

PAStimes

Phoenix Astronomical Society
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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

3 Speakers for October First Meeting

Professor Tom Sharp (ASU Tempe) will be at the Oct. 1st PAS meeting. He will do a mini presentation on the upcoming Earth and Space Exploration Day, Oct. 24 at ASU Tempe. We will have him scheduled shortly after opening the PAS meeting and covering any super quick announcements.

After Tom will be Robert Martino doing a 10 minute presentation on some new & exciting programs for astronomers being held at Kitt Peak, at our October 1 PAS meeting. He was scheduled to do this presentation in September & circumstances cause him not to be able to attend, last minute. The fliers about these programs can be found in the Downloads section of the PAS website at <http://www.pasaz.org/forums/downloads.php?do=cat&id=1>. You might want to review the possible classes & bring your questions to the October meeting for answers from Robert. See you there!!!) and then we will turn it over to our WONDER-

FUL GUEST SPEAKER - Dan Heim.

Dan Heim was a member of PAS for almost 20 years. After retiring from teaching physics full-time at Brophy Prep, and moving to New River, he decided to start a new astronomy club just for the north valley, which was, and still is, a rapidly growing area. His Desert Foothills Astronomy Club (www.dfacaz.org) was created in 2006, currently has 20 members, and is adding new members every year. One of the main reasons DFAC was created was to combat the spread of light pollution in the north valley, and the presentation we'll see on October 1st has been seen dozens of times by north valley school and community groups. Dan was recently appointed to serve as the amateur astronomy representative on a MAG (Maricopa Association of Governments) committee that is developing a model lighting ordinance for application in Maricopa County. The MAG committee will also be seeing Dan's presentation.

Light Pollution

Every astronomer, amateur or professional, knows about the problem of light pollution. The presentation looks at the causes and solutions to this problem. It also covers existing laws at the state and county level concerned with outside lighting. It will answer the question: What can I do if my neighbor has a bad outside light? It will also inform you about outside lighting options you may be unaware of. Regardless of how much you think you know about light pollution, you will learn more by attending this presentation. And the more you know, the better the chances of finally solving this problem. Please come enjoy this awesome October PAS meeting with us.

Please note that as we have 3 speakers for this meeting that the meeting will start promptly at 7:30 with a very short announcement period with the first speaker starting no later than 7:35 ***

September Meeting Rev

By Terri, Event Coordinator

The September PAS meeting had quite a few PAS members. It was nice to see everyone there. The audience was ONLY PAS members, which made it easier to do announcements because a review wasn't needed prior to the announcements. Everyone knew what we were talking about. We gave Jerry a few minutes to tell us about some fun things. He touched on the upcoming PAS Social (see article in this issue), he talked about a variety of things that the PAS members listened to. One item he mentioned that I would like to repeat is that

everyone attending the Dec PAS meeting should consider looking through their closets to find items for sale for the PAS Swap Meet. Every December PAS meeting we have the swap meet. Also, there is a 3 day Rocket Launch in October. For more info, contact Jerry, his contact info is in this newsletter. Mike then announced this Galaxy Lecture time change. I heard that lecture went well but only had PAS members & no Menza this time.

I wish to thank Elaine for doing an awesome Hostess job... she greeted every-



Veronica Ann Zabala-Aliberto

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September Meeting Rev

Continued From page 1

one and got them to sign in. John Pulis was not to be seen. We wish him well. I wish to thank Sam for bringing the popcorn. The water was purchased for PAS using the snack fund, for which the fund, after the purchase was too low to buy snacks, so I brought some cookies Bob Senzer had provided earlier, as back up. We had cookies and popcorn this time, with water.

After some very brief announcements, we turned the evening over to Veronica who did an awesome presentation about the Moon. Veronica is returning to us in Janu-

ary with another exciting topic. She also supplied me with a lot of handouts & cool things for the kids at the Wigwam School star party in February. Thank you so much Veronica.

Here are some of the cool things she shared with us, besides the Moon stuff: On Oct 24th, Earth Day, Saturday, It is the Earth and Space Exp from 9am - 3pm and it is FREE to the public. We have Tom coming to tell us all about that event at the October PAS meeting. She also shared with us the chance for PAS to go on tours of the

Astronomy department. I am setting up these tours with her. Watch for announcements of when they will be. They will have to happen on weekdays. Veronica finished her presentation earlier than expected, which allowed for many of us to chat with her before she left. Some of the group went over to G-147 & the rest went home. Thank you so much Veronica for the awesome, informative, fun evening with you are our Guest Speaker. We can't wait until the January 2010 presentation! ***

PAS Public Events

By Terri, Event Coordinator

PAS was once known as the Armchair Astronomers. That means we didn't have many observing sessions, or public activities. I joined the club and changed that. Now, sometimes, we have more activities than we can do, but we are no longer Armchair Astronomers.

But, I was looking at the calendar of events from Sept - Dec 2009 and I conclude we do not have enough Public Events in our calendar. We have some awesome Private events, in fact, we have a lot of those, but not enough public events. To help PAS

succeed in such a terrible economy, we need events to draw more members into the club.

