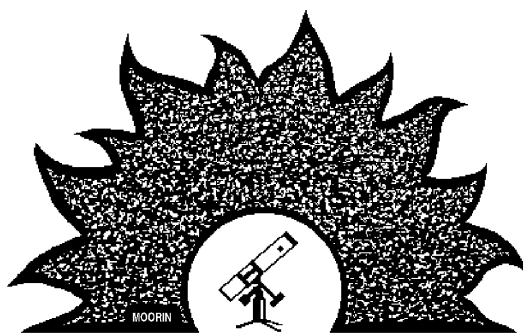




PAStimes

Newsletter of the
Phoenix Astronomical Society
www.pasaz.org

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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Next Meeting: Thursday, May 4th at PVCC, 7 pm, Room E-102

☞ Bob Holmes, the Meteorite Man, will speak about his recent acquisitions, and showcase some pieces from his extensive collection of space rocks. Bob has spoken to us on other occasions, and always has some new and interesting info on these cosmic interlopers. This is your chance to hold a piece of space in your hands. You can check out his website at: <http://www.meteoritebiz.com/>.

Before Bob's presentation, Dan Heim will display some color prints of artwork by Rick Costello. Rick is an aspiring space artist from Manchester, Connecticut. We had planned to display his prints at our last meeting, but time constraints forced us to delay this exclusive showing until the May meeting. You can get an advance look at his amazing work by visiting his website at: www.CostelloSpaceArt.com.

This is also our annual elections meeting. We will vote this night to select the PAS Officers for 2006-2007. Be there to cast your vote and influence the future direction of our society. ★

Last Meeting: Friday, April 14th

by Dan Heim

Dr. Jeff Hester of ASU spoke about the emergence of structure in the evolution of the cosmos. From the Big Bang to Big Brains, he chronicled the influence of fluctuations in the CMB, dark matter, gravity, and stellar birth and death.

His presentation included an excellent collection of multimedia, showing a movie of the Crab Pulsar in action, computer simulations of galaxy formation, and some of the latest HST images. Hester works on the HST team, and is well known for his incredible images of the Eagle Nebula.

We had a "full house" for this special meeting at Foothills Academy in north Scottsdale. About 30 people attended, including some FA students who were there to earn some extra credit in their physics course. A small contingent of astronomy enthusiasts from Terraviva was also present.

Hester's talk ran nearly 2 hours, including Q&A at the end, and the time was well spent. This was one of the best presentations of the season. It's always a thrill to hear from the "front line" of astronomy, and Hester never fails to entertain and educate us on the latest developments. Photos from his presentation are included inside this issue. Thanks Dr. H! ★



No this isn't Bob Holmes, but I'm sure he wishes it was. I couldn't find an up-to-date image of our next speaker. Instead, here's an image of the largest whole meteorite ever found. This rock crashed into the Hoba farm in Grootfontein, Namibia, some 80,000 years ago. It weighs in at 50 tons with a volume of 9 m³. It's shrinking over time, as curious visitors keep breaking off pieces for souvenirs. The estimated age of this space rock is 200-400 million years. Bob will have some samples to pass around, but they won't be as large as this one. He was outbid on eBay by \$3.142 million.

Summer Events Schedule

PAStimes is not published over the summer, so we include here our events listings from May through September (as of April 21, 2006).

Our events schedule changes often. For the latest updates to our schedule, as well as additional details about individual events, please see the Events page on our website at:

www.pasaz.org/events.html.

May Events:

- 5/4: PAS general meeting and elections @ PVCC Room E-102, 7 pm, Bob Holmes (Meteorite Man) on "Collecting Meteorites."
- 5/5: PAS public star party @ ASC, 6-9 pm, volunteers needed.
- 5/5: City of Phoenix Parks star party/camp-out @ South Mountain Park, 7-10:30 pm, volunteers needed, RSVP Rod Sutter.
- 5/6: Astronomy Day @ ASC, 10 am - 5 pm, evening observing 6-10 pm, volunteers and telescopes still needed.
- 5/12: City of Phoenix Parks star party/camp-out, 7-10:30 pm, location to be announced, volunteers needed, RSVP Rod Sutter.
- 5/19: City of Phoenix Parks star party/camp-out, 7-10:30 pm, location to be announced, volunteers needed, RSVP Rod Sutter.
- 5/25: PAS Meeting of the MInds @ PVCC Room G-147, 7:30 pm, dinner at Deer Valley Airport Restaurant 5-7 pm, RSVP Terri.
- 5/27: PAS deep sky star party @ High Desert Park in BCC, sundown-?, RSVP Barb.

