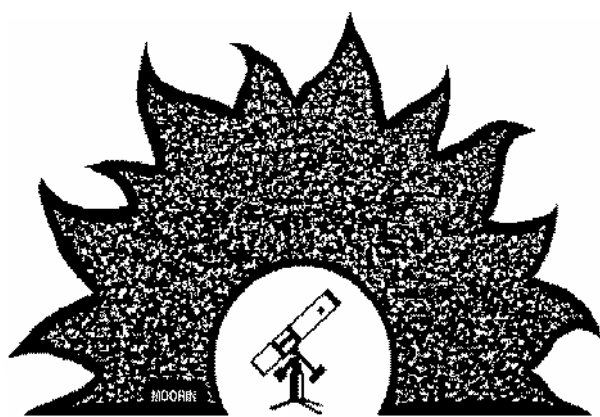




PAStimes

Phoenix Astronomical Society
www.pasaz.org
March 2009
Volume 61 Issue 7

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Bob Holmes to be March Fifth Speaker

Bob Holmes will be speaking on the topic of: Collecting Meteorites, Holding a Piece of the Sun & Planets in Your Hands.

We Asked Holmes for a short paragraph about his talk and this is what he sent:

"I will be speaking about meteorites, where they come from, what they can tell us, and how to find and collect them.

While I am not a meteoriticist, I have extensive experience in meteorite identification, collection and curation. My main emphasis will be on Arizona meteorites."

As usual the meeting starts at 7:00 PM in the library with a half hour of socializing and the actual meeting starting at 7:30 PM.

We hope to see everyone there.



February PAS Meeting Review 2/5

It was a wonderful meeting. Mike, as usual did a great job of talking about his favorite topic. He had a power point presentation that he used to enhance his presentation. We had 5 guests from Menza join us: Brian, Linda, Tony, Carla, and one I didn't get on the sign in sheet. A lot of the PAS Members who normally join us at the meetings were missing this month: Rod broke a tooth that evening, Sam, Frank, Chet, John Pulis - who we haven't seen in a very long time, & Kevin Harcey. Another PAS member we haven't seen is a while is Bobby & his wife. I do wish to thank Leah, Jerry, Matt, Sonny, Bob, Tim, and Sean W. for joining us that night. There were about 20 people in the audience.

I opened the meeting in Rod's absence after receiving a text about his situation. I did a brief, quick review of upcoming events that volunteers are needed for: see link with that list in the forums at <http://www.pasaz.org/forums/showthread.php?t=233>. Then I gave Jerry 5 minutes to talk about the upcoming rocket launch, for which he exceeded the 5 minutes but his presentation was good and interesting. The

link to the info he presented is at: <http://ahpra.org/>. Then we turned it over to Mike who had the rest of the time to do his presentation.

The photos for this event are on line in the PAS website pasaz.org in the Photo Gallery. This is the first of many galleries I will be creating as PAS does it's event. I had to stop using the photobucket account without paying for it or I would exceed the space they give you for free. But the links in previous emails & newsletters will still work in the photobucket account to see past events. For a shortcut, I made this link to this meeting's photos: <http://tinyurl.com/bdtaps>. Enjoy!

I wish to thank those who attended & brought snacks. PAS Provided the water. Currently the snack fund is very low because I purchased all the water needed till May, one case per monthly meeting. So, we could use some help in the snack fund so I may bring a box of cookies, etc, at the next meeting. Snacks were provided by Ed Wurst. Bruce Wurst won the 50/50 raffle. \$36 was the total, \$18 went to PAS & \$18 went to Bruce.

Mike did have a few technical difficulties during his presentation. But the audience was patient. William assisted in getting Mike back on track one of those times. Mike sped through the beginning of his presentation, touching on ideas that were shared at the 3 Lecture/Star Parties at his house over last summer, & then moving on to the current info he wished to share with us that night. It was a good, quick meeting. We would love to see you at the next one! ***



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March Upcoming Pas Events

By Terri, Event Coordinator

March will be a very busy month! We start out with a BANG of star parties all in a row. Volunteers are very much needed. RSVP where requested & with proper RSVP person.

