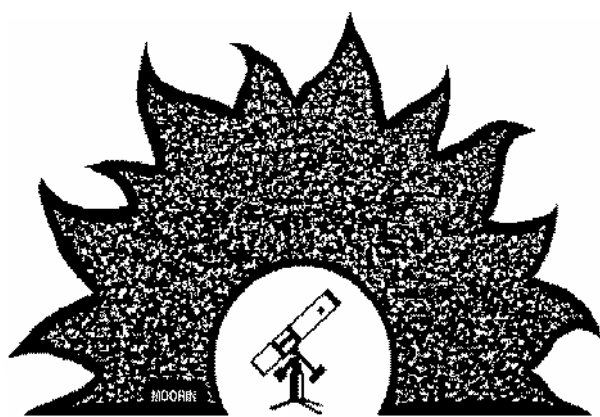




PAStimes

Phoenix Astronomical Society
www.pasaz.org

February 2008
Volume 60 Issue 6

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

February Seventh Lecture to Begin at 7:00 PM

This month PAS is pleased to have as our Speaker Dr. Don Page a Professor of Physics from the University of Alberta. He will be speaking on the topic "Does God So Love the Multiverse?" Please note that the lecture starts promptly at 7:00 PM.

"Monotheistic religions such as Judaism and Christianity affirm that God loves all humans and created them in His image. However, we have learned from Darwin that we were not created separately from other life on earth. Some Christians opposed Darwinian evolution because it undercut certain design arguments for the existence of God. Today there is the growing idea that the fine-tuned constants of physics might be explained by a multiverse with very many different sets of constants of physics. Some Christians oppose the multiverse for similarly undercutting other design arguments for the existence of God.

However, undercutting one argument does not disprove its conclusion. In this lecture, Dr. Page will argue that multiverse ideas, though not automatically a solution to the problems of physics, deserve serious consideration and are not in conflict with Christian theology.

Dr. Page received his bachelor's degree in physics and mathematics from William Jewell College in Liberty, Missouri. He completed a Ph.D. in physics and astronomy in 1976 at the California Institute of Technology, under the supervision of Kip Thorne and Stephen Hawking. Page was a postdoctoral researcher under Hawking at the University of Cambridge in England 1976-79. He served as Professor of Physics at Penn State University before moving to the University of Alberta in Edmonton, Alberta, Canada where he pres-

ently holds the position of Professor of Physics."



Upcoming Events of Interest for February

By Terri, Events Coordinator

You won't want to miss some of these exciting events. Please look them over, and join us. RSVP where required!

Feb 7: We have an awesome speaker for the Feb PAS Meeting. Please see front page about this event. This speaker will begin PROMPTLY at 7pm. Do not be late. We expect a huge turnout. No snacks or drinks will be provided at this event and none are requested either. This is a County wide invite, so seating will most likely be limited. See you there!

Feb 9: Come to the PAS SOCIAL. If you haven't already RSVP'd I NEED to know you are coming, to make name tags and include you in all the events. Just a list of people attending will be fine. Remember,

we are gathering at 4pm, eating at 5pm, cleaning up and playing darts at 6pm. By 7pm we will start the White Dwarf Gift Exchange, and by 9pm we will be helping Rod and Sue clean up before we depart by 10pm. Remember to bring: Food and Drink to share (one per person), White Dwarf gift if you wish to play the game, your Dart throwing arm, and a Table Decoration if you wish to participate in that. Bring also any Door prizes you wish to donate for this purpose, as we are still lacking prizes. No Prize is not much fun. Prizes do not need to be wrapped. Thanks for your help and your RSVP! RSVP's so far (and if you are not on this list you are not planning to attend so let me know today you are coming...) Ed, Bette, Bruce Wurst, William & Terri Finch, Rod and Sue Sutter, Sam and Frank Insana,

Jerry Belcher, Don Boyd. Where's your name?

Feb 10: Bookman's is the location. Time is 3pm to 6:30pm. Mike will be doing a special presentation beginning at 3:30pm "Stars and Stellar Jets." Bring everyone you know, and please RSVP your attendance. We have one public RSVP so far. He wants to know about purchasing a new telescope. If you can help with that info, or if you want to see Mike's presentation, let me know you are coming. Seating is limited. Dinner afterwards will be at Carlos O'Briens at 12th Street and Northern.

Feb 14: Happy Valentine's Day. Join us for a star party at PVCC 6pm to 10pm by the Telescope Domes. RSVP is with Rod for this event.

Continued on page 6

Arizona Sky



By Leah Sapir

The winter circle stretches across the sky this month, although Leo the lion is starting to reappear in the east, reminding us that spring is just around the corner!

Now that Canis Major is fully visible, we can explore this side of the winter circle. Starting from Sirius, the stars of Canis Major make an easy dot-to-dot stick figure of a dog, although the triangle representing the dog's head might be difficult to see in light-polluted areas. If so, you can probably see those three stars with binoculars, or just consider Sirius to be the dog's head!

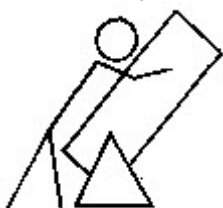
Canis Major, and the area around it, is full of open clusters, many of which are visible in binoculars. An easy one to find is M41, sometimes known as "the Dog Spot Cluster", about 1/3 of the way from the dog's "foreleg" to the dog's "hind leg" - i.e. from the line joining Sirius and Mirzam (beta Canis Majoris), to the line joining Wezen (delta CMa) and Adhara (epsilon CMa). Several of the stars in this cluster are red or orange giants, making the cluster somewhat colorful compared to other open clusters.

M41 was observed 2300 years ago by Aristotle, who described it as a "cloudy spot" in the sky. It was also observed by Giovanni Hodierna, whom we talked about last month.

