

Volume 56, Issue 3

PAS TIMES

Monthly newsletter of the
Phoenix Astronomical Society
Founded 1948

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WHAT WILL YOU BE AT THE NOVEMBER MEETING?

A FUN FILLED EXHAUSTING DAY

Flagstaff Festival of Science Review
September 26 & 27, 2003

It all started with my parents saying they wanted to go to the special presentation on Volcanoes at NAU Friday night (my birthday). William and I rushed like bandits to get up to Flagstaff from Phoenix in time for the presentation. We missed the first part. That

was a bummer because my parents said it was a beautiful ballet done by NAU's Preparatory School of Performing Arts. They said I missed it and it was awesome. Then we arrived shortly after intermission ended and we were treated to a fantastic presentation by Wendell Duffield. Wendell took us on a journey to all the volcanoes he has been at, alive or dormant, as we watched slides and were enlightened by his presentation. That lasted about 1.5 hours more and then it was over. They opened it up for questions but we departed. Saturday morning was another fun filled day. We started the day at 10 am at Wheeler Park in which there were displays of all types. This had to be the

William waits his turn to try to answer the many questions and win a poster at the Flagstaff Festival of Science in Wheeler Park.

biggest collection of displays in that park in the last several years that we have been attending this event. There were so many things to see and do. I'm going to talk about each display I visited and enjoyed, not in the order I did it, but in the order of the items I pulled out of my goodie bag that I collected while there. Meteor Crater had a display. The kids could go up to the display, and using a magnet, they could hunt for meteorite fragments. They found them and then put them into a little plastic bag and could take them home. The people doing the display told us that the following weekend would be OPEN HOUSE at Meteor Crater (Free Admission) and invited everyone to come visit. The Center for Wildlife was there with a few handouts and coloring books for the kids. They did a questionnaire in which the completion of the questionnaire resulted in receiving posters. William got 2 posters for doing that. The Challenger Space Center set up a display and discussed many interesting things

that go on at their center. This would be an awesome place for PAS to do a field trip to. The gal I talked to invited all of PAS down to do a flight simulation as a group. It sounds like fun and I'd like to think about setting this up as a field trip.

If you are interested in such a trip, please let me know, soon. While there I picked

up some information about the Challenger Space Center for everyone to see at the October meeting. I also grabbed some of



Here we have the solar telescopes set up by Lowell Observatory. Bruce is taking a look into the one that is set up with a Hydrogen Alpha filter so that you can see the Prominences on the Sun. Behind the dude in white is another telescope that was set up with a Mylar filter to help see Sun Spots.

for the pencil, we had to answer a question. Our question was to identify 2 kinds of trees that are found in the Coconino National Forest. We did well and got the pen. The University of Arizona had a display and they were covering



This display was put up by the challenger Space Center. The wonderful lady in the blue space suit is assisting my Bette and Bruce in selecting information we need.

their kid projects so we have more stuff for next Arizona Science Center event. The Arizona State Parks group was there with a bunch of handouts. I did their little questionnaire in which I identified different kinds of Lava. I got them all right, which was cool. The United States Department of Agriculture was in attendance as well. They had a nice display in which I acquired some pens. In exchange

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-EXHAUSTING, cont'd. from p. 1

Composting. They had an activity where you play bug bingo. You sift through some compost and find the bug, mark it on your bingo card and then continue till you have 4 in a row. This was a cool idea for the kids. They really liked it. I didn't stick around to find out what kind of bugs were in the compost. But I heard the kids giggling and having a great time. SWCA Environmental Consultants were there as well. They were giving away a bunch of cool things as well. The United States Geological Survey was there as well. They had a huge display with many topics. They were in the back corner of the park and had 6-8 displays



This is Wheeler Park. It is a collection of tented and non-tented tables set up so educate the public, and especially children and the young-at-heart on the topics of Science. In front on the left under the darker tree trunk is a table set up by Lowell Observatory. The white tents to the right were set up by Gore. Gore had a huge display this year covering many of their newer products. Off the screen to the right was a table to make "slime." And the park continues around at the back on the left where the U.S.G.S. was set up, and then further around to behind the camera where Lowell had 2 Solar Telescopes set up. The park is an excellent location to get a lot of people at one time in one place to learn about many topics of Science.

