ready to slew and track. The wheels of the observatory roof are greased and ready to roll. The computers are updated, updated, updated and, well, updated. The eyepieces and cameras are relatively dust free. I even have a list of objects to hunt down, although I've needed to update it as well after waiting months for clear skies. So, I'll say it and mean it, hey everybody, it's time to observe!

For some observers it doesn't get any better than spending the evening gazing at the planets, and once again we are beginning to have the king of planets entering our night skies. I tend to take a hands-off approach when a planet is not visible in the night sky, and that is most true for Jupiter. Of course, it is possible to follow on the internet all the changes of the belts and bands as well as the storm scene, but I like the shock value of seeing the changes after several seasons through an eyepiece. I can stare at Jupiter for hours. And, if you can, then stay up and wait for Saturn; it isn't too far behind.

If you must shift your attention along the way, Jupiter is in the constellation of Ophiuchus, nestled right between Scorpius and Sagittarius, the latter is where Saturn lurks. Between Jupiter and Saturn are the wonders of the brightest area of the Milky Way, so just wander without care and soak up the photons. Make your own discoveries and find new favorites. Go wild. If you really want a list of objects, I'll only give you five, mostly big bright and shiny objects to tempt you. They are directly between the two gas giants. Remember this is only to get you across to Saturn in right ascension with a few changes in declination. If you get lost or distracted looking at these amazing targets, it is not my fault.

Object	RA	Dec	Mag	Description
Little Ghost Nebula NGC 6369	17 <sup>h</sup> 29 <sup>m</sup> 20	-23° 45' 34	12.9	Very round Planetary
Lagoon Nebula M8 / NGC 6523	18 <sup>h</sup> 03 <sup>m</sup> 37	-24° 23' 12	6	Large object. Combo of open cluster, emission nebula, reflection nebula and dark nebula with Bok globules
Trifid Nebula M20 / NGC 6514	18 <sup>h</sup> 02 <sup>m</sup> 23	-23° 01' 48	6.3	Compact object. Combo of open cluster, emission nebula, reflection nebula and dark nebula
Messier 21 NGC 6531	18 <sup>h</sup> 04 <sup>m</sup> 13	-22° 29' 24	6.5	Open Cluster binocular target small condensed near M20
Messier 22 NGC 6656	18 <sup>h</sup> 36 <sup>m</sup> 24	-23° 54' 17	5	Globular Cluster easy in binoculars with hundreds of stars bright enough to resolve with an 8" telescope

Source: Various

Finally look at a neat website. It might become your go-to portal before getting out the scope or hunting down a particular object. The website, Telescopius, can be configured for your location to tell you what objects are up, from when and where you are viewing. It also covers what's new and interesting in space news and allows you to enter parameters to see what things will look like through various equipment, including telescopes (cameras and eyepieces), binoculars, and rentable remote telescopes. <https://telescopius.com/>

Whether you go for the planets or the not-so-faint fuzzies, get out there and stare.

## **PLEASE WELCOME OUR NEW MEMBERS**

Julia Jones of Sierra Vista joined the club in April. Welcome to the club, we are glad you joined!

## **AT THE JUNE MEETING**

The June meeting of the Huachuca Astronomy Club will be held on Friday, June 14 at 7 p.m. in the community room of the Student Union building at Cochise College Sierra Vista campus. The speaker will be HAC member Alex Woronow. His talk is titled: "Image Processing: The Good, the Bad & the Beautiful"

(Synopsis) You've stood shivering in the dark, cursing at clouds (or perhaps obtained some images in an easier way!) and now you want to process the images you've obtained. This talk presents something old, something new, and, certainly, a lot of things borrowed (plus some blues) to help you on your way. From tasks that are now rather standardized (e.g., image calibration, alignment, stacking) to ways to assign meaningful weights to images before stacking and to the fundamental, but seldom discussed, role that "edge detection and enhancement" plays in image sharpening, I hope to provide some useful insights for the would-be novice processor as well as reprise some new technologies to the seasoned image processor.

Alex tells us: "My interest in astronomy sprouted from a seventh-grade science course; after that, I was hooked. In high school I ground my own 8" mirror and then majored in astronomy as an undergraduate. Doctoral studies led me slightly astray, into planetary geology, but in my retirement the revolution in amateur astro-imaging pulled me back: I want pictures, pictures, and more pictures to process and experiment upon! I love image processing for its ever-varying challenges and the spectacular scenes it reveals. Every image teaches me something new about imaging-processing technology as well as about the science behind imaging targets themselves".