If we follow the line from Mirzam through Sirius and continue for about 12 degrees - about twice the length of the dog's "foreleg" - we come to an interesting trio of clusters: M46, M47, and NGC 2423. All three should be visible in the same field of binoculars; but their proximity is an optical illusion. While they share the same line of sight, M47 is about 1500 light years away from us, M46 is about 4500 light years away, and NGC 2423 is somewhere in the middle, around 2500 light years away.

Although we know it by its Messier number, M47 was actually discovered by Giovanni Hodierna in the 1600's. M46 was discovered by Charles Messier in 1771, and NGC 2423 was discovered by William Herschel in 1786.

M46 also includes a surprise: planetary nebula NGC 2348. While this nebula seems to be embedded in M46, it's actually a foreground object,



about 3000 light years away. But while the clusters can be seen in binoculars or a small telescope, NGC 2348 is more of a challenge, requiring dark skies and high magnification to be visible.

M46, M47 and NGC 2423 are not actually in Canis Major, but in the neighboring constellation of Puppis. The surrounding area has more clusters: M93 in Puppis; M48 in Hydra; and M50, NGC 2244, and NGC 2264 in Monoceros (an almost-invisible constellation representing a unicorn, between Sirius and Orion). NGC 2244 is a young cluster of bright stars, and is located at the center of an emissions nebula, the Rosette Nebula. Its stars apparently formed from the dust and gas of the Rosette Nebula during the past 2 million years, and they are now making the nebula glow. But although the cluster can be seen in binoculars or a small telescope, the nebula is very faint and requires dark skies and high magnification. The cluster and nebula are estimated to be about 5000 light years away.

With all of these open clusters, is there anything else in this area? Yes! The constellation Lepus - a rabbit sitting just below Orion's feet - holds the globular cluster M79, estimated to be about 40,000 light years away. Most globular clusters are located in a halo around the center of our galaxy, but M79 is a loner, farther out from the center of the galaxy than the sun is.

Another attractive object in Lepus is the variable star R Leporis, also known as Hind's Crimson Star. This is a carbon star, an old star that has finished fusing its hydrogen into helium, and its helium into carbon. A carbon star is surrounded by molecules of carbon compounds, and these filter the light and make the star look very red. Carbon stars, by nature, are unstable at this late stage of their life, and this causes the variability that we see as gravity causes them to contract a little, squeezing out a little more fusion; the heat of the fusion makes them expand; the expansion stops the fusion and cools the outer layers; and the outer layers then contract again due to gravity. R Leporis varies from about 6th magnitude to about 12th magnitude over a period of around 14 months.

This February brings us two planetary conjunctions, both in the predawn sky: Venus and Jupiter on February 1, and Venus and Mercury on February 26. But, you'll need a clear eastern horizon to see them, because they'll be very low in the

sky! Getting up at 5 am to view the events is an extra bonus, of course.

During the first few days of the month, Mercury will still be an evening star, low in the southwest during twilight, and setting about an hour after the sun. But by the end of the first week, Mercury will disappear into the sunset, to reappear as a morning star by midmonth. Venus, which has graced our early morning skies for the past few months, will still be a morning star during February, but rising later and later. By the end of the month, both Mercury and Venus will be rising about an hour before sunrise, passing each other in the sky on February 26. Jupiter will also be visible in the predawn sky, rising steadily earlier (and moving away from Venus) as the month progresses: 5:30 am at the beginning of February, and 4 am by the end of the month.

Mars will be high in the sky at sunset throughout the month, between the horns of Taurus, and it will be visible for most of the night, but setting earlier each morning: 4:30 am at the beginning of February, and 3 am by the end of the month. Saturn, still in Leo, will also be visible for most of the night. It will rise around 8 pm, soon after sunset, at the beginning of February, and by the end of the month it will rise around 6 pm, and will already be in the sky when the sun sets.

The big event of the month, though, is the lunar eclipse on February 20. A lunar eclipse can be viewed from anywhere on the nighttime side of the earth; but depending on your time zone, the eclipse might be at an inconvenient time for viewing. Arizona will have a ringside seat for this one though: the eclipse will begin at 6:45 pm MST and end at 10 pm. Couldn't ask for better timing! (Now we just need to hope for clear skies...) The phase of totality will last from 8:00 to 8:50 pm.

A lunar eclipse is a fascinating event to watch. At first it seems like the moon is just going through its phases in fast motion; but when the moon reaches totality and the whole moon is bathed in the earth's shadow, it begins to glow with a golden (and sometimes reddish) light - the effect of sunrises and sunsets around the world, reflected from the moon's surface. The exact color varies from one eclipse to the next; what color will the eclipsed moon be this time around?

Arizona Sky

A lunar eclipse doesn't require a telescope, but a telescope or binoculars will show interesting details as we watch the darkness falling over the craters and mountains of the moon. Interestingly, while we see this as a lunar eclipse, an astronaut (or

alien ☺) on the moon's surface would see this event as a total eclipse of the sun!

PAS will be holding a star party on February 20 to view the eclipse, and also to get in a little Mars viewing while the red

planet is still relatively close to us. Hope to see you there!

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

Bookman's Telescope Workshop 1/13 Review

By Terri, Events Coordinator

We had an awesome turnout at this event! Shannon, a teacher at N. Canyon H.S. came with her school scope. She and Rod spent a bunch of time setting it up and talking about how to use it. Cherie came with the intent of getting notes on how to set up her scope. She didn't bring the scope but we found out what kind of scope it was and helped her to write down instructions on how to align it. She was pleased with the info. And then there was a nice couple Frank and Shalise who have a newly purchased scope. They brought it and Rod and Bruce assisted in the set up and demo of that one.