of different things. One display had to do with hydroponics, another was Mars, another was Earth Geography, and more. I visited all the displays and got some free stuff from each one to pass along at the next PAS meeting. One of their displays was on water and divers. One thing they had was a Cartesian Diver made of a plastic bottle with a nut on the end (metal nut) and put that dude inside a water drinking bottle and the diver sinks to the bottom when presser is added. It was very interesting. While checking out the display i



Inside the building at NAU was a wonderful bug display. Bette is showing us all the wonderful dead bugs. This was part of the Flagstaff Festival of Science activities for this year.

mentioned to the lady doing it, what if we add food coloring. She liked the idea so she and I walked over to the SLIME TABLE and asked to borrow some of their food coloring. We tried to make the diver a different color, than clear water, but it wasn't as successful as we thought it would be. However, she liked

the idea enough to use it the rest of the day, as a demo on how the water changes positions from outside the cartesian diver to inside him when pressure is added or released on the outside water bottle. The other huge display was Gore. My favorite of all stuff is Gore products. They make clothing, guitar strings, medical innovative items such as replacements for arteries, etc. They also make dental floss, and stuff for astronauts and their newest things was a water proof cellular

phone insert. That was very interesting. This is something the Nokia phones have in them to make them water resistant. I love to walk through their displays and see what new things Gore-Tex has been used for or is about to be used for. Very innovative. Lowell Observatory was there with two telescopes and a table. At the table was a few models, one of the Solar System and the expanding universe ball. We chatted with the Gal behind the table for a bit and then checked out the two solar telescopes. One telescope had a Hydrogen Alpha filter so we saw the prominences on the sun. The other one had a Mylar filter and so we saw many sunspots. This was a very interesting display. The forest service had a display on how the forests burn. I thought it was very well constructed. They used rebar and paper stuck to it to show how a denser forest burns more quickly than one that is spread out. I thought this was a very cool display. I didn't get to see it in action, but the idea was very cool. After going to the Wheeler Park Science stuff, we went over

to NAU for their Mountain Campus Science Day. After getting lost and driving for a bit, because they moved its location from last year, we finally found it. On the way into the building at NAU we got to roast marshmallows on skewers. Another display that was outside was very interesting. A glass bottle, burning paper inside, a peeled hard boiled egg. When put together, the egg is sucked into the glass bottle. That was so cool!



Then we walked inside and were greeted by Madagascar Hissing Cockroaches, Praying Mantis, a huge Hercules Beetle, and they were all

Yes! That is a millipede on this young man's hand. he has 3 cockroaches on him as well. Yuck! This is one of many people who were involved in the bug display, alive and dead, for the Flagstaff Festival of Science. The location of this display was at NAU.

on the one guy who was talking about bugs. Oh and he had a 5 to 7 inch millipede on his hand. That's more than I could handle on me in one time. I like bugs, but not on me like that. Anyway, we walked around the display there, inside the building. It ranged from mating Emperor Scorpions, and a variety of other scorpions, whip spiders, centipedes, and a few other varieties of moths, butterflies, and other insects. The majority of things to see in this section had to do with bugs. There was a display on the brain, electricity, and some other displays. Out the other door they had another solar telescope set up. After this event we called it a day. The neat thing about these events is that they are free admission and all day long. There are more events to go to than possible to do in one day. We really enjoy them and hope this Festival of Science Continues through the years. Maybe PAS might look into becoming involved next year. Would I have any volunteers to go to Flagstaff with me for a day of sitting at the park and talking to people about our club? Contact me if you are interested for next year's event. If you missed this year, please don't miss

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-SCIENCE, cont'd. from p. 2

next. If you have kids, they will enjoy the hands on events. Especially the ones, like making the slime, playing bug bingo, viewing through the telescopes and much more. I enjoy the events even though I am not a kid in age, but I am a kid at heart. And the people there are so wonderful and informative to talk to. It is worth the trip. To attend these events, you pick up a passport at the Train Station Visitor's Center right here in Flagstaff, or get one from me, as my parents bring me a bunch of them each year, as soon as they are available. Then attend the events for free. I'll see you there!***

FLAGSTAFF FESTIVAL OF SCIENCE

October 4, 2003 Review

Arboretum



This is one of the many glass and metal statues we saw at the Arboretum. The sunlight shines through the glass leaves so beautifully.