## **SCHOOL FIELD TRIPS TO THE PATTERSON OBSERVATORY**

The University South Foundation will be continuing funding for school field trips to the UA Sierra Vista Campus and the Patterson Observatory for the next school year. This program has been very successful and well received.

Thanks to all of our volunteers that helped make this program a success. It couldn't happen without our members willing to donate their time and share their enthusiasm with youngsters from around the county.

This past school year we hosted students from St. David High School, The Veritas School, JCMS Special Needs, Coronado Elementary, Palominas Elementary, Huachuca City Schools, Ft. Huachuca Home Schools Group, Gateway Elementary,

First Baptist Christian Academy, Double Adobe Schools, the Sarah Marley School, two groups from the Gather Home School Group and three groups from Huachuca Mountain Elementary. We even hosted a group of German high school students from our sister city of Radebeul.

We have every indication that next year will see even more visits. Could we use your help? You bet! You don't need to bring a solar scope. The observatory has a couple that need operators and there are classroom activities you can help manage. You don't need to be an expert, just be willing to participate.

Please watch for events starting in September and plan to come out.

## **Outreach Resources**

The club has a number of "kits" that can aid your outreach activities and any member that wants to familiarize themselves with these resources is encouraged to do so.

The two main sources are the Night Sky Network kits and the Explore Science kits from the NISE Network.

You can download training videos, Power Points and lesson plans for the NSN kits from the Night Sky Network website <https://nightsky.jpl.nasa.gov/download-list-category.cfm>

You can access training videos for the NISE Network Explore science Kits here

<https://vimeopro.com/nisenet/explore-science-earth-space>

## **WILLIAMINA FLEMING AND THE HORSEHEAD NEBULA**

**BY RICHARD PATTIE**

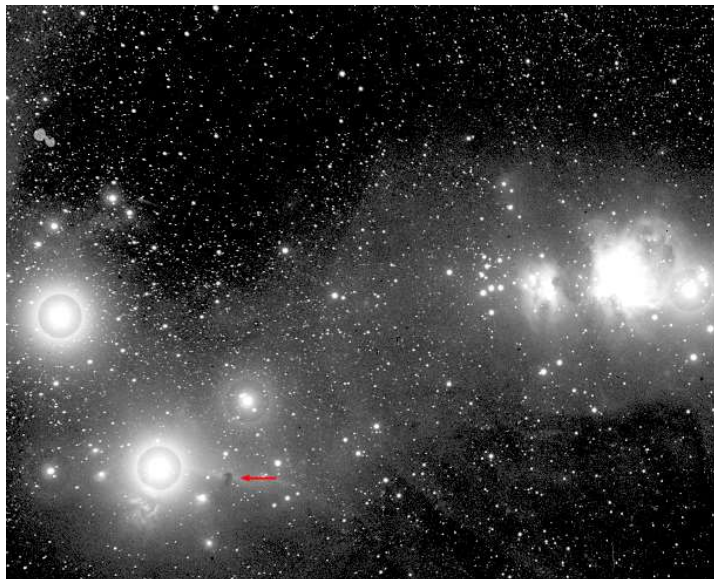
The Horsehead Nebula was first identified in the late 19th century by Scottish astronomer Williamina Paton Fleming as she compiled one of the first astronomical catalogues based on photographic observations. In the image she used, taken at visible wavelengths, the Horsehead Nebula stood out as a tiny silhouette against the diffuse glow of the IC 434 nebula. Later investigations would reveal that like other 'dark nebulae,' the Horsehead consists of material so dense that it blocks visible light from background stars or surrounding clouds. Inside the dense dark nebulae, stars are on the verge of being born. Mrs. Fleming was also the first researcher to identify a White Dwarf star.

Williamina Fleming was initially the maid to the household of E.C. Pickering, the astronomer whose brother captured the first identifiable photo of the Horsehead. Pickering frequently became frustrated with the performance of the men working at the Harvard College Observatory and, reportedly would complain loudly: "My Scottish maid could do better!" Pickering's wife Lizzie recommended Williamina as having talents beyond custodial and maternal arts, and in 1879 Pickering hired Fleming to conduct part-time administrative work at the observatory. Thus began her career, which

would lead to the devising of a system for classifying stars according to the relative amount of hydrogen observed in their spectra, known as the Pickering-Fleming system. Williamina Fleming accomplished much more, including the first detection of the Horsehead Nebula.

Mrs. Fleming became a vocal proponent of the hiring of women into scientific positions.

