

NIGHTFALL

Huachuca Astronomy Club of Southeastern Arizona



HAC MEETING: Friday, August 7, 2009

7 pm, Cochise College, Sierra Vista, Rm. 305A/B

PLUS our monthly Show-N-Tells, upcoming event details, refreshments & **NEW** Exciting Door Prizes!

Speaker: Matthew Whitehouse

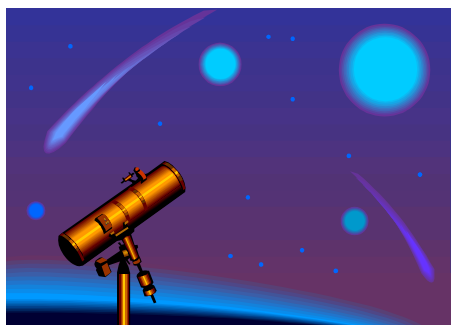
Topic: Music and Astronomy

STAR PARTY CORNER

Keith Mullen, Star Party Coordinator (520) 366-0049 email: repogazer@msn.com

Participation is the Lifblood of the Club!

Not much usually happens around here in July, Astronomically speaking, but nobody told Bob Kepple. He went and had a member Star Party at his DSO and a lot of stars showed up, even 7 or 8 HAC members were there too. It was the best evening out this summer with steady and transparent skies. Bob ran us all through most of the summer favorites like M-20, M-17, M-8, M22 and the list goes on. The real star of the evening was that Father's Day present Barb had given him. A shiny new Explore Scientific 100 degree, 14 mm Nitrogen purged eyepiece she had won at C-Row Star B.Q. We took it through its paces and again on this night, it got better raves than the Naglers did. At Star B.Q. we had compared this eyepiece with the 13mm Ethos and many found it cleaner out to the edge, not to mention that its optics are protected and the E.P. is water-proof; no more all dewed up and dripping fogged out eyepieces (when in another state, of course).



This eyepiece has a current \$100.00 instant rebate until August 31st, making it only \$399.99, about 1/2 of what an Ethos would cost. I'm waiting for the rest of the focal lengths to come out and I'm replacing my entire line of Naglers with them. Getting back to July's star parties, well the public S.P.

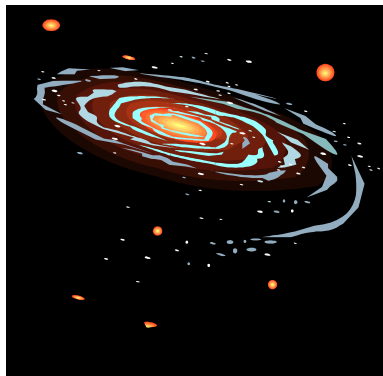
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STARIZONA
ADVENTURES IN ASTRONOMY & NATURE

Official Donor of the Huachuca Astronomy Club Door Prizes!!!

President's Perspective

Wayne Johnson "Mr. Galaxy"



Well, this July has been a very busy month of observing interesting events. It's too bad they have to happen during our monsoons, although, luckily, this year's monsoon seems to be topsy-turvy! We are getting the hot, clear weather that is more typical of June occurring in July and we're really feeling the heat because of it. This article will read more like an observing report though there are some club activities for everyone to participate.

The first thing to remember is that our General Meetings will be on the first Friday of the month from now until the end of the year. That means our next get-together is Friday, August 7, at our usual meeting room at Cochise College. Matthew Whitehouse, a good friend who worked at the Astronomers Inn in Benson with Calvin Hoyt and me, is our featured speaker and will talk about "Music in Astronomy". Matt is a doctoral candidate in Music, specializing in organ music, at UofA. It promises to be a most interesting lecture.

The day after our August club meeting, Saturday, August 8th, we plan to meet at the Mirror Lab under UofA's Wildcat Stadium a little before 11a.m. Please be on time, allow about two hours to drive from Sierra Vista. Since I don't have a complete sign-up sheet it will be impossible to know if you are on the tour if you're not there! Even if you have not signed up or RSVP'd, try to attend this very interesting and unusual tour. Dean Ketelsen, a member of the Tucson Astronomy Association, will be our guide. He has worked at the Lab for about a decade when the concept of spin casting large mirrors was first proved and he has since helped fabricate many of the very large mirrors produced by the facility. The latest project is the optics for the LSST telescope and whose optics will be on display for us to see. I am hoping that we will have a couple other nearby places to tour while we're in the area, too, such as the Flandrau Planetarium and possibly the Mineral exhibit of meteorites, too. The Mirror Lab tour is free, the planetarium and meteorite displays have a nominal charge of \$5 each. If we still have time and there is interest, we also plan to go up to Dean Koenig's Starizona astronomy shop. Somehow, we'll fit in a place to eat, too, maybe Chinese buffet at TAAA member Tim Hunter's China Rose.