Yes, we finally got to go to the Flagstaff Arboretum. For those who don't know what an arboretum is... it is a place where plants of many species can be seen in one place. We had an awesome time there, and closed it out as well. Yes, it is a habit of ours. Kevin Harcey was with us and we got there early, went on their tour and enjoyed their cookies, hot cider and a cool Indian story. It was a fun time and plenty to do that we spent the whole morning there.***

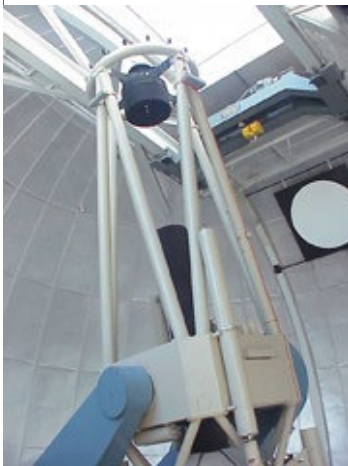
FLAGSTAFF FESTIVAL OF SCIENCE

October 4, 2003 Review

NAU OBSERVATORY

It was a cold night. Very cold, in fact. William, Kevin Harcey and I decided we'd visit the NAU Observatory that night during the Festival of Science's last weekend. We put on our jackets and went on over. We got there about 15 minutes early, so sat in the car to keep warm. Can you imagine. While Phoenix has nights in the high 80's, we are sitting in our cars freezing in warmer coats, probably with a temperature of 50-55. Brrrrr. Anyway, finally someone

arrived to open up the observatory. We started out by heading in and some other people were with us. The other couple asked Dennis McMacken who he was and why he was there, etc... and Dennis answered that he was a volunteer. He mentioned a few other things and then I jumped in with, "And he also works at the U.S.G.S." Dennis seemed surprised that someone knew that, and looked and looked at me and I said, "Hi Dennis," And he looked some more and I said, "I'm Terri," and he figured out who I was and then we had it made. So, we started with



Here is the upper portion of the 61" telescope facing out of the dome.

me helping to get the people up stairs to the observation room. While Dennis set up, I helped out anyway I could downstairs, and wandered up stairs and helped if I could up there. Dennis was a wonderful host. He took us to the Moon, Mars, Ring Nebula, Uranus, M2 and back to the Moon and Mars again. Kevin was having such a great time that we just hung around till he was done.



This is the man made pond out back of the Arboretum that houses a species of fish that is endangered.

Dennis usually gets out of there by 10pm, but due to us, and I send an apology to Dennis for this and appreciation, he didn't get done until 10:45, and it is all our faults (Kevin Harcey included). But we had such a great time looking through the 24" telescope and fussing over the

clouds. I couldn't believe we got there at 7:15, started at 7:30 and still were there till 10:45. Where does the time go... when you are having fun? Thanks to Dennis and hopes of seeing more of him in the future!***

FLAGSTAFF FESTIVAL OF SCIENCE

October 5, 2003

U.S. Naval Observatory

We had an awesome time with the Ladybugs and people at the U.S. Naval Observatory. We got there before they opened. We wandered inside and Chris Luginbuhl greeted us. He told us some things about the observatory and then had us continue on our way, exploring. We visited the huge 61" telescope, the main scope at the observatory. Ron Stone was our tour guide for that part and he did an excellent job answering our questions. Then we were told we might want to go to a presentation back downstairs, so away we went, promising to return to this spot to finish our tour. We went in the

presentation room and Alice Monet greeted us with a wonderful talk on Volcanoes on Earth and in the Solar System. We were shown very awesome photos of the solar system and discussed the possibilities of active volcanoes as well as dormant ones. It was a great presentation. Then we told there would be another presentation in 5 minutes. Everyone hit the bathroom and back into the room we went. This time Chris Luginbuhl was presenting. Dan Heim should have come with us for this one. I've asked Chris to be a future speaker. His talk was



The Base of the US Naval Observatory's 61" telescope is packed with recording equipment.