Here's a brief review of the upcoming PUBLIC events for Sept - Dec 2009.

We have 1 Indoor Astro event scheduled for 10/15. We have, of course, our PAS meetings. We have a PVCC Star party on 10/22. There's a Meteor Shower star party on 12/12 at PV Park which conflicts with the VSP planned for that night. We may move the Meteor Shower party to Friday night instead to allow the VSP attendees to be able to attend both events.

That appears to be it. That really isn't

enough events to draw in the public. Ideas? Please share. Maybe, what we should do is around the 1st Quarter moon, if we aren't already doing a star party for a school, hold a public star party at PV Park for that month. Give me your thoughts. This last year, from about Jan to now, we haven't had many events that have happened, due to weather, but also due to lack of interest. I want to see PAS being the most active, fun club in town. We can only make that happen if we have help from its members. The Members matter!!!! Send your ideas to Terri, today!!! ***

PAS In Examiner.com

By Terri, Event Coordinator

Our awesome guest speaker at the September PAS meeting, Veronica, had interviewed me earlier in the week to find out some info about PAS to put in an article in

the Examiner.com. Here is the link to the completed article: <http://www.examiner.com/examiner/x-19827-Phoenix-Science-News->

[Examiner~y2009m8d30-Introducing-the-Phoenix-Astronomical-Society](http://www.examiner.com/examiner/x-19827-Phoenix-Science-News-Introducing-the-Phoenix-Astronomical-Society). You might want to read all about PAS!!! Enjoy! ***

Year In Space Calendar 2010

By Terri, Event Coordinator

I will be collecting for the 2010 Year in Space Calendar at the October PAS meeting. If you wish to purchase one please bring \$10 cash with you. We will try to get enough calendars purchased to keep the

price at \$10 or less. Please see this year's calendar at www.yearinspace.com. These calendars make great gifts for all occasions. The plan is to collect for the calendar by November's PAS Meeting, so that we can purchase them by Nov 15th, and receive

them by end of November, thus allowing for them to be gifts or in time for the new year. I plan to deliver them to you at the December PAS meeting. ***

PAS Calendar On Line At www.pasaz.org

By Terri, Event Coordinator

Have you wondered who posts the events in the PAS calendar on line? I do. And to makelife easier on you, the PAS Member, or interested Non PAS member, there are 2 calendars available. As a PAS member, you get a log in to the site which gives you access to those areas of the site that are off limits to the general public. This also gives you access to the sites' Private Calendar. They are 2 separate entities: The Public PAS Calendar and the Private PAS Calendar.

A PAS member logs into the PASaz.org site & may find that a list of upcoming events may have duplicates listed. Sam asked about this at the last PAS Meeting of the Minds, & so I thought I'd review it here, in this article. Why does it show 2 events the same? Because, as a PAS member, you get both the Public and Private calendar listings.

A Public event means that anyone can attend this event. And anyone, public or PAS can see this event on the calendar when they go to the site, and don't log in. The public can access this calendar. The neat thing about this option is that I can post Private events with very little information in the calendar, with a link to the Private Calendar for which only PAS Members can access.

For instance, let's take Chris's CEO star parties. IN the Private Calendar, for PAS Members ONLY, we can access the calendar event by going to the Public Calendar (as an option), clicking on the link that takes you to the Private Calendar, that has more info, maps, directions, and other details that are needed to attend the event. So, the Pub-

lic can SEE the event is in the Public calendar as a PRIVATE event, but can not access maps to Chris's observatory or in the case of the PAS Social, the map to Chris's house... These are all things we want to keep private to within the membership only.

So, what does this mean for you? If the event is public, it will only be listed in the public calendar. Anyone can see it, anyone can RSVP to go to it.

If it is a Private event and you are on the public calendar at the time, you can click on the link I provide, which takes you to the event in the Private calendar, which then has all the details you need, as well as maps, and the ability to RSVP for the event. Private events we RSVP in the calendar on the private calendar, not the public calendar.

So, you will see 2 listings because I make a link between the two so that the PAS membership can get to the info in the private calendar by that link, quickly, and put their RSVP and get info, right there.

It is a little more work for me, but as soon as more PAS Members use the system Chris and I are creating by having the Public and Private Calendars, it will flow a lot easier. Just remember, look at the top of the page when you are in the calendar. If it says your link goes to the Private Calendar, that info is not to be shared with anyone outside of PAS.

And please remember to RSVP even if you can not attend the event. This is helpful to the RSVP for that event. For instance, let's say I'm working on the Wigwam School star party Leah or Neil wishes to attend. If they haven't already told me they are attending, I wouldn't know and then if the event got canceled, they'd drive all the

way to Litchfield Park to do the event only to find that we are not having it due to weather that day. An RSVP is important. And also the RSVP of "NO" is just as important as a "YES" or a "MAYBE," because it lets the RSVP contact know that you can not make it at all. So, put your RSVP into every event out there.