Remember, sometimes your RSVP helps us decide if the event will happen or not. So,

tell us you are attending, with or without a scope. All help is appreciated!

Mar 3: Chaparral High School. This is a Tuesday night. We need volunteers to make this school event a blast! RSVP is with Rod because Terri works that night. You can find more info on this star party at: <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=132&day=2009-3-3&c=2> Set up time is 7pm, & we are there until 10pm or the crowd leaves. Don, Neil (maybe) & Rod are the RSVP's so far. We could use a few more scopes. We hope to see you there.

Mar 4: ASU West Open House. This is not a PAS event, however, PAS likes to help Paul with his open house. We are setting up, like we used to, on the West side of campus. The flier & info you need is on line at:

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=134&day=2009-3-4&c=1> RSVP is with Paul at ASU West. He appreciates all the telescopes he can get to assist. Set up is at 6:30pm, and this star party is from 7 - 9pm. There is a slab of cement over there, for which Paul usually holds a place for me to set up, but since I can not make the event, the first to get there gets to

set up on the cement. The rest of you should sent up on the walk way. The dirt area isn't that great for setting up. 4 telescopes can fit on the slab. Thank you for your assistance. Leah is one of the RSVP's so far. This is a public event & a lot of fun. If you are attending as public, there is no need for RSVP. Only the telescopes need to let Paul know you are attending to help out.

Mar 5: PAS Meeting. Speaker: Bob Holmes. Bob and Mike Marron are PAS's Meteorite Men. We appreciate both of them. Bob's topic will be: COLLECTION METEORITES: Holding a piece of the stars & planets in your hands. Bring snacks to share. See you there!

Mar 6: Glen Burton Elementary School star party:

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=130&day=2009-3-6> It's a whole school star party. Many, many volunteers are needed. If you can help out, Terri is the RSVP for this event. Set up is at 5pm-ish, and we go 5:30 to 10pm, with solar viewing prior to dark. Refreshments are being served, so RSVP is required by Wed before. Don, Terri & Rod are RSVP's so far. We can use many more telescopes for this one. RSVP today!

Mar 7: Saturn at Opposition Star Party at PV Park! This will be an awesome time to see Saturn. RSVP is with Rod. This is a PUBLIC STAR PARTY! Everyone is welcome. Bring a friend!

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=120&day=2009-3-7&c=1> Set up at 5:30, star party from 6pm to 10pm. No public RSVP's cancels this event.

Mar 12: PVCC Public Star Party <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=93&day=2009-3-12&c=1> Bring a friend. Star party is from 5:30 to 10pm to catch the setting sun. Set up by the Telescope Domes by G-147 around 5pm. This is mostly for the astronomy students who attend PVCC, but is also open to the public. RSVP for this event is with Rod.

Mar 21: Cuttin' Edge Observatory Dark Sky Star Party. RSVP is required with Chris. Arrive prior to dark, in Mayer AZ. PAS Members ONLY.

Mar 26: Meeting of the Minds (PAS Business Meeting) in G-147. We have a lot of topics to discuss. Unless something weird happens, like last month, we will be there & so should you. If you aren't sure if we are having the meeting, call me prior to 3pm. See the online Agenda for that evening at:

<http://www.pasaz.org/forums/downloads.php?do=file&id=60>

Mar 27: Boy Scout Space Derby. PAS members ONLY. Set up is at 6pm, event is from 6:30pm to 10pm in Carefree. Details you need are at:

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=135&day=2009-3-27> Refreshments will be served to Volunteers & possibly tips collected to cover gas to get there. RSVP is with Terri.

Mar 28: 3rd Quarter Moon star party in Black Canyon City. RSVP is with Rod. No RSVP's cancels this star party. \$2 donation / car requested upon arrival.