While at the workshop, Rod and I decided to schedule a special Telescope Training Workshop for 1/19. As you know, the Social was canceled due to Termites. How dare they eat our floor just before our party! Anyway, we have since rescheduled that

event. But since we weren't doing anything on that date, we set up to have a telescope training session. 2 RSVP's were made at this Bookman's event by Frank and Shannon. I then, the next day, sent out a request to have PAS volunteers come help at the telescope training workshop.

I took photos at this event to cover for our Editor who couldn't make it. You can view them at <http://tinyurl.com/32n6hg> for the next 3+ months.



After the telescope workshop, we went to dinner at Carlos O'Briens. I wish to thank Bruce and Rod for all the help with the 2 telescopes. I wish to thank William and Sue for their assistance, William on the computer, and Sue with her info on recoating a mirror. I wish to thank Shannon, Cherie, Frank and Shalise for attending our workshop. We hope to see them again at more PAS events! ***

January Speaker – Topic for Next M.O.M. 1/31 PVCC G-147 7pm

Have you ever wondered why PAS doesn't have a speaker for January? Well, I was talking, for quite a long time, to Jerry Belcher, the other day. Jerry said that he joined PAS a long, long time ago, and then faded away for about 22 year. When he returned, he got talked into being Vice Prez. Well, as Vice, it was, then, his job to find the speakers for the club meetings. One year, he was unable to find a speaker, so they canceled that meeting, that year. Instead, they talked about have the PAS Social at Heimhenge (Dan's house). Well, from that day forward, the January PAS meeting never existed and instead there was the Social. Now, at that time it was called the Holiday Social, meaning it was an after Christmas Christmas party for the club members. Currently, we are calling it the PAS Social, and it has nothing to do with a holiday. The idea behind our current Social is to enjoy the company of your fellow astronomers, see what they look like by daylight, and get to know them a bit more,

away from their telescope. We Socialize, enjoy food, and play games at our Social event. And we are getting away from it being a HOLIDAY SOCIAL, and more of a CLUB SOCIAL.

Now, what came of this discussion with Jerry is that he wants to start in with having January speakers and meetings. So, we will be discussing this topic at the next MOM and I will, if everyone agrees this is a good idea, plan to have a speaker at our Jan 2009 PAS meeting. So, if you have input on whether to do this or not, please come to the Meeting of the Minds and share your mind with PAS.

The PAS Social for Jan 19, 2008 has been Canceled, and is in the planning stages to be moved to February. I got word today of a possible date, however, I can not confirm it until I talk to Mike, as his star party falls on that date. If he is willing to give up his Star Party date in trade for the Social, we will go with the new Feb date. I hope to hear

from him tonight and if we do, the notice will go out tomorrow morning. I would think that since Mike is working on his septic tank piping, that he would want some extra time to get ready for the next star party at his home. We will see. Watch for the notice! And attend the MOM on Jan 31st to find out if we will be having a January Speaker/Meeting.

The other thing Jerry wants to do is have it be a Members' night. We should have one date in our schedule that allows for PAS Members to share their interests in a brief presentation. Jerry said we used to do that at the May PAS meetings but, that has changed to a Speaker scheduled for that night. I think I accidentally did that change. Anyway, we may make the January meetings a MEMBERS NIGHT, for years to come. So, start planning your brief, 5 – 15 minutes presentation now, in case that is voted on by the members at the MOM's. We need your input! ***

The Year Ahead 2008

By your PAS Events Coordinator, Terri

We have an exciting year coming up. Please put the following dates on your calendar and sometime prior to a week before the events, RSVP if you wish to help with them or attend any of them. There will be more events, as the school year progresses and elementary schools contact us for star parties. But currently, here are the PAS events you will definitely want to attend!!!

These are only a few of our events listed here. Please see the Upcoming Events list on line, or in the Digest, or on a printed page picked up at any PAS event for a more current list as well as directions to and maps to these events. I begin our list with February because this article is in the Feb Newsletter. And I do not list all the dates for all the events. We hope you will check back with us often for more info on more events as the year unfolds. I highlight the really cool events we have scheduled so far.

We begin our year with the PAS Social on Jan 19th. Then it just gets more and more active and interesting as the year goes on.... I hope everyone had an awesome time at the Social. See you again next year for the PAS Party!!!

BOOKMAN'S TELESCOPE WORKSHOPS

Throughout the year, we have many telescope workshops. If you have a telescope and need assistance learning how to use it, please, look at our upcoming list of events or check with Terri for a flyer of just the Bookman's Telescope Workshops for 2008, and join us. We have a fun time helping you learn about your telescope and the accessories you can get for it. Some of the dates starting in February will be: Feb 10th, Feb 24, Mar 30, May 25th + more. We hope to see you at one, if not, all of these learning experiences.

MARS PARTIES

While Mars is still in sight in the evening skies, PAS is hosting several Mars Parties. These are held at PV Park from 6pm to 10pm. Mars is still visible after 10pm but because the park closes, we must depart. However, you can take your telescope or binoculars and view it after 10pm from your home or another dark location. We offer a variety of views of Mars at our Mars Parties. Please RSVP with Rod if you plan to attend. The 2008 Mars Party dates for February forward is the last one on Feb

16th, Mars Party #4. You won't want to miss this party!

FULL MOON PARTIES & METEOR SHOWER PARTIES

We have several wonderful new star parties lined up for 2008. If you haven't already attend and would like to do so, please RSVP with Terri. These are held at PV Park from 6pm to 10pm, and like the Mar's Parties, you can go home when the park closes and continue the viewing of the Full Moon or Meteor Showers. Some of these 2008 dates are: Full Moon Feb 20th, Full Moon Mar 21, Meteor Shower May 3 + more. PAS Hopes to see you there!