The other thing that the Calendar has as a plus is that i can make links to forum discussions about the events. Every school or scout event will have a forum discussion set up so that you can ask questions, find out all the details and attend knowing you know where to set up, who the RSVP is, maybe who the contact for the event is. This is info that is important... including how many will be attending. What if you have a handout you want to offer and you are thinking there will be 30 kids there, when in the forums we have been discussing 900 kids... you will be greatly surprised if you haven't reviewed the discussion in the forums. Add your ideas and questions so we can get everything answered prior to the event.

In review, PAS has 2 calendars on line. A Public and Private. All Private events are duplicated in the Public calendar so that when a school is setting up their star party, they can look at the Public calendar to be sure we don't already have an event on their chosen date. Thus, they would get more telescopes at their event that way. Also, RSVP is important for attendance, and read about the events you plan to attend so that you know the plan before you get there. Thanks to all who volunteer for the events. ***

PAS Dues Are Due By End Of October

By Terri, Event Coordinator

It is that time of year again when we collect for the PAS dues to keep the club flowing smoothly. Please take a moment to download a copy of the Dues sheet from this link <http://www.pasaz.org/forums/downloads.php?do=file&id=17> and get your dues sent, delivered, or otherwise updated with Mike, our Treasurer.

A quick reminder... PAS dues are from Jan 2010 to Dec 2010. If you join after Aug 1, you are grandfathered in to the next year, so Greg, our newest member has his membership to Dec 2010. Everyone else needs to send their dues in to Mike right away.

What do you get for your membership? You get access to Private events listed in the Private PAS Calendar on line such as attending the CEO star parties or the PAS Social. These events are designed to be more intense and informational, and fun than the Public events. They are worth the membership price. The Virtual Star Parties require membership to attend.

Your membership gets you a subscription to the Reflector, which is a quarterly magazine from the Astronomical League. Belonging to the League is of great benefit to PAS.

You get the opportunity to belong to, if

you sign up with Terri, the PAStimes Star Tours group of whom make money doing what you already love to do - showing the night sky to people who wish to pay for it.

There are great benefits in belonging to PAS. Get your dues in today. PAS likes to collect the dues by the end of October, to make it easier on Mike for updating the online Roster. So, plan to pay those dues at the next possible event or go to the link above, download your membership form and mail it to Mike. At the End of January, anyone who hasn't paid their dues is removed from the Membership Roster. Get yours in today!!! ***

Meeting Of The Minds Review 8/27

By Terri, Event Coordinator, Photos can be found on line in the PAS Photo Gallery

This was an unusual MOM's but a very good, and productive one. We opened the meeting, and had a guest, who also became a new member. Welcome GREG!!!

Our first topic of the evening was the Post Cards. Many good ideas were shared this evening. Mostly, it was decided to pick the closer resorts, resend to them, call them a few days later to be sure they got the post card, and let them know we exist. From there, it is up to them to contact us. More info can be found in the forums at: <http://www.pasaz.org/forums/showthread.php?t=187>.

The next topic was the Membership Drive. We reviewed the ideas that Tim and Neil presented. What we concluded was that Tim might want to look into some of his ideas, expand on them, and let us know the results. More info can be found in the forums at <http://www.pasaz.org/forums/showthread.php?t=243>

Astronomy Magazine and Sky & Telescope Magazine subscriptions. A few newer PAS members were asking about why PAS does not provide subscriptions through the club for these magazines and the results of this discussion lead us to the info you can find in the forums at:

<http://www.pasaz.org/forums/showthread.php?t=274>. In brief, you can get the same

rate through the magazine by telling them you are a member of PAS... \$5 off.

Another topic we discussed was locations for Public star parties. Many great ideas were shared. Here are the ideas that came of this discussion: Autobon Rio Salado, McDowel Mt state Park in Fountain Hills, Usery Mountain Park, Mesa, Gilbert and Tempe parks, Jeep tours, Desert Botanical Gardens, and other public community centers. However, it was also noted that most of the public parks in the Phoenix area, charge for their use. And Chris reminded us that some of us don't mind wow'ing kids from public schools or scouts, but to do star parties at a great distance from home, for free, isn't in their schedule. Thus, we are looking for more places to do star parties that can result in pay for the telescope volunteers. More discussion on this can be found in the forums at

<http://www.pasaz.org/forums/showthread.php?t=327>

Now here's at topic that has been discussed and worked on but nothing came of it until this meeting!!! Thank you DAVE!!! Let me give you the brief of what was discussed and then the results of that discussion. We were tossing ideas around as to where to hold our TELESCOPE WORKSHOPS. As you know, the best way to get someone to join our club or any astronomy club is to help them learn how to use their telescope so they will be willing to join us at star parties. Well, some ideas that came

from this, that we might use in the future, would be to hold these type of events at Hotels, the public library, or a public park. Then Dave said we can hold them at PVCC. So, I will be setting up some TELESCOPE WORKSHOPS, at least 1 prior to Christmas, and then several after Christmas for those who get a telescope as a gift and need help with it. Watch for those dates. I will post them in the forum at

<http://www.pasaz.org/forums/showthread.php?t=200&highlight=workshop>

Then we turned the meeting over to Chris. In the Photo Gallery on the PAS website, you will see some photos of the things Chris shared with the group. He talked about his observatory as well as the upcoming events of All Arizona Star Party (Oct 16-17) and the PATS event (Sept 26-27). Then we pinned down the dates of the next 3 Virtual Star Parties. We need volunteers to host these parties. If you wish to volunteer, contact Terri so she can set it up.