Apr 2: PAS Meeting. See you there! ***

Upcoming Event Planning

By Terri, Event Coordinator

3/28 Messier Marathon

4/4 100 Hours of Astronomy

5/2 Astronomy Day

PAS Is working on locations to hold these events. If you have an idea and would like

to share, please consider attending the next Meeting of the Minds, PAS Meeting, dropping me an email at Events@pasaz.org, or going to the PAS forum: <http://www.pasaz.org/forums/showt>

[hread.php?t=233](http://www.pasaz.org/forums/showthread.php?t=233) & sharing your ideas within the forum. PAS would like your assistance in making these three events happen for you & the public. Thank you for your input! ***

Indoor Astro Event Review 2/12/09

Text and Photos by Terri, Event Coordinator

All the photos taken by Terri can be seen at:

http://www.pasaz.org/forums/gallery.php?g2_itemId=1136

Wow! We had an awesome turnout of activities for the public to enjoy. We had 9 RSVP's from the public. I saw more than 9 public at the event. I'd like to thank Jennifer and Lillian for attending. They are seen sitting at one of the tables (Image 859 on line in the PAS website Photo Gallery - Wearing black & purple) waiting for the telescopes to set up for viewing. Others who attended did not take a moment to talk with me, but I'm sure they enjoyed the evening as well. I bet there were more activities than one could possibly enjoy to the fullest in the 2 hours we were set up. A person could spend an hour at several of these demos and still not see the whole room full of activities.

It turned out that, even though we might have canceled the outdoor portion of this event, we did it anyway. Many objects were visible that night. I wish to thank the outdoor TEAM: Bob C, Rod & Don. They did an awesome job of keeping the interest of the public. Thank you 3 wonderful TEAM members. Here are some of the items that were viewed that night: Orion Nebula, Pleiades, Double Cluster, Venus, Herschel's Garnet Star, Andromeda Galaxy, M36 Open Clusters, M37, M38, Saturn, M82 Cigar Galaxy. Many thanks to the telescope TEAM for providing me a list of what they viewed that night.

Indoors we had quite a few people checking out the displays. I wish to thank those PAS members who set up a display and shared it with the attendees. Mike had his posters and meteorites. We put him at the back of the room so he'd have plenty of room to move around and talk about his favorite topics. You can see images of him in photo 882 & 019.

Leah had Elaine's help in doing 2 demos. Solar System Demo & What can we see in a Telescope using Slooh as the source of that demo. Elaine's photos can be seen in images 005 & 929. Leah's display and images are 887, 024, & 930.

I mention a few choice photos as the best ones we were able to get that night. However, since Bette, William and I took 113 photos that night, please enjoy them all. I added captions so you know what you are looking at.

Bob S. set up an Antique Flashlight

Display and Sonny assisted by keeping an eye on the flashlights in Bob's absence. Bob had to go to class, so Sonny was a great help. You can see images of Bob's display & Bob at 007 and 012.

Tim did a fantastic display. He did What you need to "do astronomy" & Being prepared for the weather. You can see images of his items at 004, 029, 903 & 904.

Rod set up an indoor display while doing his telescope outdoors. His display can be seen in 018. On the computer he found a program that does a Planet to Star Comparison. It is a 5 minute video. In photo 018 you can see him and Dave setting it up for the public's enjoyment.

Sal set up a display of his telescope and a star chart to be able to talk about how to work a telescope, an indoor, in daylight demo. He did very good at this. I was impressed listening to him. His photo is 020.

We had a table set up with handouts. Thanks goes to Leah for getting the newest handout to me, the Upcoming Events handout. I will have it at the next PAS Meeting for those of you who need a copy, such as Jerry, Kevin, John P. Those of you who receive the newsletter by snail mail, instead of Internet, can pick one up. There are only a few copies left, so if you can't make it to this next PAS meeting, let me know so I hang on to one for you.

Dave set up the main computer with a star program running real time, so that you could see what was visible that night outdoor, when there were no clouds. He had it projecting on to the big screen behind the Astronomy Demos & Prizes table. Thank you Dave for helping out.