While I was writing this column (July 27), I just heard that member Phillip Parham, witnessed another bright meteor on Sunday night (July 26/27) about thirty minutes after sunset. Unfortunately I missed that

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Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; Student: \$10 (with restrictions)

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This issue of Nightfall can also be found on-line at hacastronomy.com. Click 'Newsletter' link. There is much more information about astronomy and our HAC activities on our club web site. *To join the HAC-LIST, send an email to haclist-subscribe@yahoogroups.com.

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one. We were in Tucson and must have been inside when the meteor passed over. I'm still trying to get over the excitement of glimpsing the exquisite meteor that passed overhead while I was driving north on Hwy 90 going home on June 23rd. Some people even heard/felt the sonic boom from its atmosphere entry. As many of you know that object became a meteorite since about six fragments have been found in the Whetstone area. One of Sierra Vista's dentists, Dr. Jack Schrader, actually found a couple pieces. When I was in Tucson for the recent Apollo Lunar Landing celebration I found out that the staff at the Lunar and Planetary Lab is analyzing a section of one of his finds to determine its constitution. The Sunday night (July 26/27) of Phillip's meteor sighting was about the best night that I have seen in Benson in a couple weeks. As soon as I got home that night I dragged out my 13-inch Dobsonian and surveyed the Milky Way for dark nebulae and globulars, observed the always nice galaxies M31 and M33, and looked for Jupiter's new impact spot (no success that night— wrong side facing us) for a couple hours before finally declaring a victory at about 1a.m. and going to bed. Fortunately, that clear night started a series of nice nights, all during the week, so not much sleep was to be had, but I was finally able to see the impact site on Jupiter, which appeared to me to be double and fairly easy to see in my telescope. I heard that the Deep Sky Guys made a similar observation. Hopefully they'll tell us a little more about it during their monthly presentation. Why can't those nice nights occur on Saturday when you don't have to get up for work so early in the morning?!

If you get up early in the morning and have an ultraviolet filter, you may want to try observing Venus. Frank Mellillo, a friend from Long Island, NY, recently observed a bright spot on Venus - maybe a volcano or some sort of atmospheric disturbance, very unusual, but probably very easy to observe with a small telescope.

My wife and I just got back from a pleasant trip to the Graham Mountains. It was a pleasant 20 degrees cooler there and had daily, light rains. Unfortunately, we only had one really clear night, but I enjoyed using my 4-inch Astroscan that evening. In fact, I even found a comet in Cygnus and spent a lot of time making sure it was moving. I finally had to call Bob Kepple at 3a.m. to get a better position since I could only estimate its location from the chart in his book (no Internet connection in the mountains!). Anyway, he finally returned my call later that morning and congratulated me for finding the already known Comet Christensen, which was, in fact, discovered at the Catalina Observatory outside Tucson a few years ago and is just now starting to brighten.

Speaker Matthew Whitehouse Talks Music and Astronomy

Synopsis: This talk will explore the connection between music and astronomy as reflected in Mr. Whitehouse's work as a composer and performer. We will hear snippets of his compositions, one of which is entitled "Nebulae", a musical journey through the stages of star formation.

Biography of Matt: Organist and composer Matthew Whitehouse is a doctoral candidate at the University of Arizona in Tucson, where he studies with the acclaimed composer/performer Pamela Decker and holds the Mildred Flood Mahoney Memorial Scholarship in organ performance. Whitehouse holds a Master of Music degree in organ performance from the University of Arizona and completed undergraduate studies in organ and composition at the University of South Carolina. Matt serves as organist and choir director at St. Stephen's Episcopal Church in Sierra Vista, Arizona, where he oversees all aspects of the parish music program. In addition to his work as an organist, composer, and church musician, Whitehouse is a member of the instructional staff of the University of Arizona Astronomy Camp and assists with education and public outreach programs at Kitt Peak National Observatory.

Travels on the Celestial Sphere

Serpens Cauda

By Bob Kepple & Glen Sanner



The Eagle Nebula showing the "Pillars of Creation" (near center).

This month we review Serpens Cauda, the Tail of the Serpent held by the physician Ophiuchus, the Serpent-Bearer. The Serpent's Head, Serpens Caput, is on the western side of Ophiuchus. Serpens is the only constellation that is split into two separate parts with each of its sections being completely different in nature. Serpens Caput lies away from the Milky Way and features a multitude of galaxies while Serpens Cauda runs along the very heart of the Milky Way with most of its area covered by the opaque Great Rift that divides the Milky Way.