I wish to thank those who attended the meeting. And for all the lovely, productive input from everyone. We mostly stayed on task, with very few interruptions from chatter. That was greatly appreciated. And thanks to Chris for the demos and info about his observatory, and thanks to Dave for offering PVCC for some of our upcoming events. We hope to see you at the next MOM's on Sept 24. ***

Upcoming School Star Parties

By Terri, Event Coordinator

PAS provides School star parties complementary. For these events, depending on their location & distance, sometimes PAS requests snacks or drinks, or gas reimbursement.

The purpose of the star party is to enhance a child's life, & the attending adults by showing & sharing with them your knowledge & love for Astronomy. Here are some School events that are happening in the 2009-2010 school year. More will be scheduled, so watch for updates. And if you want to keep tabs on what schools PAS is enhancing with a star party, you can visit the new document I started for tracking the

School Star Parties at this link:

<http://www.pasaz.org/forums/downloads.php?do=file&id=111>. It is available for PAS members only, as most of the school events are private events. RSVP for all these events is with Terri at Events@pasaz.org.

Oct 23, 2009 Pioneer Elementary More info can be found in the forums at this link: <http://www.pasaz.org/forums/showthread.php?t=341>.

Mar 5, 2010 Amberlea Elementary will have their star party from 5:30 - 8:30pm. More info can be found in the forums at this link: <http://www.pasaz.org/forums/showthread.php?t=338>

Feb 20, 2010 Wigwam Creek Middle School will have their star party from 4pm to 10pm. This is a whole school star party & there will be daytime events as well as evening viewing. See more info about this star party in the forums at: <http://www.pasaz.org/forums/showthread.php?t=328>. The list of PAS members & their planned involvement can be found at this link:

<http://www.pasaz.org/forums/downloads.php?do=file&id=107>.

There's more to come so watch for the announcements & add them to your calendar & RSVP with Terri to attend. ***

October Upcoming Events

By Terri, Event Coordinator

October starts the school star parties. Many have come in & are being scheduled. Watch for upcoming chances to enhance a kids' life by sharing your knowledge of Space with them at their school star party. See Article in this issue.

Oct 1: We begin October with an Awesome PAS meeting. Dan Heim was originally going to talk about Weightlessness, but his computer decided to change that. So, he has chosen a back up topic for the Oct 1 PAS meeting of Light Pollution. He says you will not be disappointing. Any talk Dan does is always very informative, complete & enjoyable.

Oct 2: I'm waiting on confirmation of the Temple Beth star party. Each year, PAS members join in the fun to help Temple Beth celebrate Yom Kippur by providing telescopes for about 1/5 - 2 hours, usually with a full moon in the way. It is an enjoyable night talking with everyone at the event. The kids love looking through the telescope. Since, at the time of the printing of this Newsletter, I do not have confirmation of this event, we are leaving it tentative. If you wish to assist: this is a PAID star party, please RSVP with Terri & watch for a notice in the PAS Calendar on Oct 2. As soon as I have confirmation, we will do the star party. Thanks for being there, when & if they confirm it.

Oct 3: 7 Springs Scout Star Party - 7pm - 9pm, RSVP with Terri to help out. More

info can be found in the Forums at: <http://www.pasaz.org/forums/showthread.php?t=332>. PAS members only.

Oct 15: PAS Indoor/Outdoor Astronomy Event at PVCC. RSVP is with Terri. Help is needed for the indoor & outdoor portions. If you can assist, sign up today. Everyone is welcome... bring a friend & the whole family. Event is from 7:30pm to 9:30pm in G-147.

You can find out more about this event in the Forums at:

<http://www.pasaz.org/forums/showthread.php?p=631#post631>.

Oct 22: PVCC Star Party. Open to the public. Telescope volunteers are needed by Telescope Dome on campus. Star Party is from 6pm to 10pm. RSVP is with Rod.

Oct 23: Pioneer Elementary School Star Party. Volunteers needed. The start time of this star party hasn't been chosen yet, so watch for info in the forum & calendar listings. Find out more info about this star party & RSVP with Terri for it at this forum link. PAS Members only.

Oct 24: VIRTUAL STAR PARTY - PAS Members ONLY. See more info about this awesome new feature of PAS membership in this forum link. RSVP is required, & astrophoto plans are required within the forum if attending to do astrophotos. All PAS Members are welcome to attend to learn, have fun, munch snacks. Read about it in the forums & come have fun. Times &

Locations change each VSP. This one is at Mike's house & the start time is 7pm. See forum for more info.