Many thanks goes to all who attended and helped. I do believe it was a very successful event. I'd love to have you attend again with similar if not the same demos. I'm sure many people who attended never did see ALL the demos. Some of them stayed with Tim, Leah, or

Mike, or the telescopes all night. So, feel free to repeat your demo next time. Next Indoor Event is scheduled for Oct 15. I'd like to make a flier for the next event. If you want to repeat your demo, just drop me an email so I can include you in the flier. Thanks. We will see you there!!! ***



Mike has a captive Audience



Leah showing the solar System



Tim Talking to 2 Students

Arizona Sky



By Leah Sapir

This month the Winter Circle is still high in the sky. On its eastern edge – left of Orion, between Canis Major, Canis Minor, and Gemini – is the constellation Monoceros. Like the unicorn it is named after, Monoceros is almost invisible, but holds magical treasures.

One of the lovely star clusters in Monoceros is NGC 2244, whose young stars formed less than 4 million years ago. The cluster, about 5000 light years away, is visible in binoculars or a small telescope; and with a larger telescope and dark skies, we can also see the mass of nebulosity, several hundred light years across, that surrounds it – the nebula where the stars were born. The radiation from the young stars makes the nebula glow, and has hollowed out a space around them. Photographs show the red color of ionized hydrogen, giving the nebula its nickname, “The Rosette”.

Not far from it in the sky, but only around 2500 light years from us, is NGC 2264, a somewhat triangular cluster. This is a very young cluster, where some of the stars still have circumstellar disks, a relic of star formation. Near the base of the triangle is the star 15 Monocerotis, a very hot blue star that outshines the other cluster stars. The stars are surrounded by faint nebulosity, including emissions nebulae, reflection nebulae, and dark nebulae. One of the dark nebulae is a dense triangular area at the southern end, known as the Cone Nebula. The cluster is visible in a small telescope, but the nebulosity requires a larger scope and dark skies.

A little closer to home, Saturn is now at opposition and will be up all night. But if you’ve observed Saturn recently you might wonder what happened to its rings. They look a lot thinner than usual!

Last month we talked about Galileo’s observations of Venus. Galileo observed Saturn as well in 1610, but was somewhat puzzled by this planet. His telescope was not strong enough to show the rings clearly; what he saw resembled an egg-shaped planet, or a planet with bumps (or “ears”) on the side. Galileo was not sure what could be causing this un-

usual shape. He thought that maybe Saturn had two large moons, and wrote: “I have observed the highest planet [Saturn] to be tripled-bodied. This is to say that to my very great amazement Saturn was seen to me to be not a single star, but three together, which almost touch each other and never move nor change with respect to one another.”

But only two years after this observation, the “side-bumps” disappeared and Saturn appeared completely round! The “bumps” returned the following year.

Other observers also noted Saturn’s unusual shape, seeing it either as egg-shaped, or with two large, close moons. The “bumps” disappeared again in 1626 and 1642, each time reappearing within a year or two.

No one had an explanation for the periodic disappearance and reappearance of the “bumps”, until Christian Huygens observed Saturn with a larger telescope in 1655 and found “a thin, flat ring, nowhere touching, and inclined to the ecliptic.” He also discovered Saturn’s largest moon, Titan.

But why did the rings disappear at regular intervals – approximately every 15 years?

The answer: Saturn’s seasons! At Saturn’s equinox (“spring” or “autumn”) we see the rings edge-on, and since the rings are so thin (less than a mile thick), they seem to disappear. During Saturn’s