ASTRONOMY LECTURES at locations other than PVCC Library

PAS has set up some extra informational lectures. Some with and others without star parties. We have 2 locations we are doing these extra lectures. Bookman's back room will be one location. Watch for announcements of these special events. And we are now doing special Lectures and star party combos at North Mountain Park Visitor Center. This year promises to be a great year for Astronomy. Here are some dates to add to your calendar:

The first of 2 Lectures done by Mike will be at Bookman's on Feb 10th. The Bookman's Telescope class is from 3pm to 6pm, but the Lecture starts at 3:30pm. Those wishing to attend the workshop and/or lecture must RSVP with Terri.

There will be a star party, without lecture on Mar 14 at North Mountain Park Visitor Center (N. Mt. Pk. V.C.) from 5pm to 9:30pm. RSVP with Terri for this event.

The second of Mike's lectures will be held at North Mountain Park Visitor Center at 5pm on Apr 26. The star party will begin after the lecture. Lecture begins at 6pm. Star party will run until 9:30pm. RSVP with Terri.

And there will be one more star party without a lecture at N. Mt. Pk. V.C. on May 9th beginning at 5pm and going until 9:30pm. Again, RSVP with Terri.

PAS is also considering ONE Summer Lecture scheduled for this summer sometime between June 1 and July 4 during the PVCC Summer class session. Watch for the announcement of this special Lecture/meeting.

SALLY RIDE FESTIVAL

Every year PAS volunteers to help promote astronomy to the girls who attend the Sally Ride Festival. We will be looking for volunteers to do Solar Viewing, as well as projects with the girls. We had a fun game last year, where the girls went from scope to scope, collected a playing card, came up to the front PAS table and tried to beat me playing poker, their cards against ours. They won prizes for doing it. This year we should come up with a new game, even though the girls are not repeat. It is a different group of 5th and 6th graders each year. The Sally Ride Festival is from 11 - 4pm at ASU Tempe campus. Your help is requested. They feed us breakfast and lunch for our help. RSVP with Terri if you plan to attend.

SPEAKER LINE UP

We have an awesome speaker line up for this year. Please see the flyer on line or check the Digest or the site (PAS Meetings) for more details. You won't want to miss the 1st Thur of each month with PAS at PVCC in the Library from 7pm to 9:30pm.

PAS INDOOR EVENT

Plan now to join us on Apr 10 at PVCC In G-147 for a free, hands on, demonstration and learning experience for kids and adults of all ages. We will have an awesome collection of things to learn about plus, even though this says it is an indoor event, as long as the weather is cooperative, we will also have telescopes outside viewing various objects. Come join us. If you wish to volunteer or attend, RSVP with Terri.

A second Indoor event will be happening from 7:30 to 9:30 on Oct 23rd.

PAS SCHOOL STAR PARTIES

PAS Hosts many elementary school star parties. The first one listed, so far for this year is Sunset Ridge. This is the school that we all enjoyed last year. The date for this star party is Apr 11th. RSVP with Terri to help out.

MAYER GIRL SCOUT STAR PARTY

Now, this is our biggest day/night star party of the year. Apr 12th we will be enjoying the 1200+ girl scouts and their troupe leaders in Mayer for the biggest astronomy event PAS has ever done. We have a ton of really awesome activities planned for day and night, plus they will be feeding us and giving us over night accommodations. If you haven't already RSVP'd and would like to

The Year Ahead 2008

attend this event to help out, please do so with me Today. We currently have 24 PAS Members doing this event. More scopes are welcome. This will be an all day event. We will arrive in Mayer by 11am, spend all day, into the night hours, and then sleep over to Sunday. Come have a blast with PAS in Mayer AZ.

ASTRONOMY DAY 2008

May 2 is Astronomy Day this year. We will be holding an astronomy day, solar viewing by day, evening viewing by night, event from some morning hour, undecided to 10pm on the PVCC Campus by the Telescope Domes. If you wish to attend or help out, please RSVP with me today. More details will be posted as we have them. Come to the next PAS MOM to find out more or help with ideas for this event.

PVCC STAR PARTIES

PAS Hosts several PVCC Star parties on the PVCC Campus by the Telescope Domes. We try to do 3 of these star parties in a semester and the public is welcome at these events. Would love to have you attend. RSVP with Terri to help out or attend. These star parties are always on a Thursday night. Some of these dates for this year are: Feb 14, Mar 13, May 8, Jun 12, + more.

HIGH DESERT PARK & TWO TREES STAR PARTY SITES

For the cooler months of the year, Feb, Mar, Apr, we hold our Deep Sky Star Party and 3rd Quarter Moon Star Parties at High Desert Park in New River. For the warmer months, May, Jun, Jul, Aug, Sept + more, we hold them at the Two Trees Site north of Cottonwood. If you plan to attend, and because these star parties require a fee, please RSVP with Barbara. She collects the fee at HDP. For the Two Trees Site, if you plan to attend more than one time, it is best to get the PASS that allows you to attend many

times during the year. That pass is NOT gotten through Barbara, however, if you drop her an email or phone call, she can tell you how to get one. We'd love to see you there! This is the star party you want to attend to see those fainter objects and really get to know the darkness of the night sky. It is well worth your trip. Please remember, the Two Trees site does not belong to PAS. We are guests when visiting this site hosted by the Sedona Serius Observers. Dennis Young is in charge of that star party but you can RSVP with Barbara for weather conditions and so you may caravan out to the location. At both locations, please arrive before Dark. This is a requirement so you do not ruin the viewing pleasure of everyone involved with the headlights of your car.