Oct 29: Meeting of the Minds. This is the business portion of PAS. No children please. Meet at G-147 on the PVCC Campus from 7pm to 10pm. Bring topics to discuss. If not enough topics are received, the meeting is canceled.

Nov 5: November PAS meeting with an awesome, exciting speaker you will not want to miss. Plan to attend!!! ***

Ptolemy - Claudius Ptolemaeus (87 -150 AD)

A celebrated Greco-Egyptian mathematician, astronomer, and geographer. He made his observations in Alexandria and was the last great astronomer of ancient times. Although he discovered the irregularity in the moon's motion, known as evection, and made original observations regarding the motions of the planets, his place in the history of science is that of collator and expounder. He systematized and recorded the data and doctrines that were known to Alexandrian men of science. His works on astronomy and geography were the standard textbooks until the teachings of Copernicus came to be accepted.

PAS Social 2010

By Terri, Event Coordinator

It is time to start thinking about the upcoming, awesome, once a year PAS SOCIAL for 2010. This "Event of the year", takes place each year, in a location that can have 30+PAS Members join in the fun, games, food, & Socializing (thus the name of the event).

Mike Marron has many, many thanks for offering to host this year's party at his home in Carefree. What we need next is a date to be chosen to hold the event. Here are the possible, free dates (no other PAS events are on them at the time of this news-

letter): 2010: Jan 9, Jan 30, Feb 6, Feb 27. Of these dates Jan 9 and Feb 6 are 3rd Q Moon dates, which we might want to schedule Virtual Star Parties on. The other two dates are Full Moon. If you have a preference to one or more dates, send them my way so that your input can help us pick the date of the 2010 PAS Social. We want as many PAS members to attend as possible. No input from the membership means Mike chooses any date he wants, even if it doesn't fit your schedule. Input is suggested.

As far as the plans for the Social, I suggest you find that perfect White Dwarf

gift for the Gift Exchange. Start now. Think about it, & remember to disguise it when you wrap it. Also, if you know what dish you are bringing to share, I have started the sign up list. First to tell me their dish will get to bring it. We are going to avoid duplicates again this year. More details will be found in the PAS Forums at this link:

<http://www.pasaz.org/forums/showthread.php?t=340>. All planning & discussion will be at this forum. You can also put in for your food choice in the forum, as well as tell me. We hope to see all PAS MEMBERS at this year's event!!! ***

PAS Has Facebook Page

PAS is on facebook. If you are interested we can be found at this URL.

<http://www.facebook.com/profile.php?id=100000203123866&ref=nf> Come check us out!



Arizona Sky

By Leah Sapir

In October, the summer constellations move into our western sky, and the autumn constellations are rising in the east. High overhead in early evening, we have Cygnus and the summer triangle a little west of the zenith, Cepheus and Cassiopeia in the north, Andromeda and Perseus in the east, and Pegasus and Aquarius in the south.

On the border of Cygnus and Cepheus is an interesting grouping: an open star cluster and a distant galaxy in the same line of sight, only about half a degree apart in the sky. The pair is close to the western “arm” of Cepheus, about 5 degrees west of Alderamin (Alpha Cephei).

The cluster is NGC 6939, whose distance is estimated at 4000 light years. It is relatively old for an open cluster – its stars have been traveling together for about 2 billion years.

The galaxy is NGC 6946, also known as the “Fireworks Galaxy”. This barred spiral galaxy is very faint in a telescope, but in photos we can see bright areas of star formation throughout the spiral arms. The lower right arm has a very large young star cluster with more than one million solar masses. The Fireworks Galaxy has lived up to its name with 8 recorded supernovas since 1917 – more than any other galaxy. It is estimated to be about 17 million light years away, in the “local void”, an area with few other galaxies.

Near the northern end of Cepheus is an interesting planetary nebula, NGC 40 – also known as the “Bowtie Nebula”. It is about 5 degrees from Alrai (Gamma Cephei), between Alrai and Gamma Cassiopeiae. The Bowtie is around 3000 light years away, and its small size (only half a light year in diameter) indicates that it is probably a very young nebula. Most planetary nebulae are about one light year in diameter, although the youngest ones can be smaller than that, and the oldest can have a diameter of up to 4 light years.

Like other planetary nebulae, the Bowtie is created by a star in the last stages of its lifetime. Following the red giant

central star of the Bowtie is a “Wolf-Rayet” star, one of the hottest kinds of stars. Wolf-Rayet stars can have a surface temperature of 50,000 to 100,000 degrees K. (Compare this to the surface temperature of about 5000 degrees for our sun, or 30,000 degrees for a young, hot O-type star.)