June Events:

- 6/2: PAS public star party @ ASC, 6-9 pm, volunteers needed.
- 6/8: PAS/PVCC public star party @ PVCC Track Field, 6-10 pm, volunteers needed.
- 6/10: PAS public star party @ Chaparral Park, 57 Ave & Campo Bello, 6-10 pm, volunteers needed.
- 6/15: PAS Field Trip to ASU Meteorite Dept., 7:30 pm, RSVP Terri.
- 6/22: PAS public star party @ Chaparral Park, 57 Ave & Campo Bello, 6-10 pm, volunteers needed.
- 6/24: PAS deep sky star party and overnight campout @ Braeside Observatory, hosted by Dennis Feather, RSVP Terri.
- 6/29: PAS Meeting of the MInds @ PVCC Room G-147, 7:30 pm, dinner at Deer Valley Airport Restaurant 5-7 pm, RSVP Terri.

July Events:

- 7/1: PAS public star party, 6-10 pm, location to be announced, volunteers needed.
- 7/7: PAS public star party @ ASC, 6-9 pm, volunteers needed.
- 7/9: PAS instructional telescope workshop @ Bookman's Backroom, 8034 N. 19th Ave., 4:30-6:30 pm (class), 6:30-9:30 observing, RSVP Terri
- 7/22: PAS deep sky star party @ High Desert Park in BCC, sundown-?, RSVP Barb.
- 7/27: PAS Meeting of the MInds @ PVCC Room G-147, 7:30 pm, dinner at Deer Valley Airport Restaurant 5-7 pm, RSVP Terri.

August Events:

- 8/4: PAS public star party @ ASC, 6-9 pm, volunteers needed.
- 8/24: PAS Meeting of the MInds @ PVCC Room G-147, 7:30 pm, dinner at Deer Valley Airport Restaurant 5-7 pm, RSVP Terri.
- 8/26: PAS deep sky star party @ High Desert Park in BCC, sundown-?, RSVP Barb.
- 8/31: PAS/PVCC public star party @ PVCC Track Field, 6-10 pm, volunteers needed.

September Events:

- 9/1: PAS public star party @ ASC, 6-9 pm, volunteers needed.
- 9/7: PAS general meeting @ PVCC Room E-102, 7 pm, Dr. David Burstein of ASU.
- 9/21: PAS Meeting of the MInds @ PVCC Room G-147, 7:30 pm, dinner at Deer Valley Airport Restaurant 5-7 pm, RSVP Terri.
- 9/23: PAS deep sky star party @ High Desert Park in BCC, sundown-?, RSVP Barb.
- 9/28: PAS/PVCC public star party @ PVCC Track Field, 6-10 pm, volunteers needed.

Our next newsletter, with updated events for September, will be published on or around Sep 1. ★

Astro Factoids

Contributed by Bette Wurst

A few solar system bodies can be seen during the daytime. The Sun is an obvious subject; the Moon is much less obvious, but can be seen and sometimes catches people by surprise. Dimmer still is the planet Venus. The easiest time to spot Venus during the day is when it's a few degrees from the Moon, and the sky is deep blue for contrast. ★

Captain's Log

By Terri Finch

DISSAPPEARING COMET [Received from Roy]

Space Weather News for April 7, 2006 <http://spaceweather.com> Dying comet 73P/Schwassmann-Wachmann 3 continues to break apart. Astronomers are tracking at least 20 fragments approaching Earth for a harmless but beautiful close encounter in May. In particular, fragment B of the comet has brightened 15-fold since April 2nd. This signals a possible breakup of "73P-B" into even more fragments. Amateur astronomers with backyard telescopes and CCD cameras can monitor the ongoing disintegration. Visit Spaceweather.com for sky maps, images more information.

ELECTIONS

Yes, it is that time of year again. I have heard from several folks on the positions they would be interested in taking however, new blood is a good thing in a club. We have many options of ways YOU can assist PAS by being an Officer. Remember, Officers get nifty name badges that say "President, Vice President, Editor, Treasurer", etc. Why not consider becoming an Officer for the 2006-2007 PAS year? If you are interested in running for office, please let me know so I can mention you when I do the elections this coming May PAS meeting. The meeting will begin with the usual opening of the meeting, announcements, a brief election, and then we turn the meeting over to our awesome speaker – Bob Holmes. Come join us. The talk will be worth your while and you get to meet your new officers for the coming year.

VOLUNTEERS FOR ASTRONOMY DAY AT ASC

If you plan to attend Astronomy Day at ASC this year on May 6th & help out as a volunteer, please note that we are still collecting & gathering prizes for the volunteers. Some more items just arrived. Are you looking for an eyepiece rack? Don't ask me what it is but 2 of them are for 1.25" & 2 are for 2" eyepieces & they are arriving shortly. This might be something you wish to earn for having assisted at Astronomy Day. If you aren't already on my list of volunteers, please consider helping out & RSVP with me Today. We might not have enough prizes for all volunteers, but those who stay to help the longest, will have first pick. You don't need to be a PAS member to help or to receive a prize for assisting this year.