LUNAR ECLIPSE STAR PARTY

This year we will be treated to a Lunar Eclipse on Aug 16. This star party will be held at PV Park 5pm to 9:30pm. The Lunar Eclipse will occur around 9pm. Prior to that event we will be observing the Full Moon and possibly enjoy the coloring of the Eclipse at the time when the Moon is partially eclipsed for a more exciting view. You won't want to miss this event. RSVP with Terri.

And to close out the year, there will be another Lunar Eclipse, possibly a star party involved, on Dec 31st.

ANTHEM STAR PARTY

No one has asked, "Where is Anthem scheduled for this year?" Well, here it is. Anthem decided in order for us to do a "whole day" event, they would have to schedule us when nothing else was happening. So, we are scheduled to do an event from Noon to 10pm on Nov 1. We'd love to have a bunch of volunteers. This is a Saturday. If you can't make the day time event, RSVP for just the night viewing. We'd like

to see 20+ scopes for the evening event and 10+ hands on day time activities going on throughout the day. Solar Viewing would be appreciated as well. RSVP with Terri for this event and come have a great time with us!

MEETING OF THE MINDS

In closing this article of AWESOME UPCOMING PAS EVENTS, I'd like to mention that the planning of these events as well as how PAS is structured and involved these events comes from those who care about PAS by attending the Meeting of the Minds. This is where we spend a few hours discussing and planning and organizing events and business related stuff. We meet, and this is an ADULTS ONLY meeting, at PVCC in G-147 through out the year mostly on the last Thursday of each month. Your attendance is requested. Come help us make the decisions that makes PAS run smoothly. We'd love to have your input. Most of the time, we have a few topics, we discuss them starting at 7:30pm (meeting opens right after class gets out, usually 7:10) and sometimes we get done early like 8:30 this last time (December). And then we play on the computers, and talk about fun stuff, and enjoy each other's company and sometimes Dave shows us meteorites, etc. Other times the meeting takes until 10pm. The option is there, however, you do not need to stay to the end unless your topic is last on the list. Please come help us make the decisions that makes PAS A WONDERFUL ASTRONOMY CLUB TO BELONG TO. See the schedule for upcoming dates. The next one will be Feb 28th. We hope to see you there! HAPPY NEW YEAR 2008! Let's all have a loving, fun, prosperous, astronomy filled new year! SEE YOU AT THE PAS EVENTS! ***



Photos of the Bookman's Telescope class taken by Terri January 13

Telescope Training Class at PV Park 1/19

By Terri, Events Coordinator

A huge thanks goes to Bruce Wurst and Rod Sutter for their assistance with this class. We had three instructors, 2 mentioned above and myself, and 3 telescopes that needed instruction. It started around 5:30pm on this particular Saturday. It wasn't cold YET! First to arrive was Shannon. She brought her school telescope which was an Orion. It has some great views. Bruce helped her the most with it and we found the Moon, Mars, Orion Nebula, Betelgeuse, and a few other cool items with it. She was finding

the objects with a little help. Shannon did very well. Next to arrive was Frank. Frank brought his 4". His issue was misalignment and we helped him polar align and find the Moon and Mars, but he can use a little more instruction and help with his scope. He also could use to have it collimated. Then Keith showed up and his 8" Meade LX200 was giving him difficulties with the Go-To portion of it. Bruce and Rod played with it and tried to figure it out but somehow, it just wasn't cooperating. We would like get Keith and Don together sometime, at a future training class. The tempera-

tures started to drop, and the wind picked up just enough to blow that cold air right though everyone, and so, the class ended around 8:30pm. It was a good class, and I appreciate everyone braving the cold. We will be holding another class like this, same location, but preferably in warmer temperatures, sometime in March. Watch for the Announcement. It will be around the 3rd Q Moon as that lends itself to lighting the observing area, and a good object to try out a new scope on. Thanks to all the help and to the 3 brave frozen folk who joined us for the class. ***

Total Eclipse of Moon 2/20

Please watch the Total Eclipse of the Moon. Go outside on Feb 20th, around 7pm and watch the Moon get eclipsed. That's when the Earth's shadow, cast by the Sun, falls upon the Moon, turning it a dark red color. This is an awesome event and you can do it from your home. Look to the East, where the Moon will be rising.

PAS is doing a star party for this event. We are not only watching the Eclipse that night, but also, enjoying other objects and the Full Moon when it isn't eclipsed to view the Craters. This event, if you wish to attend, is at PV Park - 40th Street and Union Hills, from 6pm to 10pm. There will be telescopes set up for

viewing. BYO Chair, Snacks, Drinks, and Jacket. More info about this event can be found on our website www.pasaz.org UPCOMING EVENTS (in left hand column). The eclipse begins around Moon rise 6:45pm and is visible until 10pm. 8:30pm the Moon should be in Totally Eclipsed. Bring everyone you know to the star party, or tell them about it so they can view it from their home, as well.

Dennis Young adds this info about the Lunar Eclipse:

Local arizona time....

1) On Thursday Feb. 7 at Sunset (6:02:47 PM MST, Azimuth 251.9 deg.) the Moon will be 21Hr. 18 Min. old, 2 Hours

younger than last March 19th young moon viewing.

2) Wednesday Feb 20th--

Total Lunar Eclipse;

Penumbra begins? 6:05 PM

Partial starts 6:43 PM

Total starts 8:00 PM

Mid 8:26 PM

Should be Partial 8:53pm begins--/totality(ends)

10:09PM -Should be partial-(ends)

Penumbra ends? 10:45 PM

Upcoming Events of Interest for February

From page 1

Feb 16: Mars Party #4: The last of it's kind. PAS Is hosting the 4th Mars Party to view the beautiful Red planet in the sky. RSVP is required with Rod. No RSVP the star party will be canceled. Dress warmly. PAS Members are urged to RSVP as well in case of cancellation.