Most stars have a continuous spectrum with a few absorption lines; the lines represent wavelengths absorbed by elements in the star’s outer layers. But Wolf-Rayet (WR) stars have broad **emission** lines of helium, carbon, nitrogen, and oxygen, su-

perimposed on the continuous spectrum. These are caused by the ejection of large amounts of the star’s material in a strong stellar wind, during the stage when the star has finished fusing hydrogen into helium, and has begun fusing helium into other elements. The stellar wind is due to radiation pressure, and can be moving at a rate of several thousand km/sec. UV radiation from the star’s photosphere causes fluorescence in the outer material.

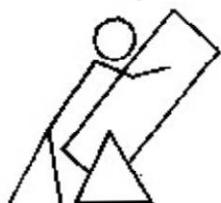
Most WR stars are a late stage in the lifetime of very large stars. They usually



Bowtie Nebula NGC 40



Fireworks Galazv



stage, the outer layers of the star expand to form a nebula, and the star’s nucleus contracts to form a white dwarf. But unlike most planetaries, the

Arizona Sky

contain over 20 solar masses (and originally contained much more); most of them will end their lives as supernovae. About 10% of planetary nebulae have WR stars as their central star, but these are a special group of tiny WR stars with a mass less than one solar mass. The WR stars in planetary nebulae are usually rich in carbon and oxygen; other WR stars are rich in nitrogen instead.

Over in Cygnus, about 3 degrees west of Sadr (Gamma Cygni), is the Crescent Nebula (NGC 6888), which was created by a large Wolf-Rayet star. The visible nebula was formed when the fast stellar wind crashed into shells of material that were expelled by the star in an earlier red giant stage. The star that powers this nebula is about 30 times the mass of the sun, and will eventually become a supernova. The Crescent Nebula is about 5000 light years away, and about 25 light years in diameter.

Closer to home, Jupiter, Neptune, and Uranus are still up for most of the night, but starting to set earlier. Jupiter sets around 2:30 at the beginning of October, and a little after midnight towards the end of the month. Neptune sets about half an hour after Jupiter, and Uranus follows Jupiter by about 3 hours.

Mars is moving into our evening sky, rising around midnight. It's still very small (only 7 arc sec) and over 100 million miles away. Its closest approach will be in January, when it will be around 60 million miles away, and display a diameter of 14 arc sec.

Venus, Saturn, and Mercury are morning stars this month. Mercury will be visible for only a short time before sunrise in the first week of October. Venus will be visible before sunrise for most of October, but the best views will be early in the month. Saturn is moving out of its conjunction with the sun, and we'll be able to get a view of its paper-thin rings. It will be

visible all month, but the best views will be towards the end of the month and in coming months, when Saturn will be rising earlier each day.

The full moon will appear near the Pleiades on October 6-7, and on the following night it will be between the Pleiades and Hyades. Towards dawn on October 8, we can see Saturn and Mercury about 1/3 of a degree apart in the eastern sky.

On October 11, we can see Mars near the 3rd quarter moon in the east after midnight; and on October 12 the moon will appear between Mars and the Beehive Cluster M44. In the meantime, on the morning of October 13, Saturn and Venus will be only half a degree apart in the east before dawn; and in the predawn sky of October

16, Saturn Venus, and the crescent moon will make a nice triangle.

On October 26, we can see Jupiter, Neptune, and the first-quarter moon in the west after sunset. After mid month, Mars will appear to approach M44, and will be seen right in front of the cluster from October 31 to November 2.

The Orionid meteor shower, from debris of Halley's comet, will make an appearance on the night of October 21-22. Although this is a relatively small shower, the date is right after new moon, so we'll have a nice dark sky for the event.

Join us next month when we continue to explore the summer and autumn constellations. And till then – wishing you clear skies, and happy observing!



Crescent Nebula

Johannes Kepler (1571–1630)

German astronomer. He was influenced by the Copernican teachings. In 1600 Kepler became Tycho's assistant in his observatory near Prague. On Tycho's death (1601) Kepler succeeded him as court mathematician to Holy Roman Emperor Rudolf II. In 1609 he published the results of Tycho's calculations of the orbit of Mars. In this celebrated work were stated the first two of what became known as Kepler's laws - three mathematical statements that accurately describe the revolutions of the planets around the sun. Kepler's laws opened the way for the development of celestial mechanics, i.e., the application of the laws of physics to the motions of heavenly bodies.

Spitzer, the Sequel

The Spitzer Space Telescope is getting a second chance at life.

The liquid helium “lifeblood” that flows through the telescope has finally run out, bringing Spitzer’s primary mission to an end. But a new phase of this infrared telescope’s exploration of the universe is just beginning.

Even without liquid helium, which cooled the telescope to about 2 degrees above absolute zero (-271°C), Spitzer will continue to do important research—some of which couldn’t easily be done during its primary mission. For example, scientists will use Spitzer’s “second life” to explore the rate of expansion of the universe, study variable stars, and search for near-Earth asteroids that could pose a threat to our planet.

“We always knew that a ‘warm phase’ of the mission was a possibility, but it became ever more exciting scientifically as we started to plan for it seriously,” says JPL’s Michael Werner, Project Scientist for Spitzer. “Spitzer is just going on and on like the Energizer bunny.”