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-NAVAL, cont'd. from p. 3

about Rainbows, Halos, Glories and the crystals that create these beautiful features. All the photos he showed were his own. He took them with his camera. When Chris finished his awesome talk, we went to visit the little telescope outside the main observatory dome. Hugh Harris gave the tour. The little scope has a wider field of view so they use this one to chart larger areas of the sky. This one has a 50" mirror. While there, they announced another talk about Life Beyond Earth. So, we went back and were again enlightened by Alice Monet who shared with us that information. When the third presentation was done, we hurried back to the 61" telescope area because we didn't get to see the presentation on the control room. In there, we learned about how the telescope works and how it processes the information it gathers. On the way out, we collected Ladybugs. Yes, the Naval Observatory had an abundance of Ladybugs, so we helped them by taking about 40+ home to our cabin in Munds Park. We stopped to talk with Chris Luginbuhl one more time and ask about possible future speakers for our club. Chris's presentation of the Rainbows was awesome, and I'd love for the club to see that. Alice's presentation on the Solar Systems collection of Volcano's was a good one as well. I got the info to do the contacting for getting speakers. So, now we just need to get some. I wish to thank all the presenters who we saw while there. They did a great job and it made our day fantastic!***



This is the dome that the 61" telescope resides in.

More Festival of Science pics to come in December's Newsletter

APOLOGY & ISSUE PLANS



Mike Marron does a brief presentation to the club.

I wish to apologize for not getting the September meeting photos into the October newsletter where they belong. Thus, you have them in this issue. Enjoy! This year will be a year of pictures, cartoons, photos, etc and we are collecting for future issues. Do you have something you want to see in the newsletter and want to share with our readers? Send it my way, soon. The deadline for each issue is the First of the month for the next month's issue. So, for the December issue, get the info to us by November 1. I have a slew of really cool cartoons and drawings and such to scan and get into the newsletter. They will be headed your way soon. Did you take photos of Mars and want to share? Scan

them, email them, or hand them to me at the next PAS meeting and I will get them into the newsletter. I will return all photos & drawings lent to me for email subscriptions unless you tell me to keep them. Let's make this year the year the PAS Members take over the PASTimes



Here we have the longest display of handouts that any meeting has had. Matt Kohl sits at the end of the display where there are snacks and drinks. This is the kind of handout collection I like to have not only for the PAS meetings and its attendees, but also for any star party we do, public or private, where I can get more info on Astronomy out to the public. Dig in!

astronomers looked for infrared radiation coming from stars known as M giants, which are common in Sagittarius but rare in the outer reaches of the Milky Way. By focusing on these stars, the scientists said they were able to capture the totality of the Milky Way's meal, in a vision that makes it appear that our galaxy is slurping the stars of Sagittarius as if they were a stellar strand of spaghetti. Before this work, astronomers had detected only a few scattered pieces of the disrupted Sagittarius dwarf. Even the existence of the dwarf galaxy Sagittarius was unknown until the heart of our



As a special treat, I brought a bunch of posters to give away to attending young adults. These three wonderful young adults (ages 0-17), each won a poster. Hopefully we see more young people at our meetings.

nearest satellite galaxy was discovered in 1994. The dwarf galaxy Sagittarius was so named because it is observed in the same direction of the ancient constellation Sagittarius, a handful of Milky Way stars that the Romans thought resembled an archer with bow and arrow. "Sagittarius" is Latin for "archer."***

THE GREAT SPACE RACE

In the September Newsletter was a fun puzzle put in by Matt Kohl. It wasn't meant to be answered directly to an officer for a prize, but Steve Saline answered it in Email and won

See RACE, p. 5

newsletter each month.***

SAGITTARIUS BEING EATEN BY MILKY WAY

from CNN.com
received from Steven Saline

Our Milky Way galaxy is gobbling up its galactic neighbor, Sagittarius, and scientists offered documentary proof of this continuing cosmic cannibalism. Astronomers have mapped the Sagittarius galaxy to show in detail how its debris wrap around and pass through the Milky Way, which contains Earth. On its way to oblivion, the dwarf Sagittarius -- which is about 10,000 times less massive than the Milky Way -- is getting stretched, torn apart and ultimately eaten, scientists at the University of Virginia and the University of Massachusetts reported. "It's clear who's the bully in the interaction," Steven Majewski of the University of Virginia, lead author of the report, said in a statement. The study will be published in the December 20 issue of the Astrophysical Journal. The act of cannibalism had been obscured by stars and cosmic dust, but was revealed when

-RACE, cont'd. from p. 4

a poster for his efforts. If you are seeking the answer, here is his response (and he was the only responder): "I think I can tell which pilot which suit to put on and which rocket to fly!