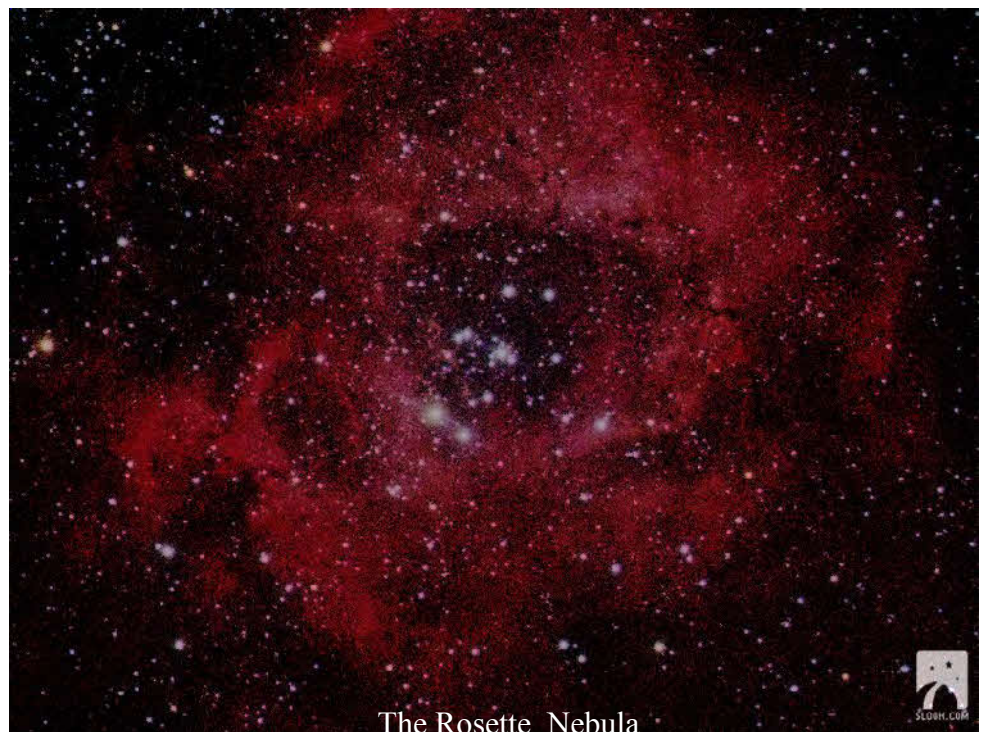
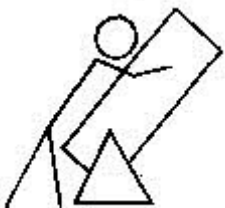
“summer” or “winter”, when one hemisphere is tilted towards the sun, we see the rings at a nicely viewable angle.

In 1671, Giovanni Cassini discovered two more moons of Saturn: Iapetus and Rhea; and also noticed a gap in the middle between the inner and outer parts of the ring; today this is known as “Cassini’s division”. Cassini discovered two more moons of Saturn – Tethys and Dione – in 1684. William Herschel discovered the moons Enceladus and Mimas in 1789.

This still left the question of the rings’ composition. Were they made of solid material, or smaller pieces? Most observers considered the rings to be solid, but in 1856 James Maxwell deduced that, due to the laws of motion, they must be made of “an indefinite number of unconnected particles, revolving round the planet with different velocities according to their respective distances” – because a solid ring would tend to break apart.

By the end of the 19th century, observations of the spectrum of reflected sunlight from Saturn and its rings showed that the inner and outer parts of the ring moved at different speeds, in accordance with Kepler’s law; this proved that the ring must be made of small particles, as Maxwell had surmised.

Today we know that these particles are mostly bits of ice, with a small amount of



The Rosette Nebula



Arizona Sky

dust and other compounds. They range in size from the size of sand grains to about 30 ft across, and the ice makes them very reflective. The rings don't contain a lot of material – if they were combined into one object, it would be less than 60 miles in diameter.

This year (2009) Saturn is at equinox, when we see the rings edge-on; but during the actual moment of ring-crossing, in September, Saturn will be too close to the sun for us to see. However, for most of the year, we will be able to see the rings at various very small angles, making them look very

thin if they are visible at all. Now is the time to take out your telescope and see it! We won't have another ring crossing for 15 years!

Now is also the time for viewing Saturn's moons. Titan is usually visible in any telescope, but the smaller moons require a larger telescope and dark skies, and are sometimes easier to see when there is less glare from the rings.

Venus will continue to charm us with a crescent shape this month, setting around 9 pm at the beginning of March, but fading

into the sunset after mid month, and reappearing as a morning star, very close to the horizon, on the last few days of the month. Mercury will still be a morning star at the beginning of the month, but will disappear into the sunrise after mid month. Jupiter and Mars will be rising earlier each day – just a bit before sunrise at the beginning of March, but 4 am (Jupiter) and 5 am (Mars) by the end of the month.