Feb 20: TOTAL LUNAR ECLIPSE Party from 6pm to 10pm at PV Park. RSVP with Rod. Eclipse begins at 7pm and goes till 10pm. Moon Rise is when eclipse begins.

Feb 24: PAS Bookman's Telescope Workshop. From 4:30 to 6:30 bring your scope and questions and learn how to use your scope by daylight. RSVP is required

with Terri.

Feb 28: This is it! This is the ASSEMBLY PARTY. No topics, other than the Mayer April 12th event will be discussed. Come help us assemble the bags of stuff for the 900 Girl Scouts for the Mayer event. This is a party. Bring a snack to share and BYO Drinks. We will begin as soon as we can get in the room and go until we are done with assembly or until 10pm, whichever comes first. We need assembly line folk. The more, the better. Drop me an email or let me know you are attending so I can get an idea of who is coming. This is a PARTY! Come have fun with us!!! All copies and bag items should attend with you and empty

boxes are very much needed. Bring a hand truck if you have one to help get the filled boxes out to the vehicles.

Mar 1: I'm sneaking one more event into this list - SALLY RIDE. Volunteers are needed. Please let me know ASAP that you can attend for the Daytime event from 11am to 4pm. Breakfast and Lunch are supplied. Bring Chair, scope, activities. Help with handouts, or games for prizes for the girls. At the Jan 31 MOM, help decide what activities we will want to do there, this year.

Now, isn't that an exciting month and you will want to attend most of these events. RSVP where required and please come have fun with PAS!!! ***



by Patrick L. Barry

Imagine someday taking a driving tour of the surface of Mars. You trail-blaze across a dusty valley floor, looking in amazement at the rocky, orange-brown hillsides and mountains all around. With each passing meter, you spy bizarre-looking rocks that no human has ever seen, and may never see again. Are they meteorites or bits of Martian crust? They beg to be photographed.

But on this tour, you can't whip out your camera and take on-the-spot close-ups of an especially interesting-looking rock. You have to wait for orders from headquarters back on Earth, and those orders won't arrive until tomorrow. By then, you probably will have passed the rock by. How frustrating!

That's essentially the predicament of the Spirit and Opportunity rovers, which are currently in their fourth year of exploring Mars. Mission scientists must wait overnight for the day's data to download from the rovers, and the rovers can't take high-resolution pictures of interesting rocks without explicit

instructions to do so.

However, artificial intelligence software developed at JPL could soon turn the rovers into more-autonomous shutterbugs.

This software, called Autonomous Exploration for Gathering Increased Science (AEGIS), would search for interesting or unusual rocks using the rovers' low-resolution, black-and-white navigational cameras. Then, without waiting for instructions from Earth, AEGIS could direct the rovers' high-resolution cameras, spectrometers, and thermal imagers to gather data about the rocks of interest.

"Using AEGIS, the rovers could get science data that they would otherwise miss," says Rebecca Castaño, leader of the AEGIS project at JPL. The software builds on artificial intelligence technologies pioneered by NASA's Earth Observing-1 satellite (EO-1), one of a series of technology-testbed satellites developed by NASA's New Millennium Program.

AEGIS identifies a rock as being interesting in one of two ways. Mission scientists

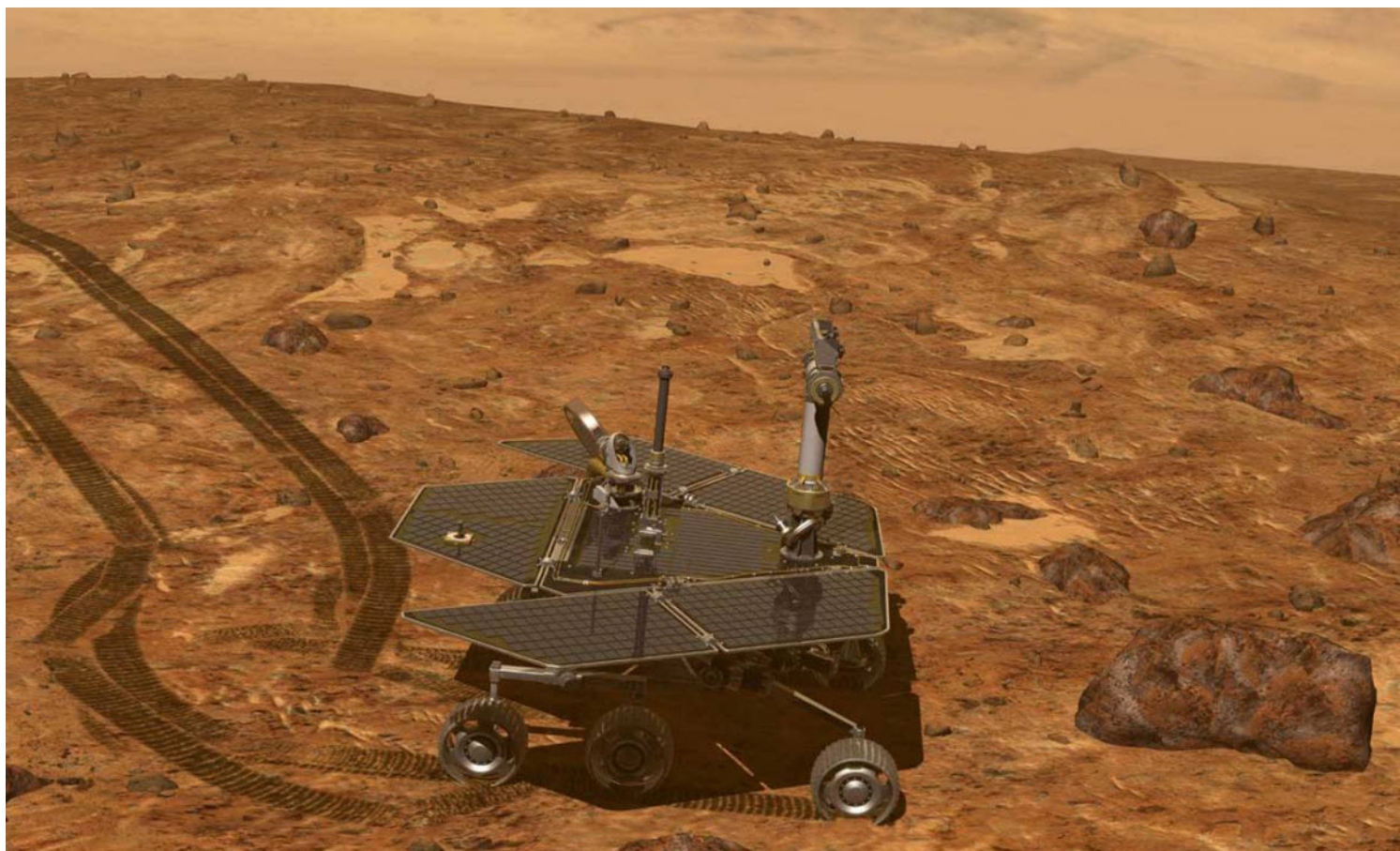
can program AEGIS to look for rocks with certain traits, such as smoothness or roughness, bright or dark surfaces, or shapes that are rounded or flat.