STARS OF PAS

Each month we have a really cool collection of PAS members who go out of their way to enhance the life of children & adults with views of the night sky or information about it. Here's a few examples of

how the Telescope Team really made a difference this past month. These are the events YOU should have been involved in.

March 23, PVCC Star Party Space Safari Treasure Hunt - It was a small star party. I was surprised, we only had 3 of our usual scopes (Chet, Rod, myself) and we had two new scopes join us (Steve's 8" and Eddie & Laura's 80mm). There was about 100 people in attendance and we gave away prizes for doing the treasure hunt. We only did 7 of the 10 items this time due to not having enough scopes or a clear enough sky to find the rest. This was interesting. I want to thank my Team - Chet and Rod, and our two guests Eddie and Steve, for joining me in making this a successful event. I also hope to see Steve, Laura and Eddie at future events. Thank you all for working with me!

Mar 26, Solar Day at ASC - Rod & Chet took over at Solar day. Tiffany, our contact down at ASC asked if we could have a few scopes out in the sunny day showing the sun to anyone who visited that day. Chet took Saturday and Rod took Sunday. They said it was a crowded, good event.

April 1, Anthem Annual Star Party – Many thanks goes to Chet & Jewel, Steve & Mike, Bruce, Ed & Bette, William & Terri, Rod & Sue, Ed & Laura, Jeff, & Barbara for making Anthem a very successful event!

April 6, PVCC Star Party – Sam Insana, Barbara, Chet, Mike, Rod. This was a small star party but it was good. I didn't take my scope, i was ill, but instead we introduced the glow in the dark bouncy balls in a vending machine. PAS gets part of the income from the sales of the bouncy balls.

April 7, Adult Night Out & Cesar Chavez Park

Adult Night Out: Don, Chet and Mike. Terri was ill and stayed home.

Cesar Chavez Park: Josh writes: Jeff, Rod and others were great! Please thank them for all their work and insight the kids could not stop talking about what they saw. I still can not believe how clear the moon and Saturn were it was truly amazing! As for the next camp out I have just confirmed Box Canyon at South Mountain. This venue is going to be great because we are hidden in the hills! Below is link to a map. Once you get to the gate just ask the staff for directions, as always call me if you need anything 602-615-0382.

April 9, Bookmans Telescope Class – I need to thank Rod for hosting this event. I was too ill to make it. I don't know much about the event but I heard it was a success, thanks to our Telescope Team.

I need to let everyone know how much I appreciate everyone who filled in for me while I was very sick this last month. Thank you so very much! ★

Images from our April Meeting:



It was a full house at Foothills Academy, with some 30+ people in attendance, including some FA students.



An ominous dust storm was just dissipating around the time our meeting started, but it seems to have not scared any attendees away from this lecture.



We had the usual table full of snacks to keep us fueled, kindly provided by the Wurst family.



Some of our friends from Terravita returned, along with our friend Dr. Ed Rosenthal from PVCC.



Terri opened the meeting with some brief notes on PAS business. Our speaker, Dr. Jeff Hester of ASU, waits in the background for his turn at the podium.

Images from our April Meeting (continued):



Matt takes his turn at the podium, with some more PAS business. But what's that thing on his head?



Here's a closeup view showing the letters "astrono" printed neatly across his face. Could it be a sign from the astronomy gods that he will be our next President? Perhaps. We'll vote at the next PAS meeting on our officers for 2006-2007. Be there.

YOUR AD HERE? YES, ALL IT TAKES IS AN EMAIL OR PHONE CALL TO ANY PAS OFFICER. WE'LL DO THE REST.

GOT A TELESCOPE TO SELL? LOOKING TO BUY ONE? WE CAN HELP.

WANT TO TRADE THAT OLD ACCESSORY FOR SOMETHING MORE USEFUL? PLACE YOUR AD IN PASTIMES.

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Jeff Hester finally takes the podium to begin his presentation "From the Big Bang to Big Brains — The Origin of Structure in an Evolving Universe."



One of the many incredible videos he used was a time-lapse movie of the Crab Pulsar. You can view it (and others) at this link: [PULSAR](#).



After the lecture, Dr. H. took some time to field a few questions from the audience. Here he answers a tough question from Mike Marron on stellar physics.

Astronomy Quotes

Contributed by Dan Heim

[Editor's note: My plan was to stretch out these astronomy quotes, choosing one for each issue. And I've got hundreds of these things saved in a text file. But Leah Sapir's fascinating report on her eclipse expedition (following two pages) necessitated an additional page of content. The newsletter must, of course, contain an even number of pages, so I pulled together a bunch of astronomy quotes to fill this page. The wisdom of the ages is here presented for your edification and enlightenment.]