This monochrome capture is the same one astronomer Fleming used in her discovery. Made from a single 90 minute exposure, it was taken at the Harvard College Observatory by W.H. Pickering in 1888 through an 8-inch refractor telescope, captured on a glass photographic plate. The red arrow (which I added) points to the Horsehead.



And here's my version of the Horsehead and Flame Nebula area



## NASA NIGHT SKY NOTES

JUNE 2019

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.org](http://nightsky.jpl.nasa.org) to find local clubs, events, and more!

## JUPITER SHINES IN JUNE

BY DAVID PROSPER

**Jupiter** stakes its claim as the king of the planets in June, shining bright all night. **Saturn** trails behind Jupiter, and the **Moon** passes by both planets mid-month. **Mercury** puts on its best evening appearance in 2019 late in the month, outshining nearby **Mars** at sunset.

Jupiter is visible almost the entire evening this month. Earth will be between Jupiter and the Sun on June 10, meaning Jupiter is at **opposition**. On that date, Jupiter rises in the east as the Sun sets in the west, remaining visible the entire night. Jupiter will be one of the brightest objects in the night sky, shining at magnitude -2.6. Its four largest moons and cloud bands are easily spotted with even a small telescope.

What if your sky is cloudy or you don't have a telescope? See far more of Jupiter than we can observe from Earth with NASA's **Juno** mission! Juno has been orbiting Jupiter since 2016, swooping mere thousands of miles above its cloud tops in its extremely elliptical polar orbits, which take the probe over 5 million miles away at its furthest point! These extreme orbits minimize Juno's exposure to Jupiter's powerful radiation as it studies the gas giant's internal structure, especially its intense magnetic fields. Juno's hardy JunoCam instrument takes incredible photos of Jupiter's raging storms during its flybys. All of the images are available to the public, and citizen scientists are doing amazing things with them. You can too! Find out more at [bit.ly/JunoCam](http://bit.ly/JunoCam)

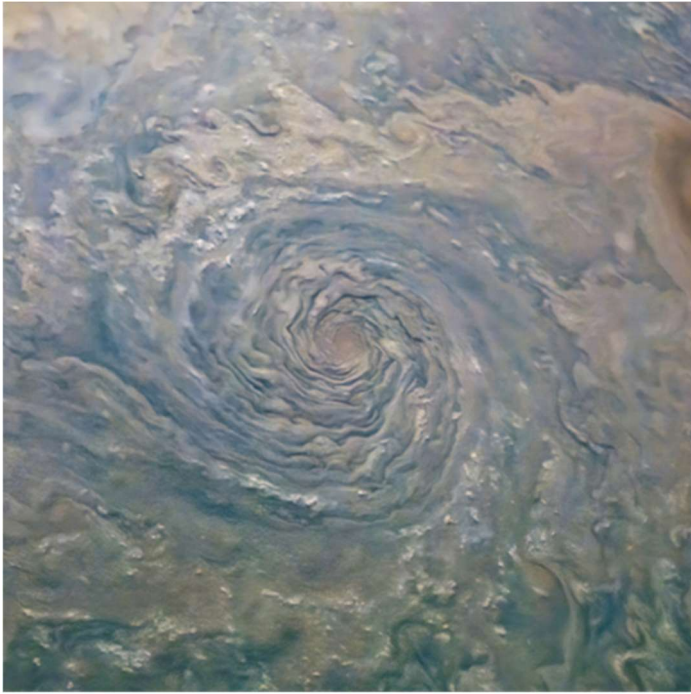
**Saturn** rises about two hours after Jupiter and is visible before midnight. The ringed planet rises earlier each evening as its own opposition approaches in July. The **Moon** appears near both gas giants mid-month. The Moon's tour begins on June 16 as it approaches Jupiter, and its visit ends on June 19 after swinging past Saturn.

**Mercury** is back in evening skies and will be highest after sunset on June 23, just two days after the summer solstice! Spot it low in the western horizon, close to the much dimmer and redder **Mars**. This is your best chance this year to spot Mercury in the evening, and nearly your last chance to see Mars, too! The two smallest planets of our solar system pass close to each other the evenings of June 17-18, coming

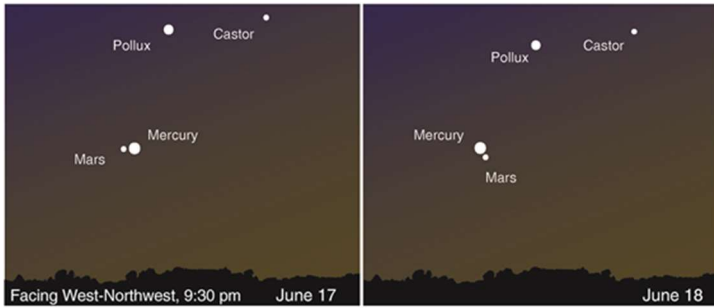


within just ¼ degree, or half the width of a full Moon, making for a potentially great landscape photo at twilight.