In addition, AEGIS can single out rocks simply because they look unusual, which often means the rocks could tell scientists something new about Mars's present and past.

The software has been thoroughly tested, Castaño says, and now it must be integrated and tested with other flight software, then uploaded to the rovers on Mars. Once installed, she hopes, Spirit and Opportunity will leave no good Mars rock unturned.

Check out other ways that the Mars Rovers have been upgraded with artificial intelligence software at <http://nmp.nasa.gov/TECHNOLOGY/infusion.html#sciencecraft>.

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

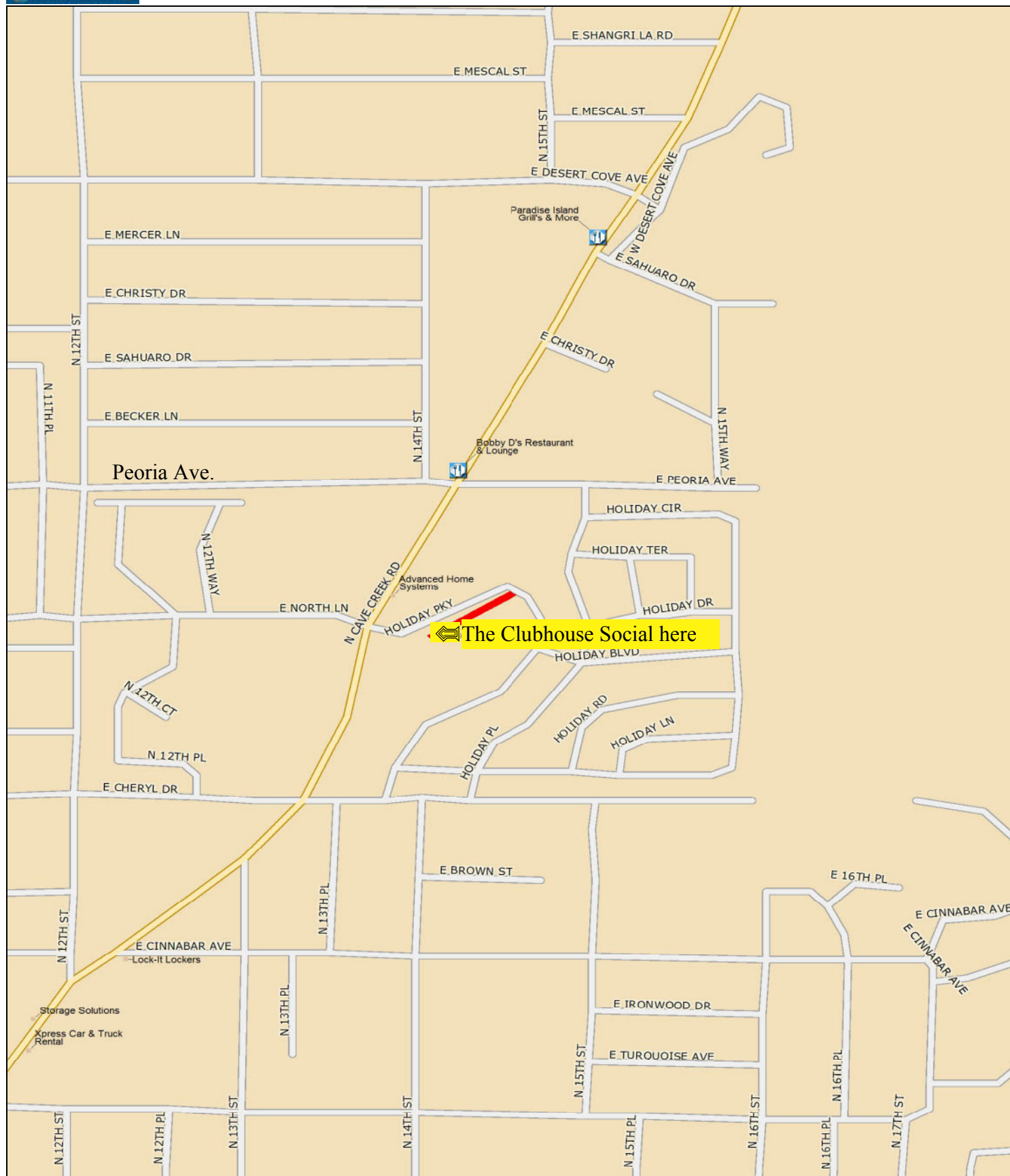


Are these rocks of any scientific interest? With the new AEGIS software, the Mars Rovers, Spirit and Opportunity, will be able to judge for themselves whether a scene is worth a high-resolution image. (Artist's rendering.)