Launched in August 2003 as the last of NASA’s four Great Observatories, Spitzer specializes in observing infrared light, which is invisible to normal, optical telescopes.

That gives Spitzer the power to see relatively dark, cool objects such as planet-forming discs or nearby asteroids. These objects are too cold to emit light at visible wavelengths, but they’re still warm enough to emit infrared light.

In fact, all warm objects “glow” with infrared light—even telescopes. That’s why Spitzer had to be cooled with liquid helium to such a low temperature. Otherwise, it would be blinded by its own infrared glow.

As the helium expires, Spitzer will warm to about 30 degrees above absolute zero (-243°C). At that temperature, the telescope will begin emitting long-wavelength infrared light, but two of its short-wavelength sensors will still work perfectly.

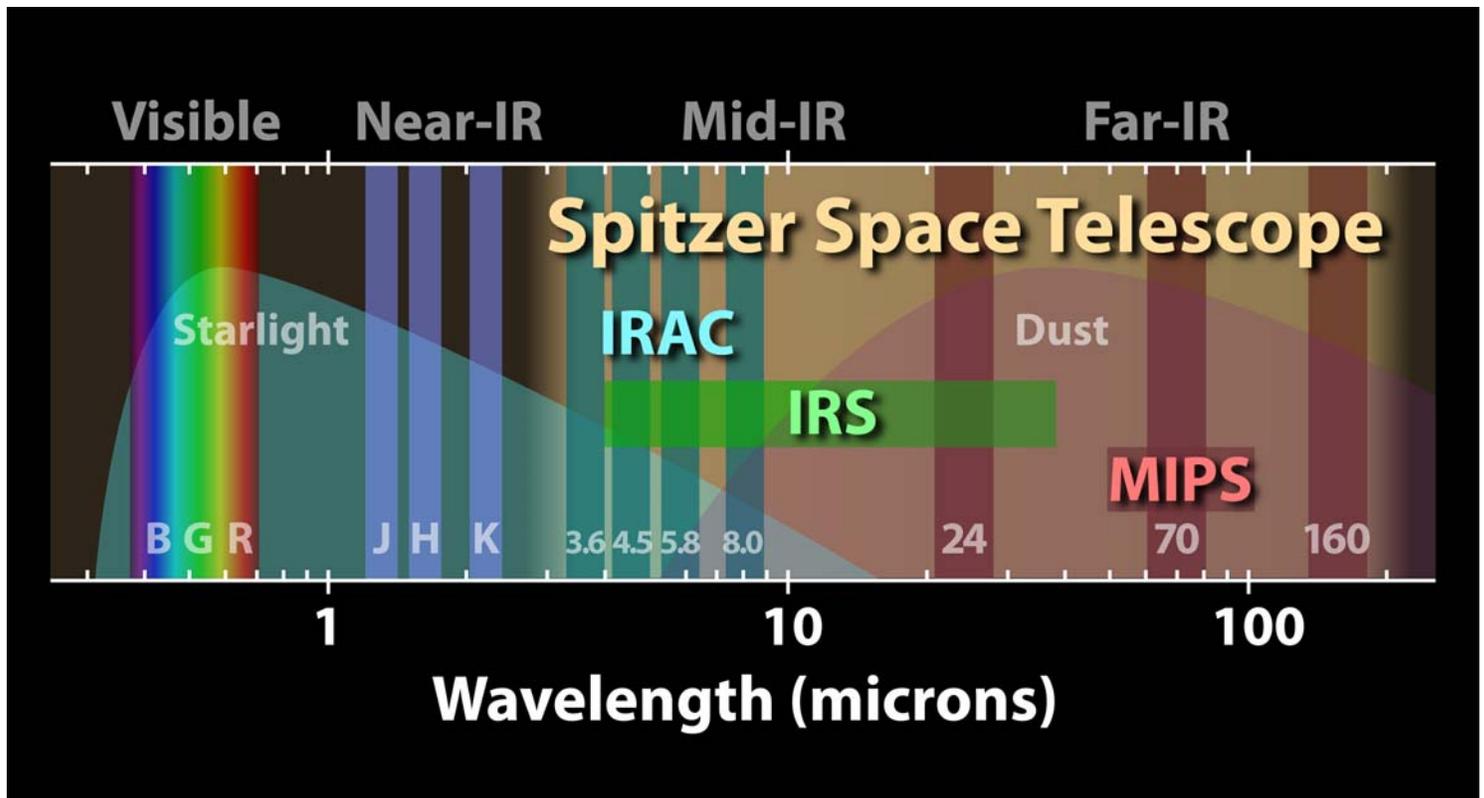
And with more telescope time available for the remaining sensors, mission managers can more easily schedule new research proposals designed for those sensors. For example, scientists have recently realized

how to use infrared observations to improve our measurements of the rate of expansion of the universe. And interest in tracking near-Earth objects has grown in recent years—a task for which Spitzer is well suited.

“Science has progressed, and people always have new ideas,” Werner says. In its second life, Spitzer will help turn those ideas into new discoveries.