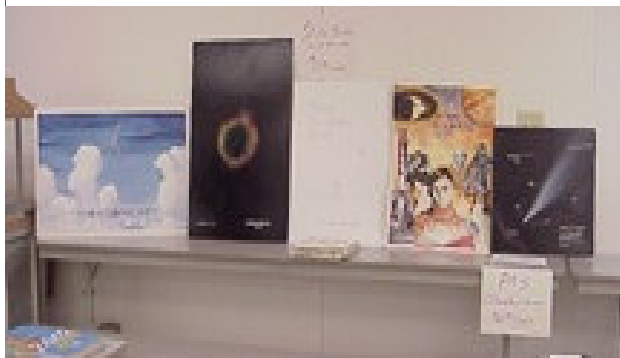
Pilot #1 - white suit, white rocket.

Pilot #2 - black suit, red rocket.

Pilot #3 - yellow suit, blue rocket.

Pilot #4 - red suit, yellow rocket.

Pilot #5 - blue suit, black rocket.



Here are the 5 paintings/drawings done for the event last May for Astronomy Day at the Arizona Science Center. We had them on display so everyone could see the awesome artwork that our two artists did. Thank you Kevin & Kevin.

rocket fly before approaching the finish line? Steve" Thank you, Steve, for your wonderful answer and question.***

OCTOBER PAS MEETING REVIEW

It was an interesting meeting. Adam Bloomer and I got there early to let Dr. Sky get set up. I appreciate Adam arriving so early. We



While Steve talked, he kept checking over his shoulder to see if I had the correct display up on the laptop.

got things going and we had a very up-to-date electronic meeting. Dan brought a special box that allowed us to project from the VCR and the Laptop onto a screen. I love that box. I want one. After set up, Mark won the raffle. Then he opened the meeting with a brief opening, going straight to the speaker so that we didn't have to keep Steve there too long. Steve, Dr. Sky, told us of many things. One thing that caught all of our attentions was a secret viewing place. It sounded really cool and I think we might want to check it out sometime soon. Then he shared with us, photos he had taken. The topic of his talk was "Astronomy in the Media Age." We were really using

some cool multi-media presentation stuff for this presentation. But, Steve's talk was about how the media gets involved. After the presentation, Mark & I closed with announcements. We covered the items for sale, the freebees table, the upcoming events, star parties, and much more. Then we all hung around and chatted for a while. After Steve left, many people came up to me and told me that he had to be one of our best speakers. They really enjoyed him and wish to have him back again. Steve invited everyone to go to his site, Drsky.com and sign up for a chance to win the monthly telescope give-away. I'm

So on which planet is the finish line where the winning rocket must land? And around which other planets must the

going to do it... join me? Thank you Steve. And thanks to everyone who helped out in the set up and take down of the room. Matt Kohl couldn't make it to the meeting, so we were shorts some hands. He was asked to baby-sit his new nephew. He missed an awesome meeting!***

WILSON HIGH SCHOOL REVIEW

October 3, 2003

It was a warmer night with not many people to begin with. We arrived early and were greeted by Gabriel, who was my contact for this star party. We quickly set up our table, seen in the photo, and then our scopes. I wish to thank my helpers. Kevin Harcey, William Finch and Ted Finch watched the table. Don Boyd, Richard Guthrie, Mike Marron and I had the scopes. We could have used a few more scopes and

a few more people at the tables. My car was packed. I had heard we would have a possibility of at the least 150 people, so I packed my car with about 200 of each item to give away, handouts. We had boxes and boxes... I didn't know my car could hold so many, and squeeze in Kevin on top of that. The viewing wasn't the greatest for light pollution, but our views of Mars were great. I stayed on the moon and zoomed in on the craters all night. Don kept his scope on Mars as that is what we agreed would give the best view. That



Here we are, setting up for a wonderful star party at the Wilson High School around 32nd Street and Van Buren. We had an awesome time. This is our display table. On the left were about 30 handouts and on the right were the T-shirts, Slide Sets and Memberships as fund raisers. Kevin is seen fixing his chair when I shot this photo.