Map to Social February 9

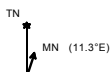


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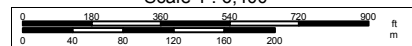


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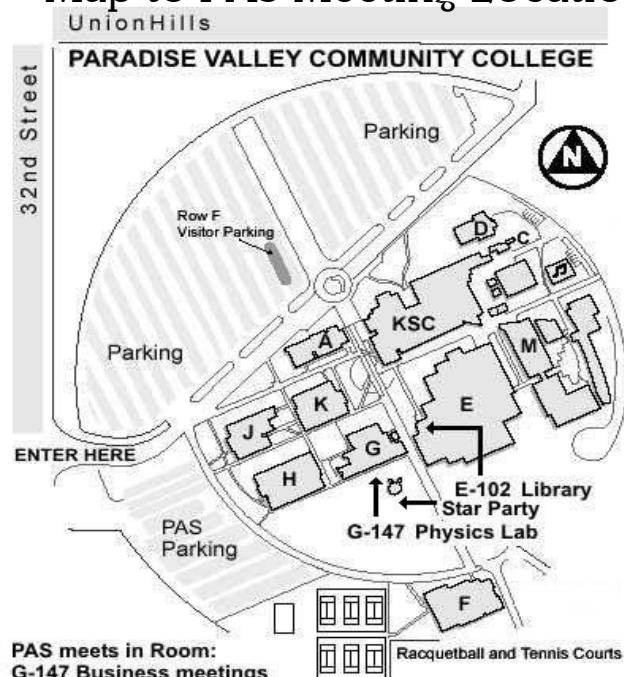
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Scale 1 : 6,400



Map to PAS Meeting Location



Black Canyon City Site



February 2 Saturday	Sundown to Moonrise	High Desert Park Jacie Lane Black Canyon City, AZ 85324	PAS 3rd Quarter Moon Star Party All are Welcome! \$2 per car donation request. RSVP with Barbara Hartman to attend.
February 7 Thursday	7 pm to 9:30 pm	Paradise Valley Comm. College 18401 N. 32nd St Phoenix, AZ 85032 Union Hills and 32nd St. Library	PAS General Meeting Dr. Don N. Page, University of Alberta in Edmonton, Alberta, Canada, "Does God So Love the Multiverse?" Lecture to start at 7:00 not 7:30 due to Dr Pages schedule
February 9 Saturday	4pm To 9:30pm	Clubhouse	PAS Social Open to all members and their families. We'll have lots of games and good food to share. See Article page 1
February 10 Sunday	3:00 pm to 6:30 pm	Bookman's Back room 8034 North 19th Avenue Phoenix, AZ 85021-5101	PAS Bookman's Free Indoor Telescope Workshop 19 Ave. & Northern - Bookman's back room See Article Page 1
February 14 Thursday	6 pm to 10 pm	Paradise Valley Comm. College 18401 N. 32nd St Phoenix, AZ 85032 Union Hills and 32nd St. Near the telescope deck behind room G147	PAS/PVCC Public Star Party *** Volunteers Needed *** RSVP with Rod Sutter to attend or to help out. * Weather Permitting *
February 16 Saturday	6 pm to 10 pm	Paradise Valley Park 40th and Union Hills Rd. Phoenix, AZ 85032	MARS PARTY (4th of 4) Come see Mars as it make a close approach to Earth and shows us awesome details on its surface. RSVP required with Rod See article Page 1
February 20 Wednesday	6 pm to 10 pm	Paradise Valley Park 40th and Union Hills Rd. Phoenix, AZ 85032	PAS Lunar Eclipse Party *** Volunteers Needed *** RSVP with Rod to attend or to help out. * Weather Permitting *
February 24 Sunday	4:30 pm to 6:30 pm	Bookman's Back room 8034 North 19th Avenue Phoenix, AZ 85021-5101	PAS Bookman's Free Indoor Telescope Workshop I-17 & Northern - Bookman's back room See article page 1
February 28 Thursday	7 pm to 10 pm	Paradise Valley Comm. College 18401 N. 32nd St Phoenix, AZ 85032 Union Hills and 32nd St. Room G-147	PAS Meeting of the Minds No children please (business meeting)

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 Editor who will forward them to the Treasurer.

For Sale

Super Plossl 5.5mm Eyepiece 1.25 Inch (Hardly Used):\$50.00(new on the market \$89)

Super Plossl 9mm Eyepiece 1.25 Inch (Hardly Used):\$50.00 (new on the market \$89)

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What's Up For February?

By Rod Sutter, PAS President
Lunar Eclipse Wed 20th 20:29

Planets

Name	Date	Rise	Set
Mercury	02-1-08	7:48	18:48
Venus	02-1-08	5:28	15:28
Mars	02-1-08	13:55	04:38
Jupiter	02-1-08	5:30	15:25
Saturn	02-1-08	19:48	08:52
Uranus	02-1-08 9:08	20:41	
Neptune	02-1-08 7:56	1840	
Pluto	02-1-08	4:29	14:59

All Times Arizona Time

Meteor Showers

NONE THIS MONTH

February 15 2008

Sunrise: 07:10

Sunset: 18:10



Q3: February 28



New: February 6



Q1: February 13



Full: February 29

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