Discover more about NASA's current and future missions at [nasa.gov](https://nasa.gov)



A giant storm in Jupiter's north polar region, captured by JunoCam on February 4, 2019. Image processing performed by citizen scientists Gerald Eichstädt and Seán Doran. Source: [bit.ly/JupiterSpiral](https://bit.ly/JupiterSpiral)



Caption: Mars and Mercury after sunset the evenings of June 17-18, 2019. Image created with assistance from Stellarium.

## PICTURES FROM HAC MEMBERS

NGC 4496 BY DAVID ROEMER



NGC 3319 BY DAVID ROEMER



NGC 3726 BY DAVID ROEMER

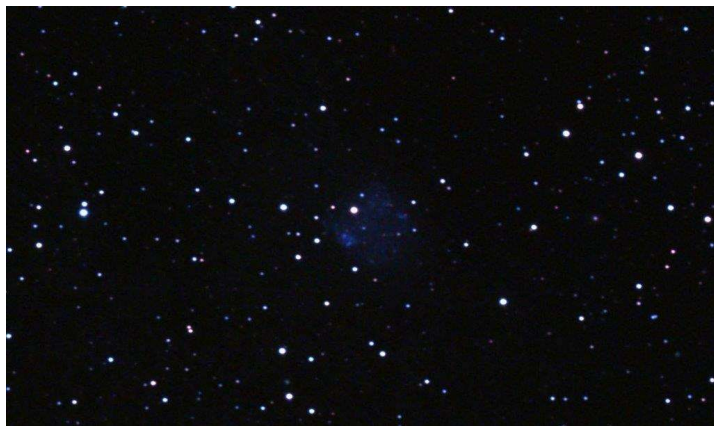


NGC 4395 BY DAVID ROEMER





SEXTENS A BY DAVID ROEMER



SEXTENS B BY DAVID ROEMER



### WANT ADS

FOR SALE: A nearly unused ZWO 1600 with CFW and filters, and an ASA 12" Astrograph

Contact Max Mirot

### FOR SALE: Nikon camera gear and lenses

Nikon D750 w/24-120 lens, five batteries, stock charger, Nikon mc-dc-2 remote cable release, box, manual, lens and body caps \$1500

Nikon 80-400 zoom, lens caps, soft case \$1275

Nikon 70-200 f/4, lens caps \$900

Nikon 50mm f/1.8 G, 85mm f/1.8 G, lens caps \$385 set

Tamron 15-30, lens caps, \$775

Nikon D7200, Nikon 18-140 lens, Nikon 18-300 lens, Nikon mc-dc-2 cable release, two batteries, stock charger, manual, \$1100 as a set

Contact Mike J. Shade at [mshade@q.com](mailto:mshade@q.com)

## CLUB OFFICERS AND CONTACTS

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## PLEASE SUPPORT OUR SPONSORS











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:

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

**Starizona**      <http://starizona.com/>

## HAC June/July Calendar of Events

SU	MO	TU	WE	TH	FR	SA
2	3  3:03 AM	4	5	6 Patterson Public Night 7:30PM	7	8
9  10:59PM	10 Family Day SV Library 4-6 PM  Jupiter at Opposition	11	12	13 Patterson event 8pm (Kids from Horse'n Around Rescue	14 HAC Meeting Student Union  Flag Day	15  Ceres near Moon
16  HAPPY FATHER'S DAY	17  1:31AM	18  Saturn near Moon	19	20	21  Summer Solstice 8:54 AM	22
23	24	25  2:46 AM	26	27	28 Kids world at Patterson	29
30	1 Jul Kids world at Patterson	2  0:16 AM	3	4 	5	6
7	8	9  12:16 PM Saturn opposition	10	11	12	13  Jupiter 2° from moon
14  Pluto Opposition	15	16  2:38 PM	17	18	19 HAC Meeting Student Union	20  50 <sup>th</sup> Anniversary
21	22	23	24  6:18 PM	25	26	27
28	29  Delta Aquariids	30  Delta Aquariid	31  8:12 PM  Delta Aquariids	1 Aug	2	

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](mailto:HACastro+subscribe@groups.io)