"The universe is like a safe to which there is a combination, but the combination is locked up in the safe."
— Peter de Vries

"The large-scale homogeneity of the universe makes it very difficult to believe that the structure of the universe is determined by anything so peripheral as some complicated molecular structure on a minor planet orbiting a very average star in the outer suburbs of a fairly typical galaxy."
— Steven Hawking

"When the Sun shrinks to a dull red dwarf, it will not be dying. It will just be starting to live and everything that has gone before will merely be a prelude to its real history."
— Arthur C. Clarke

"The destruction of this planet would have no significance on a cosmic scale: to an observer in the Andromeda nebula, the sign of our extinction would be no more than a match flaring for a second in the heavens: and if that match does blaze in the darkness there will be none to mourn a race that used a power that could have lit a beacon in the stars to light its funeral pyre. The choice is ours."
— Stanley Kubrick

"I wonder why. I wonder why I wonder. I wonder why I wonder why I wonder."
— Richard Feynman

"Wormholes were first introduced to the public over a century ago in a book written by an Oxford mathematician. Perhaps realizing that adults might frown on the idea of multiply connected spaces, he wrote the book under a pseudonym and wrote it for children. His name was Charles Dodgson, his pseudonym was Lewis Carroll, and the book was Through The Looking Glass."
— Michio Kaku

"In my youth I regarded the universe as an open book, printed in the language of equations, whereas now it appears to me as a text written in invisible ink, of which in our rare moments of grace we are able to decipher a small segment."
— Arthur Koestler

"Human beings, vegetables, or cosmic dust, we all dance to a mysterious tune, intoned in the distance by an invisible player."
— Albert Einstein

"Mortal as I am, I know that I am born for a day. But when I follow at my pleasure the serried multitude of the stars in their circular course, my feet no longer touch the earth."
— Ptolemy, ca.150 AD

"In questions of science, the authority of a thousand is not worth the humble reasoning of a single individual."
— Galileo Galilei

"We have your satellite. If you want it back send 20 billion in Martian money. No funny business or you will never see it again."
— Seen on a wall at NASA's Jet Propulsion Labs

2006 Turkey Eclipse Expedition

by Leah Sapir

In June 2004, I happened to be in Israel at the time of the Venus transit, and I was able to attend a public viewing at Tel Aviv University. And in early 2005, when I realized that the March 2006 solar eclipse would be visible as a partial (80%) eclipse from Israel, I contacted the Tel Aviv University Astro Club to ask if they would be having a public viewing.

I was told that it was still too early for definite plans. But that on the other hand - some members of the astronomy dept. were talking about flying to Turkey as a group to see the TOTAL eclipse.

By end of 2005, the plans were definite, and I made my reservation to join the group. I arrived in Israel on March 23, with a variety of equipment - a "solarscope" (a portable apparatus with a small telescope, that projects an image of the sun onto a small screen for safe viewing of eclipses and sunspots); my 10x50 binoculars; a tripod; a large sheet of Baader solar filter film; and two digital cameras - my new 7MP camera with adjustable everything, and my old 2MP camera just in case. I read articles about photographing eclipses, and spent my first few days in Israel preparing filter caps for my binoculars and cameras, and practicing taking pictures of the sun. I followed the weather reports on line, but they only said that March 29 would probably be sunny, unless it was cloudy.

On March 28, we flew to Antalya, Turkey - a beautiful seaside resort, with a view of the snow-capped Taurus Mountains in the north. There were about 150 people in our group - students and professors, as well as their parents, siblings, and kids. Our hotel itself was on the path of totality for a 3-minute eclipse, but our group had tour buses to bring us near the center of the path for another 45 seconds of totality.

In the evening, I talked to some of the other tourists (not from our group) in the hotel lobby. Most of them were there just for the resort, not even realizing that there would also be a total eclipse. And some of them weren't even planning on viewing the eclipse! I urged them to get the special eclipse glasses at the hotel gift shop, and not to miss the opportunity.

In the morning our group set out for our location, the coastal town of Side (pronounced "see-day"). The weather was beautiful - not a cloud in the sky. (Whew!) On the way we toured a scenic mountain lake formed by a hydroelectric dam in Manavgat, then we continued on to Side.

We set up on some sand dunes overlooking the beach, and the Tel Aviv U Astro Club provided eclipse sunglasses for all members of our group. I quickly put together the solarscope, set up my tripod, and started putting filters on my cameras and binocs. I still had my camera on my lap when someone called out, "Look! It's started! See, a little nibble off the edge of the sun at 5:00!"