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

Meeting of the Minds Agenda: Feb 26, 09

G-147 7pm to 10pm - PAS Business meeting, no children please
Agenda is current as of 2/18/09. Download current list, day of meeting at:
<http://www.pasaz.org/forums/downloads.php?do=file&id=60>

Here is the agenda for the PAS MOM's we are holding this month. Your input & ideas are welcome. Would love to have you attend. There is a lot to this meeting. You may wish to attend to find out more about the below list of topics. See you there!

- * Don: Shop & Give
- * June 9 – 10 Star Party in Sierra Vista – Attendance? Caravan?
- * Guest Speaker – PAS Cover Hotel for night? + \$50 Down from Sierra Vista
- * 4/4 100 Hours of Astronomy – Schedule an event?
- * Selling webspace for ads – to allow non astronomy ads?
- * PAS Patches – pricing / image, etc.
- * 10/1 Dan's topic – discussed & chosen as: (in process of being voted on on website)

- * PAS Post Card project – discussion – possibly make phone calls? Divide up list.
- * Prismatic stickers – Suggest we use club members' photos – Chet, Chris, etc.
- * 3/28 Messier Marathon - Schedule an event? Star Party at PV Park
- * 5/2 Astronomy Day - Schedule an event?
- * Nominations for Awards from NSN
- * New project discussion: Making a comet for IYA Night Sky Network
- * 3 Books donated to PAS for review, discussion, put in PAS library ***

Attn: PAS Members

This is the month in which we (Chris, Mike & I) are updating the Roster as well as the access to the PASaz.org website. If your dues for 2009 are not received by end of meeting on Mar 5th, you will be removed from the items listed above. The Roster is the list of folks who have the following access: 1) if you are a Postal delivery member, you will no longer receive

a newsletter after the March issue. That will be about 8 less newsletters that Don will be mailing. 2) You will not have access as a PAS member on the pasaz.org website. That means if you were interested in PAID star parties or other PAS Members ONLY events, you will no longer be able to attend or know about them. 3) Your membership also gets you the mini magazine from the Astronomical League, for which

that subscription will end as well. So, if you plan to stay a PAS member, I suggest you get those dues into the club Treasury very soon. The newest PAS Roster is on line. If you are unsure of your status, give Mike, PAS Treasurer, a call. The number can be found on line or in this newsletter on page 2. We don't want to lose you! Renew your Dues today! ***

Saturn at Opposition Star Party

Date: Mar 7. Time: 6pm to 10pm. Location: PV Park. RSVP with Rod.

Saturn is at Opposition on Mar 8th. We don't usually do star parties on Sunday nights, so this one is planned for the night before.

If you are up for a challenge on this night, try sighting Saturn and Sigma Leonis

with no aid of a telescope or binoculars. If you are unsuccessful, try again a few nights later. Seeing both the star & planet will be fun to try because the closely-spaced points of light are of very different brightnesses. The planet will be a mag of 0.5 which is 40 times brighter than Sigma. We will attempt to show you both the star & planet on

this night, together in the eyepiece.

At opposition this year, Saturn will shine about a full magnitude dimmer than maximum because its rings are nearly edge-on and thus they aren't reflecting the sun as they would be if we were seeing Saturn's rings as well as the planet. Seeing the planet's rings at edge on is a treat. ***



Where Did All These Gadgets Come from?!