53-Nu Serpentis, Double Star, Spec. A0, Serpens Cauda
Magnitudes 4.3, 8.3, Separation 46.3", PosAng 28o RA 17h20.8m, Dec -12°51'

53-Nu Serpentis is the first star you come to as you trace out the snake from the double star, 35-Eta Ophiuchi, the SE corner of Ophiuchus' main body. 53-Nu Serpentis is an attractive bluish-green or greenish star with a pale blue companion star lying 46 seconds to the NNE. Green is a rare stellar color and is usually more of an illusion or contrast with other colors.

NGC 6535, Globular Cluster, Class XI, Serpens Cauda
Diameter 3.6', Magnitude 10.6v, RA 18h03.9m, Dec -00°18'

This small globular is just south of the border with Ophiuchus and appears as a 2.5' diameter halo with a sprinkling of stars resolved on its eastern edge. This globular is a very loose gathering of stars.

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Space Place Partner Column

SARSAT to the Rescue

If a plane crashes in the woods and nobody hears it, does it make a sound?

Never mind contemplating this scenario as a philosophical riddle. This can be a real life or death question. And the answer most of the time is that, even if no people are nearby, *something* is indeed listening high above.

That something is a network of satellites orbiting about 450 miles overhead. The “sound” they hear isn’t the crash itself, but a distress signal from a radio beacon carried by many modern ships, aircraft, and even individual people venturing into remote wildernesses.

In the last 25 years, more than 25,000 lives have been saved using the satellite response system called Search and Rescue Satellite-aided Tracking (SARSAT). So what *are* these life-saving superhero satellites?

Why they are mild-mannered weather satellites.

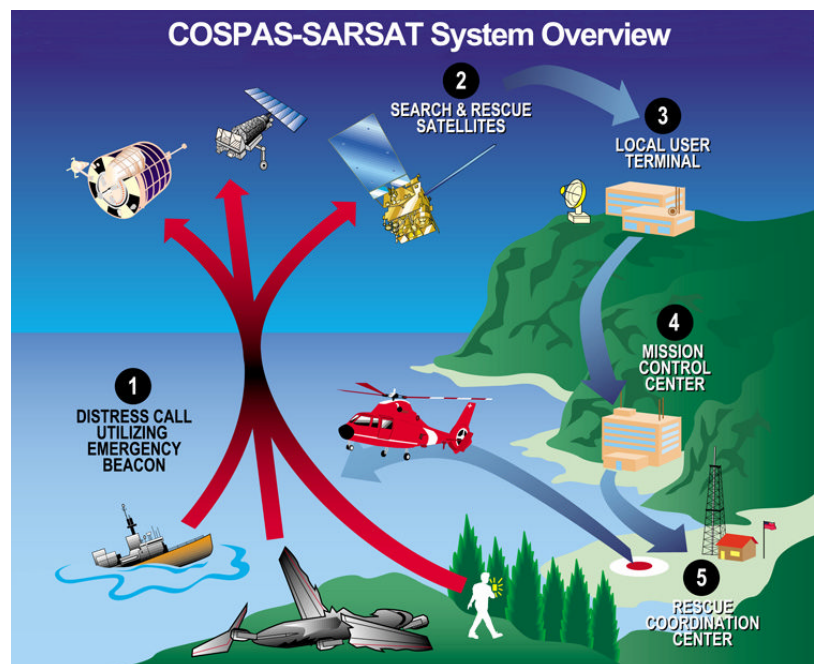
“These satellites do double duty,” says Mickey Fitzmaurice, a National Oceanic and Atmospheric Administration (NOAA) systems engineer for SARSAT. “Their primary purpose is to gather continuous weather data, of course. But while they’re up there, they might as well be listening for distress signals too.”

In February, NASA launched the newest of these Polar-orbiting Operational Environmental Satellites (or POES) into orbit. This new satellite, called N-Prime at launch and now dubbed NOAA-19, prevents a gap in this satellite network as another, aging NOAA satellite reached the end of its operational life.

“The launch of N-Prime was a big deal for us,” Fitzmaurice says. With N-Prime/NOAA-19 in place, there are now six satellites in this network. Amongst them, they pass over every place on Earth, on average, about once an hour.

To pinpoint the location of an injured explorer, a sinking ship, or a downed plane, POES use the same Doppler effect that causes a car horn to sound higher-pitched when the car is moving toward you than it sounds after it passes by.

In a similar way, POES “hear” a higher frequency when they’re moving toward the source of the distress signal, and a lower frequency when they’ve already passed over



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**NGC 6604, Open Cluster, Tr Type I 3 m n, Serpens Cauda
Diameter 4', Magnitude 6.5v, Brightest Star 7.48v, RA 18h18.1m, Dec -12°14'**

This open cluster is a very loose collection of six 7.5 magnitude stars within a gathering of fainter stars which are 9th to 11th magnitude. Some of its stars form an arc to the east with nebulosity and much dust from the Great Rift.