I took the first few pictures with my camera balanced on my knee, and then transferred the camera to the tripod. I had originally planned to keep switching between the camera and binocs on the tripod; but I found it best to keep the camera on the tripod, and the binocs on my lap. I took as many pictures as I could with my 7MP, varying the shutter speed as the articles had recommended, and I used the 2MP to take pictures of the view through the solarscope. (The solarscope was quite popular with the kids in our group, who were able to take pictures there with unfiltered cameras.)

We all watched as the "nibble" grew larger and the sun got smaller, smaller, smaller; I tried to get as many pictures as possible,





Eclipse sequence photographed by Leah Sapir.

hoping to catch “Bailey’s beads” or a “diamond ring.” The sky was bright and clear, and didn’t start to get dusky until the sun was a very small crescent. And then, when it suddenly seemed that the sun was gone, I carefully removed my sunglasses to look - and saw a bright, wispy glow all around the sun. I quickly put my glasses back on and asked someone nearby, “Are we allowed to take our glasses off?” And he said, “Yes, of course, you SHOULD!!!!” So that was it - that glow was the corona! (Doh!) I took off the glasses and tried to absorb the scene while also taking as many pictures as I could (with different shutter speeds, hoping one would be correct). The sky was twilight-dark, and we could easily see Venus. Mercury and some of the brighter stars were supposed to be visible too, but there was no time to search for them. It seemed as if only a few seconds had gone by when suddenly a bright ray appeared at the edge of the darkened disk, and someone called out “diamond ring! diamond ring!” (Snap! I tried to get a picture of it.) And then it was back to the special sunglasses and filters. The four minutes had gone by in about 20 seconds, it seemed.

I continued taking pictures of the now-growing crescent, and was surprised to see that other members of our group were already packing up. Apparently the tour guides had suggested seeing the ruins of the ancient Greek coliseum in Side. “But you’ll miss the second half of the eclipse,” I mentioned to one member of the group. “Oh, it’s just like the first half, only in reverse...” he replied.

I decided, however, that I wasn’t going to miss the second half. I just needed to make sure to be back at our tour bus by 3:30 pm - not a problem! And so I continued taking pictures while gradually packing up my equipment, and the last few pictures were taken with my camera on my knee while sitting on the steps of our tour bus.

On our way back to our hotel we stopped in at another ancient site, Aspendos, and saw another Greek coliseum, even larger than the one at Side. “Is anyone here a good singer?” our tour guide asked. It turned out that one of the members of our group - a younger brother of one of the astronomy students - sings in a choir. While the rest of our group sat on the benches of the coliseum, he stood in the center of the coliseum and started to sing opera, followed by a beautiful song in Hebrew. His voice resounded throughout the coliseum. Nearby, a group of tourists sang hymns in Dutch, accompanied by a guitar. Each performance got a round of applause from all present.

When we returned to our hotel, I ran into the tourists that I had spoken with on the night before. They excitedly told me that they had done as I suggested, and were glad that they hadn’t missed the eclipse.

The following day was cloudy and foggy - what a difference! It reminded us of what luck we had with the weather on the day of the eclipse.

We toured some more Greek ruins in Termessos, a mountaintop town that even Alexander the Great had not succeeded in conquering. (After climbing up the mountain to reach it, we easily understood why.) The town remained independent in Roman times, too, but eventually it was abandoned, and today the ruins coexist with a pine forest in a national park. The misty weather added its own atmosphere, making the ruins seem to be “hidden in the mists of time”.

We had lunch at a seaside park, and continued to the next site - another long long climb up a mountain, to reach a peak known as “Chimera”, where natural gas deposits cause flames to come up out of some of the rocks. The Greeks believed that there was a fire-breathing dragon inside the mountain.

We spent the Sabbath at the hotel, and returned to Israel on Saturday night full of fresh experiences, and with a camera full of pictures. And the one question that remained unanswered was - can we maybe find a way to get to China for the eclipse of 2009? (In any event, my calendar is already marked for May 20, 2012, when an annular eclipse will pass through northern Arizona and several neighboring states; and August 21, 2017, when a total eclipse will cross the US from coast to coast.) ★

Cool Stories to Share at Star Parties

by Leah Sapir

Summer Triangle:

The summer triangle will be visible for most hours of the evening, but Vega and Altair will be getting pretty close to the horizon by around 9 pm. Sirius doesn't rise till 9 pm, so it might take till around 10 pm to be easily visible. If you want to tell the story earlier, you can still mention and describe Sirius, but just mention that it's going to rise soon, and describe where it is "going to be" (to the left of Orion's belt, in a straight line) instead of where it is. People will easily be able to find it at home later if they want.