Dr. Sky, Steve, talks about many topics during the night. He prefers to walk while he is talking, so taking photos of him was a bit more difficult than anticipated.

made it easy for him and I to also talk to the people and help with the table. Mike Marron had his scope on the Moon and Mars through the night, switching. And Richard Guthrie also did the Moon and Mars but I saw him on the double star in the Big Dipper as well as on

Andromeda. I was too close to the building to get anything else, but the Moon. The viewing was awesome for the kids. They loved it. In the process we sold some slides and t-shirts. We made some friends. Now the weird thing about this star party was the things that went on that were odd. Mike had some meteorites he was talking about, and they walked off. Luckily they turned up at Richard's telescope. They were tektites. They were important to Mike and we are glad they were returned. Another weird incident was that during the night, a boy of about 8 or 9 years old, thought it would be funny to put a few rocks into my telescope. Luckily they were small, pebble size, didn't do any noticeable damage, but it wasn't very nice of him. Anyway, we had the teachers that were there helping to

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Picture Page



"Moon over Jerusalem" taken by Leah Sapir on Oct 2, 2003 right before the PAS meeting.



We had a very nice group of folk in attendance for the September meeting.



And the President, Mark Stephenson, speaks to the group at the September PAS meeting.



Kevin Gray, one of our Space Artists, is seen at the September PAS meeting.



In this photo we see (left to right) Mike Marron, our new P.R. Director, behind him is Greg Coons, the we have Richard Guthrie in blue, behind him is Leah Sapir's ear, and Jerry Belcher, our Vice President, behind her. And on the far right, up front is John Pulis, our Host.



Dan Heim poses for this photo as whisper to him to smile. These wonderful folk were seen at the October PAS meeting. Where were you?

Mark was briefly interviewing the speaker, Dr. Sky, prior to the meeting to get an idea on how to introduce him the best way.



PAStimes

November 2003

ADS IN PAsTimes

This is the PAS advertising column & is a FREE service to all PAS members, guests, & VIP. Any Astronomy related items (books, scopes, binoculars, services, etc.) may be listed here that are being SOUGHT or SOLD. The item will only be advertised for ONE MONTH, but may be renewed each month (as needed) by contacting the Editor, by the newsletter deadline (the 1st of the month). It is requested that Non-PAS Members please make a small donation for placing your ad in both the PAsTimes newsletter and to my list of 170+ astronomy-loving email contacts. Please make check payable to Phoenix Astronomical Society and send to the return address on this newsletter. We do your advertising in hopes of great returns.

FOR SALE:

- * Meade Auto Star,
- Computer Control with
- Tripod, 1 year old,
- Model: ETX 90EC
- * Tasco Luminova with
- Tripod
- Both scopes \$250 each,
- They are like brand new,
- hardly used. Contact Pam
- 602-531-1388.



-WILSON, cont'd. from p. 5

monitor things and all was well. We all had a super time. I enjoyed their reactions to the moon. A bunch of girls were saying how fake it looked. Like they really weren't on the moon at all, but a picture. We tried to give away all the handouts but that didn't happen, so many of them came back home with me for future events. I had planned to do a raffle/door prize, brought things for it, but the crowd was too big to do it, so I decided against it. I would estimate about 350 to 500 people were there for this event. We had a great turn out and the clouds didn't bother us one bit. Gabriel and I agreed to do this again sometime soon, in the spring when we can see other planets. So, watch for a request for your assistance, and if you do come, keep an eye on everything you bring and the people at your scope. Thanks to everyone who helped. ***

YEAR IN SPACE CALENDAR

We currently have 10 calendars on order. We could use a lot more to keep the prices down. They make great Christmas presents and at a price under \$10, you can't beat it (if we take in a few more orders). For information and an example, please visit their website and then put your order in with me. Site: www.yearinspace.com - We are taking orders until Oct 31, of which I will ask for the money to be sent to me in a check or cash around Oct 20th, and then I will place the order Nov 1. We should get them in around the 20th, and I can then deliver them to the December PAS meeting, just in time for wrapping for Christmas presents. In case anyone wants to know, the reason we don't order earlier is that they are not available until Oct 31, so even if I did order them earlier, we won't get them till mid November anyway. This way, we take in more orders. Here is who I have down so far.



Make sure your name reads the number of calendars you are ordering so that I have it correct. If you aren't on the list, I didn't get your order yet. Janet 3, Terri 3, Chuck 2, Kevin 2 ***

UPCOMING ASTRO EVENTS

Note: PAS events are marked as "PAS."

Oct. 18, PAS: Lake Pleasant Star party sunset is at 5:51pm - visible planets are: Venus and Mars

Oct. 25, PAS: Lake Pleasant Cloud Date; High Power Rocket Launch Contact Jerry for more info on launch

Oct. 26, Daytime: Venus 1/3 degree to upper left of Moon, in SE at 11:30am MST.