Ion propulsion. Artificial intelligence. Hyper-spectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe

to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

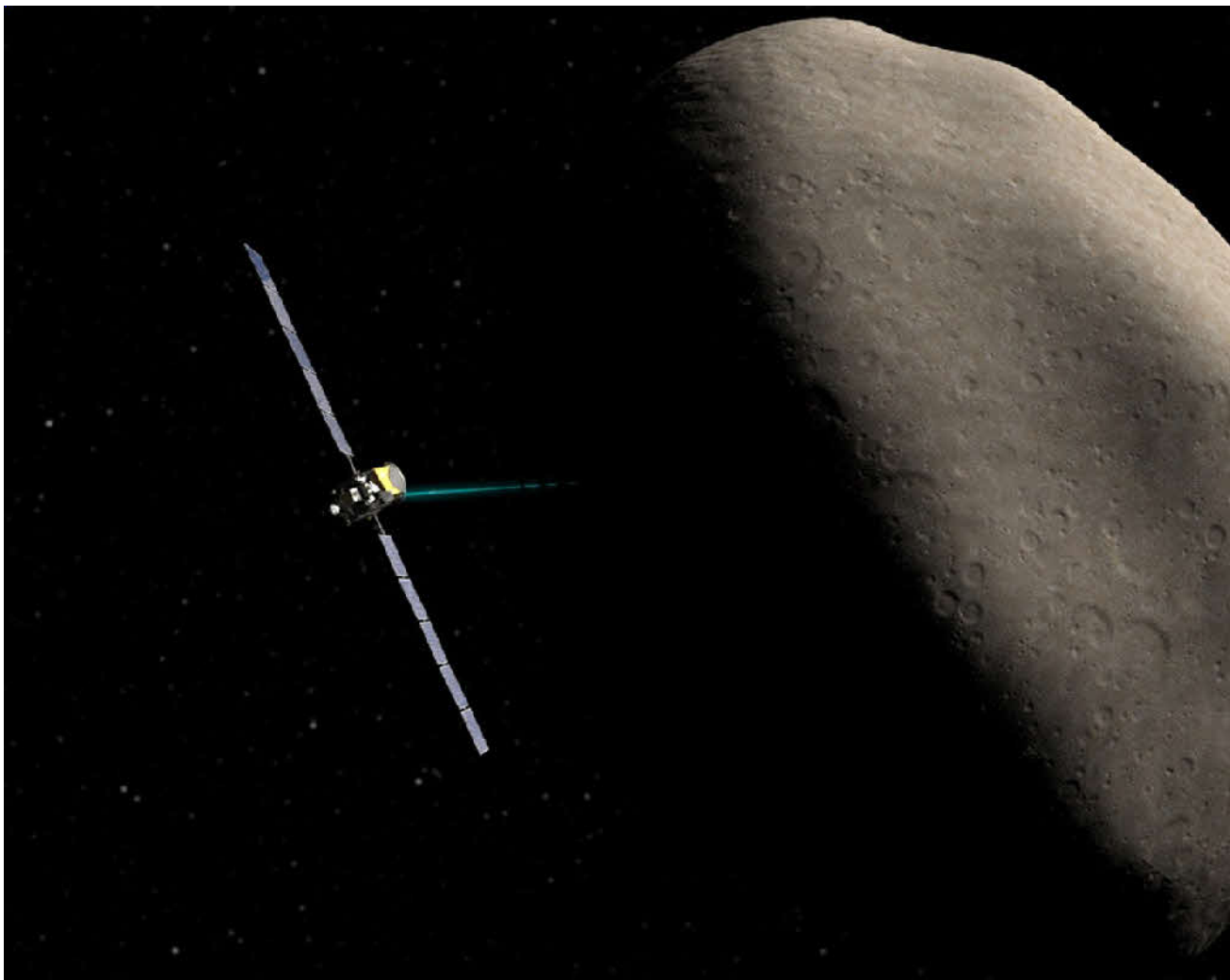
In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions. And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but

Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

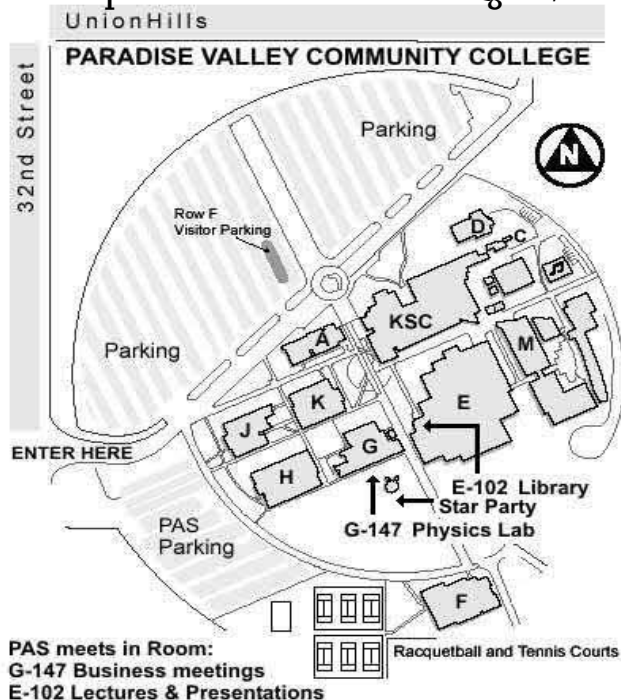
The results of all NMP's technology validations are online and the list is impressive:

nmp.nasa.gov/TECHNOLOGY/scorecard/corecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

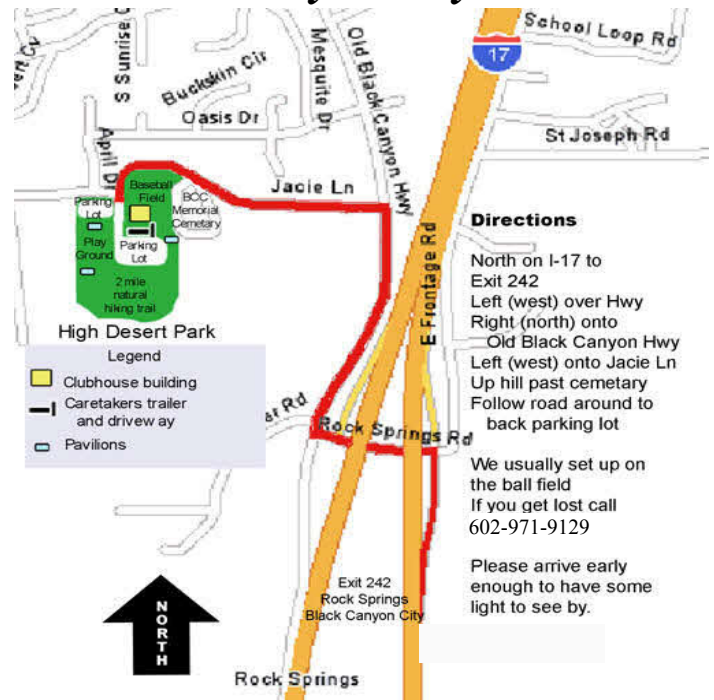


Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.

Map to PAS Meeting Location



Black Canyon City Site



For More Information on events See Page 2

March 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 Chaparral High School star party (Private)	4 ASU West Star Party - Volunteers Needed	5 PAS General Monthly Meeting	6 Glen Burton Elementary School Star Party (Private)	7 Saturn at Opposition Star Party at PV Park
8	9	10	11	12 PVCC Star Party by Telescope Dome	13	14
15	16	17	18	19	20	21 Cuttin' Edge Observatory (Private)
22	23	24	25	26 Pas Meeting of the Minds (Business Meeting)	27 Boy Scout Space Derby (Private)	28 3rd Quarter Moon Star Party at High Desert Park in BCC
29	30	31				

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March 15 2009

Sunrise: 06:37
Sunset: 18:36

New: February 25

Q1: March 4

Full: March 11

Q3: March 18

What's Up For March?

By Rod Sutter, PAS President

Planets

Name	Date	Rise	Set
Mercury	03-1-09	06:02	16:36
Venus	03-1-09	08:04	21:05
Mars	03-1-09	06:55	16:37
Jupiter	03-1-09	05:38	16:06
Saturn	03-1-09	18:51	17:29
Uranus	03-1-09	07:32	19:17
Neptune	03-1-09	06:11	17:00
Pluto	03-1-09	02:49	18:25

All Times Arizona Time