I begin by pointing out each of the stars of the summer triangle as I describe them.] Over there in the west you can see three bright stars. They're called "the summer triangle" because they're visible all summer. There is Vega in the constellation Lyra, the harp; Altair, in the constellation Aquila, the eagle; and Deneb, the tail of Cygnus the swan. They look pretty similar, although Vega is a little brighter than the other two.

But actually the three stars are quite different ...

Vega is 25 light years away, and it is about 60 times as bright as our sun. (I sometimes add - "take a good look at Vega, it will be our north star in just 12,000 years. We'll all have another star party then to look at it." <grin>)

Altair looks as if it's only a little dimmer than Vega. but actually it's closer to us - only 17 light years away. And it's not as luminous as Vega - it's only 9 times as bright as our sun. So Vega is actually 6 or 7 times as bright as Altair, if they would be seen from the same distance.

Deneb looks as if it's the dimmest of all. But Deneb is also the farthest of the three - much farther. Deneb is 1600 light years away. That's right - it is about 100 times as far away as Altair, and yet from here the two stars seem to be around the same brightness. That is because Deneb is a very powerful supergiant star, 60 thousand times as bright as our Sun. That's right, Deneb is 100 times as far as Altair, and a thousand times as bright as Vega.

We're lucky they're so far away! ★

[Editor: This story is obviously seasonal, but it's an excellent example of what we need to do at Star Parties ... present astronomy in a way that can be understood by beginners, and mix some wonder and amazement to make it entertaining.]

Astro Factoids

Contributed by Bette Wurst

The Dumbell Nebula (M27) is an example of a planetary nebula located south of the constellation Vulpecula, the Fox. The term Planetary Nebula can be misleading, as it actually has nothing to do with planets. Planetary nebulae appear as bubbles that look like disks through telescopes, just as a planet might look. ★

Bookman's Telescope Workshop Review

by Rod Sutter

I arrived at Bookman's at 4:15. John was already there and had his 8" Meade setup and needed some work on it. Rod and John spent about 1/2 hour aligning the secondary and primary mirrors until one of the screws broke on the spider which ended the day for aligning. Mean while Jeff was in the corner talking to a lady named PJ, that Terri talked to about our class. She showed up with her 60mm Galileo telescope and Jeff was very helpful showing her how to set up everything correctly.

Since PJ really had no idea what she was looking at during the evening, Jeff opened his laptop and gave her a guided tour of the sky on his SKY6 program. She thought this was very helpful since she had the program at home but really didn't know how to use the scope and program together. Kevin brought Jerry's telescope and needed some ideas about using it to do solar viewing. After looking at some of the things that Kevin had brought with him Rod told Kevin that he had a Solar Filter at home that would probably fit right over the end of the scope. The evening was too cloudy to even set up scopes to show PJ some of the views of the sky, so we called it a night and offered PJ some views thru our scopes at the next star party at PVCC. ★

Astro Factoids

Contributed by Dan Heim

I had a whole file of Factoids contributed by Bette Wurst, and (like the AstroNerds cartoon last issue) just used my last one (top of this column). Thanks Bette for all those great fillers! But now I'm all out, so I hope you send more to my successor as they really make the editorial layout job easier.

So anyway ... here's my own Astro Factoid:

The Cassini division in Saturn's majestic ring system has a width of 4700 km (2850 miles). That's about the width of the Earth's Atlantic Ocean. ★

From the NASA Space Place: Who Wants to be a Daredevil?

By Patrick L. Barry and Dr. Tony Phillips

When exploring space, NASA naturally wants to use all the newest and coolest technologies—artificial intelligence, solar sails, onboard supercomputers, exotic materials. But “new” also means unproven and risky, and that could be a problem. Remember HAL in the movie “2001: A Space Odyssey”? The rebellious computer clearly needed some pre-flight testing.

Testing advanced technologies in space is the mission of the New Millennium Program (NMP), created by NASA’s Science Mission Directorate in 1995 and run by JPL. Like the daredevil test pilots of the 1950s who would fly the latest jet technology, NMP flies new technologies in space to see if they’re ready for prime time. That way, future missions can use the technologies with much less risk.

Example: In 1999, the program’s Deep Space 1 probe tested a system called “AutoNav,” short for Autonomous Navigation. AutoNav used artificial intelligence to steer the spacecraft without human intervention. It worked so well that elements of AutoNav were installed on a real mission, Deep Impact, which famously blasted a crater in Comet Tempel 1 on July 4, 2005. Without AutoNav, the projectile would have completely missed the comet.