November 2003 (Summary from Year in Space Calendar 2003)

Venus becomes more easily visible this month as an evening star. After sunset on the 25th, look for a thin crescent Moon just 3 degrees south (lower left) of a very bright Venus. Also at sunset, Mars is bright in the southeast. ON the 2nd and 3rd, the nearly full Moon passes south of Mars. Saturn rises several hours after sunset and crosses the meridian (highest point in the south) around 5:00 am. On November 13th it appears 5 degrees south of the waning gibbous Moon. At the same time, Jupiter is lower and brighter in the east.

Nov. 1, Newsletter deadline for December issue submissions

Nov. 6, PAS: PAS Meeting, 7pm Halloween Party at PAS, wear costumes for contest, bring snacks to share - Win prizes for best costume.

Nov. 8, Evening: Total Lunar Eclipse (partial at moonrise at 5:27pm MST), low in ENE. Totality from 6:09pm to 6:29pm.

Possible PAS Public star party for this event. More info as it becomes available. PAS: Tentative: Lunar Eclipse Star Party at Children's Hospital on 20th Street & Thomas

Nov. 15, PAS: Lake Pleasant Star Party sunset is at 5:26pm and visible planets are Venus & Mars.

Nov. 14, Printing, mailing & Emailing of the December Issue

Nov. 22, PAS: Lake Pleasant Cloud Date; High Power Rocket Launch Contact Jerry for more info on launch

Dec. 1, Deadline for submissions to Newsletter

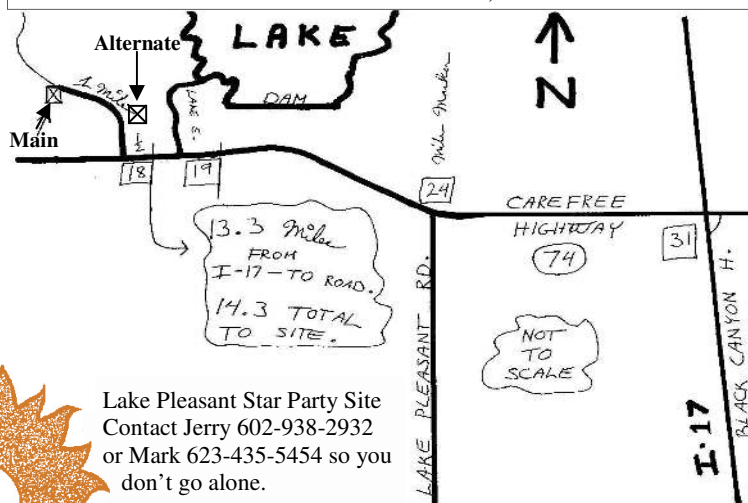
Dec. 4, PAS: PAS Meeting, 7pm Topic: TBA

At the Challenger Space Center

Hubble Space Telescope: New Views of the Universe

Coming for the first time to Arizona

October 16 - December 26, 2004



Lake Pleasant Star Party Site
Contact Jerry 602-938-2932
or Mark 623-435-5454 so you
don't go alone.

PHOENIX ASTRONOMICAL SOCIETY

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PAStimes
Nov. 2003 Issue

BRING A FRIEND

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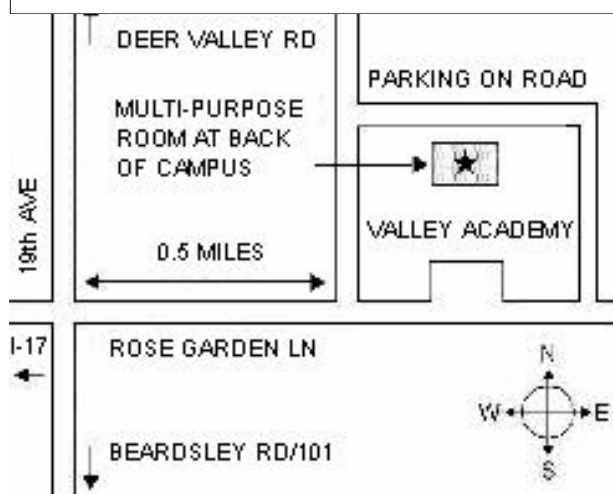
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