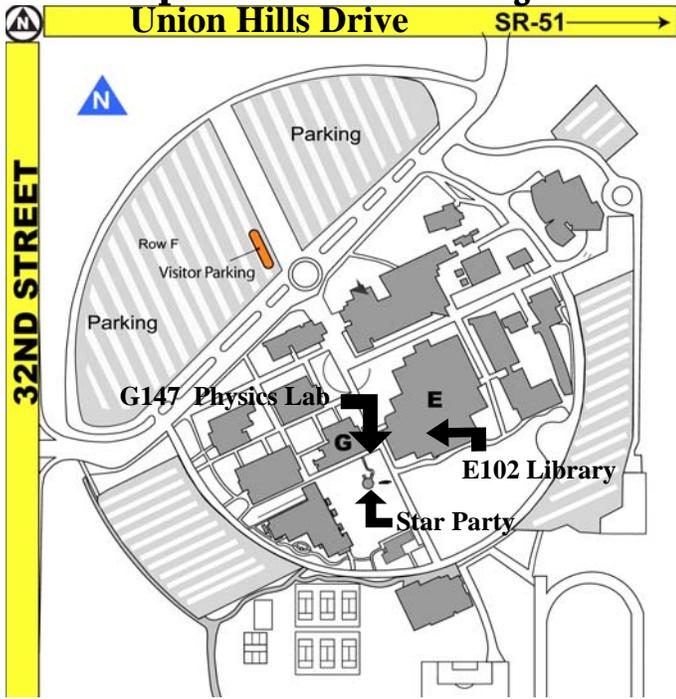
For kids, The Space Place Web site has a fun typing game using Spitzer and infrared astronomy words. Check it out at spaceplace.nasa.gov/en/kids/spitzer/signs.

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



The “warm mission” of the Spitzer Space Telescope will still be able to use two sensors in its Infrared Array Camera (IRAC) to continue its observations of the infrared universe.

Map to PAS Meeting



Post Card Project

By Terri, Event Coordinator

The MOM's for Sept 24 has been canceled. In its place, it was decided, through email, I would address & stamp the post cards, gather the Q & A's from the Forum at <http://www.pasaz.org/forums/showthread.php?t=187>, print the needed docs for everyone involved, & at the October PAS meeting, hand out what is needed to do the follow-up phone calls to the Resorts, to those PAS members who want to earn money showing the night sky. Please be sure to attend the October meeting if you are part of the PASTIMES STAR TOURS GROUP & want to be paid doing star parties. Be sure to get in the forum & let me know you are part of the phone group. This project should to be completed prior to end of October to ensure we get some PAID STAR PARTIES. ***

Kids Say the Darndest things

Janet Reid was driving her daughter westward after the Malibu fires when the smoke in the sky made everything look surreal. "Oh, Wendy, look at the sun," she told her daughter. "It looks like a big ball of fire."
The three-year-old preschooler replied: "It is a big ball of fire."
- from Los Angeles Times, Jan 13, 1997

October

See page 5 for more information

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 PAS Meeting	2	3 Seven Springs Boy Scout star party...Private
4	5	6	7	8	9	10
11	12	13	14	15 PAS indoor/ outdoor event	16	17
18	19	20	21	22 Star Party at PVCC	23 Pioneer Elemen- tary School Star Party. PAS Members only	24 VIRTUAL STAR PARTY - PAS Members ONLY
25	26	27	28	29 MOM	30	31

Ads in PASTimes

Ads in PASTimes run for a month and may be renewed on a month by month basis, if submitted by deadline, space permitting. Ads in PASTimes are FREE to members all others are asked to make a small donation. Donations are to be sent to the Vice Prez who will forward them to the Treasurer.

Don Boyd
 PAsTimes Editor
 701 W. Del Rio St.
 Chandler AZ 85225

To:

PAS Speaker Line-up for Fall 2009

By Terri, Event Coordinator

Oct 1: Dan Heim – Topic: “Light Pollution” – <http://heimhenge.com>

Nov 5: Dean Salman – Topic: “Remote Automated Observatories for CCD Imaging” - <http://ccdimages.com/default.aspx>

Dec 3: Ken Herkenhoff - “CCD imaging from the Mars Exploration ***

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What’s Up For October?

By Rod Sutter, PAS President

Planets

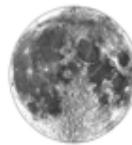
Name	Date	Rise	Set
Mercury	10-1-09	05:06	17:29
Venus	10-1-09	04:25	17:10
Mars	10-1-09	00:16	14:25
Jupiter	10-1-09	15:49	02:21
Saturn	10-1-09	05:27	17:47
Uranus	10-1-09	17:33	05:21
Neptune	10-1-09	16:04	02:52
Pluto	10-1-09	12:35	2300

All Times Arizona Time

Oct 15 2009

Sunrise: 06:12

Sunset: 18:33



Full: October 4



Q3 October 11



New: October 18



Q1: October 26