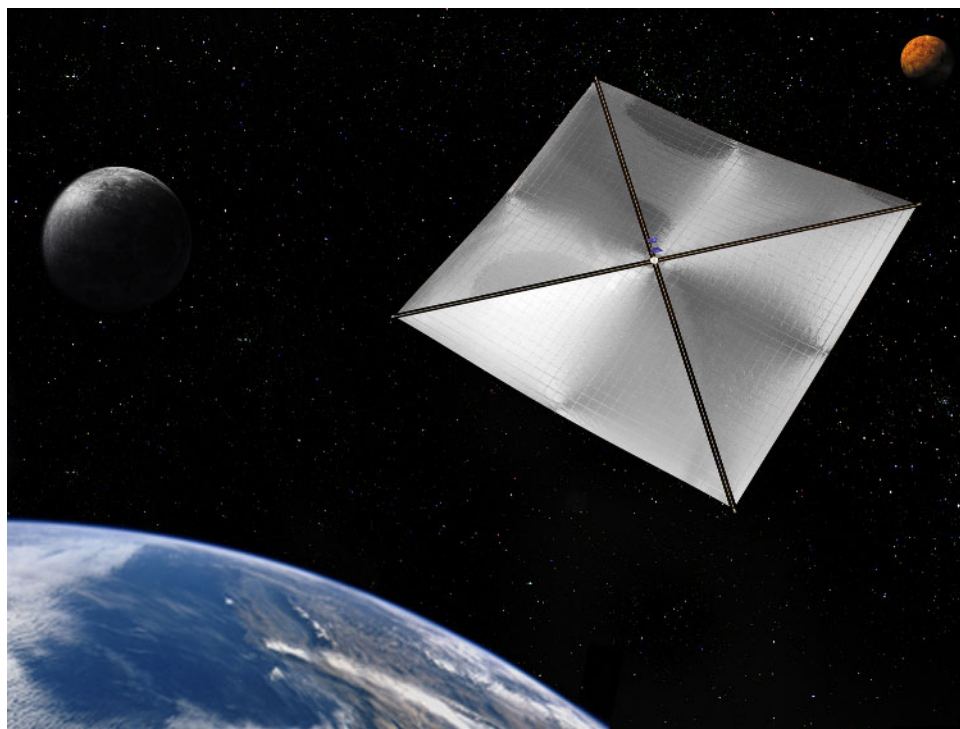
Some NMP technologies “allow us to do things that we literally could not do before,” says Jack Stocky, Chief Technologist for NMP. Dozens of innovative technologies tested by NMP will lead to satellites and space probes that are smaller, lighter, more capable and even cheaper than those of today.

Another example: An NMP test mission called Space Technology 9, which is still in the planning phase, may test-fly a solar sail. Solar sails use the slight pressure of sunlight itself, instead of heavy fuels, to propel a spacecraft. Two proposed NASA missions would be possible only with dependable solar sails—L1 Diamond and Solar Polar Imager—both of which would use solar sails to fly spacecraft that would study the Sun.

“The technologies that we validate have future missions that need them,” Stocky says. “We try to target [missions] that are about 15 to 20 years out.”

A menagerie of other NMP technologies include ion thrusters, hyperspectral imagers, and miniaturized electronics for spacecraft navigation and control. NMP focuses on technologies that have been proven in the laboratory but must be tested in the extreme cold, vacuum, and high radiation environment of space, which can’t be fully recreated in the lab.

New NMP missions fly every year and 1.5-2 years, taking tomorrow’s space technology for daredevil test drives.



This article provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with NASA.

Photo Caption: Artist’s rendering of a4-quadrant solar sail propulsion system, with payload. NASA is designing and developing such concepts, a sub-scale model of which may be tested on a future NMP mission.

Astronomy Quote of the Month

"We are like the inhabitants of an isolated valley in New Guinea who communicate with societies in neighboring valleys (quite different societies, I might add) by runner and by drum. When asked how a very advanced society will communicate, they might guess by an extremely rapid runner or by an improbably large drum. They might not guess a technology beyond their ken. And yet, all the while, a vast international cable and radio traffic passes over them, around them, and through them..."

We will listen for the interstellar drums, but we will miss the interstellar cables. We are likely to receive our first messages from the drummers of the neighboring galactic valleys - from civilizations only somewhat in our future. The civilizations vastly more advanced than we, will be, for a long time, remote both in distance and in accessibility. At a future time of vigorous interstellar radio traffic, the very advanced civilizations may be, for us, still insubstantial legends."

— Carl Sagan, "The Cosmic Connection"

From your Editor

by Dan Heim

This is my last newsletter. Volume 58 is a done deal. It's been fun being your Editor this year, but now I am outa' here. To whomever will be my successor, good luck and I wish you well. The new electronic format for PAStimes has received good reviews. I hope we keep using active links in the online version. Of course, the overall format is a matter of editorial prerogative. I look forward to seeing the new V.59 of PAStimes.