**Messier 16, NGC 6611, Open Cluster, Tr Type II 3 m n, Serpens Cauda
Diameter 21', Magnitude 6.0v, Brightest Star 8.24v, RA 18h18.8m, Dec -13°47'**

**IC 4703, Emission Nebulae, "Eagle" or "Star Queen Nebula", Serpens Cauda
Diameter 35'x28', RA 18h41.0m, Dec -13°58'**

M16 often refers to both the open cluster and the nebula which contains the "Pillars of Creation" made famous by Hubble Telescope images. The open cluster and associated nebulosity lies about 6,500 light years away in the Sagittarius-Carina Spiral Arm of our galaxy. It is probably part of the same complex which also contains the Swan Nebula (M17) that lies across the constellation border in Sagittarius. The brightest stars of M16 are very hot O-type stars emitting ultraviolet photons which fluoresce the nebulous matter. The cluster spans about 40 light years while the nebula may extend over 65 light years.

Telescopically the nebula may seem a little disappointing because you may be expecting to see something approaching the Hubble pictures. IC 4703 is a wide fan-shaped nebulosity which requires a UHC, O-III, or nebula filter (listed in order of effectiveness). Small scope users will discern a faint haze with some 50 stars embedded in it. It takes a 10 or 12-inch scope and dark skies to really start enjoying this object. Look closely on the NE side and you will see a fairly well defined outline of the dark feature called the "Black Pillar" or "Pillars of Creation."

**IC 4756, Open Cluster 80 stars, Tr Type II 3 r, Serpens Cauda
Diameter 52', Magnitude 4.6v, Brightest Star 8.67v, RA 18h39.0m, Dec +05°27'**

IC 4756 is a nice cluster for the smallest of telescopes. It is exceptionally large with eighty 7.5 to 11th magnitude stars broadcast over a degree of sky. It is also a fine sight in binoculars and richest-field telescopes. The fainter members are enclosed by a trapezoid of 5th to 7th magnitude stars. The cluster has no central concentration, but several small clumps and pairs may be seen.

We hope you enjoy finding these objects. Get out there and enjoy the night sky!

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at JBO was a washout, but later in the month we had several shuttle passes in conjunction with the ISS and we had reports of some flashes too. Let's see what August has in store for us.

August Star Party Schedule

Saturday, August 15th, Member/Public Star Party at JBO, hopefully the weather will hold.

Saturday, August 22nd, Member Star Party, at the time of this writing, the location has yet to be determined, speak up and let us know that you would like to host this month's Member Star Party. Call Keith at 366-0049 to sign up to be a host.

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head. It takes only three distress-signal bursts — each about 50 seconds apart — to determine the source's location.

Complementing the POES are the Geostationary Operational Environmental Satellites (GOES), which, besides providing weather data, continuously monitor the Western Hemisphere for distress signals. Since their geostationary orbit leaves them motionless with respect to Earth below, there is no Doppler effect to pinpoint location. However, they do provide near instantaneous notification of distress signals.

In the future, the network will be expanded by putting receivers on new Global Positioning System (GPS) satellites, Fitzmaurice says. "We want to be able to locate you after just one burst." With GPS, GOES will also be able to provide the location of the transmitter.

Philosophers beware: SARSAT is making "silent crashes" a thing of the past.

Download a two-page summary of NOAA-19 at www.osd.noaa.gov/POES/NOAA-NP_Fact_Sheet.pdf. The Space Place gives kids a chance to rescue stranded skiers using their emergency rescue beacons. The Wild Weather Adventure game awaits them at space-place.nasa.gov/en/kids/goes/wwa.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Caption:

NOAA's polar-orbiting and geostationary satellites, along with Russia's Cospas spacecraft, are part of the sophisticated, international Search and Rescue Satellite-Aided Tracking System.



Mark Your Calendars for ALCon 2010



The Tucson Amateur Astronomy Association, the International Dark-Sky Association, and the Astronomical League will be jointly hosting the annual convention of the League from June 24 until 26, 2010 at the Tucson Hilton East in Southern Arizona.

Noted astronomer and comet discoverer, David Levy will be one of the many outstanding speakers. With Kitt Peak National Observatory and other world class destinations, there will be many exciting tour opportunities.



The League will be holding its annual awards banquet, and it will present major national awards during the conference. Among other prestigious awards, the National Young Astronomer Award will be presented.

In addition, astronomy vendors from across the USA will display their latest products. We also expect leaders in IDA's dark sky movement to participate. Keith Schlottman, VP of TAAA, and Bob Gent, Past President of the Astronomical League, are the event's co-chairs. Please mark your calendars and stay tuned for additional updates.