As most of you have heard by now, I will also be relinquishing all PAS duties to focus on the startup of a new astronomy club here in the north valley. The Desert Foothills Astronomy Club will be holding its first meeting in early May. You can read more about my plans on the DFAC website: www.DFACAZ.org.

I've been with PAS some 20 years now, and the time was right for a change. The north valley needs its own astronomy club, and based on feedback received, there's enough interested people in this area to sustain a new club. So I decided to take advantage of the opportunity and found DFAC. You can read more about my motivations on the DFAC website.

You'll still see me at PAS meetings and other astronomy events, but I need to focus my energy on DFAC. Once we get organized, and build our membership to a stable level, I hope to collaborate with PAS and other valley astronomy clubs.

You are all good friends and outstanding representatives for our mutual hobby, and I will miss seeing you as often as I have in the past, but I hope we'll stay in contact through our participation in star parties and other astronomy events.

Till next we meet, wish me well in my efforts to promote the best hobby in the universe. Clear skies! — Dan ★

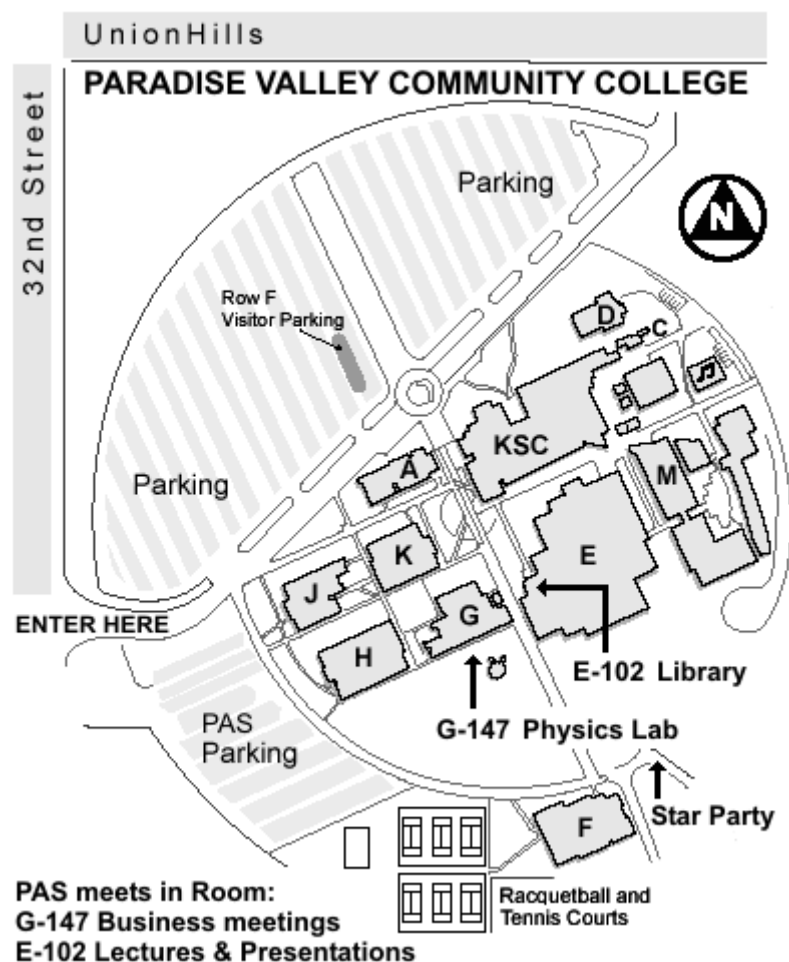


Holmes
the
Meteor Man

KCH

KCH Cartoon is © by Kevin Harcey, and may not be reprinted without the explicit permission of the artist.

MAP TO OUR MEETING LOCATION



May 2006

Sunset: 7:20 pm

Sunrise: 5:30 am



Q1: May 5th



FULL: May 13th



Q3: May 20th



NEW: May 27th

Astro Events:

Jupiter at opposition in May 4th.

Eta Aquarid meteor shower on May 6, pre-dawn. Expect 10 meteors/hour.

Moon at perigee on May 22nd. Does the 3rd quarter look larger?

Great conjunction of a crescent Moon, Mars, and Pollux just after sunset on May 30th.

All this month, speedy Mars is moving towards Saturn. They will meet in a nice conjunction on June 17th.

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PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter, PASTimes is published monthly from September through May and distributed to PAS members via USPS and internet. All issues from the current season are available for download on our website at: www.pasaz.org. While you're there, browse the rest of the site and learn more about PAS. All photos by Dan Heim unless otherwise noted. Ads for astronomy equipment are provided as a courtesy to sellers and buyers, and do not constitute an endorsement of any advertised goods by PAS.