



# the Webfooted Astronomer

News from the Seattle Astronomical Society  
January 2008

## Bonnie Dunbar to keynote annual SAS banquet

Dr. Bonnie J. Dunbar, president and CEO of the Museum of Flight in Seattle, will be the keynote speaker at the annual banquet of the Seattle Astronomical Society January 20, 2008 at Rock Salt restaurant on Lake Union.

Dr. Dunbar recently retired from the NASA Johnson Space Center where she was Associate Director, Technology Integration and Risk Management for the Space Life Sciences Directorate.

A NASA Mission Specialist astronaut and veteran of five space flights, Dr. Dunbar has logged more than 50 days in space. She has served as the payload commander on two flights, including the first Space Shuttle docking mission to the Russian Space Station Mir.



*Courtesy the Museum of Flight*

### SAS BANQUET

January 20 — 5:30 p.m.  
Rock Salt Restaurant  
1232 Westlake Avenue N  
Seattle, WA 98109

Cost: \$35 per person

#### Menu:

Pepper steak  
King Salmon  
Portabella mushroom steak  
(vegetarian)

#### Banquet Agenda

5:30 p.m.  
Social hour, no-host bar

6:15 p.m.  
Dinner served

7:15 p.m.  
Dr. Dunbar's speech

8:15 p.m.  
SAS "Year in Review,"  
awards, door prizes

[Register and pay on-line](#). If you wish to pay by check or have other questions, please contact banquet chair Andrea Torland at (206) 669-4283.

# SAS Calendar

**January 8 — New Moon**

**January 12 — 7 p.m.**

Seattle Astronomical Society Star Parties

- ◆ Green Lake, Seattle
- ◆ Paramount Park, Shoreline

**January 15 — First quarter Moon**

**January 19 — 6:30 p.m.**

Amateur telescope makers SIG meeting

Contact: atm@seattleastro.org

**January 20 — 5:30 p.m.**

Seattle Astronomical annual banquet, with keynote speaker Dr. Bonnie Dunbar. Details on page 1.

**February 1 — early a.m.**

Venus and Jupiter just 0.6 degrees apart.

**February 20**

Total eclipse of the Moon. Totality begins at 7 p.m. and lasts for nearly an hour.

**February 20 — 7:30 p.m.**

Seattle Astronomical Society Meeting

The Webfooted Astronomer is the monthly publication of the Seattle Astronomical Society (SAS). All opinions expressed herein are those of the contributors and not necessarily those of SAS. Advertising display rates: full page (7" x 9.5") \$50; half page (7" x 4.75") \$30; less than half page: \$5 per page inch (1" x 5"). Personal ads are published free to current paid members of the SAS. For all others, 10 cents per word, 50 word minimum charge. Submit article ideas to Editor, The Webfooted Astronomer, PO Box 31746, Seattle, WA 98103, or e-mail to editor@seattleastro.org.

Editor: Greg Scheiderer

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# Congratulations!

Denis Janky has earned the Globular Cluster Award from the Astronomical League. To qualify for the award, participants must observe at least 50 globular clusters, including one from a special "challenge" list. Education VP Mike Langley announced the award at December's SAS meeting. For more information about observing clubs, contact Mike, or visit the Astronomical League Web site at <http://www.astroleague.org/>.

Congratulations, Denis!

## SAS officers

**President**, Jon Bearscove  
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**Board chair**, Thomas Vaughan  
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**VP Programs**, Jingchun Chen  
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**Treasurer**, Maxine Nagel  
[treasurer@seattleastro.org](mailto:treasurer@seattleastro.org)



*From the president's desk*  
By Jon Bearscove

# Out with the new, in with the old

It's already 2008, and I should say, it feels odd. I started looking up at the sky and wondering about the stars almost 30 years ago. I think it's amazing that I still feel the same way today when I look up into the Universe as I did back then. A feeling of amazement, respect, awe, and a sense of how insignificant I am considering the scale of things.

The SAS though, is by no means an insignificant astronomy club, to say the least. For us, 2007 was a fantastic year in terms of guest speakers and outreach opportunities. We've had the most spectacular programs that I can remember. I mean, honestly folks, let's get real for a moment. We saw an ion engine in a test chamber, at a rocket facility, on a tour that Anita organized, and you just can't top something like that.

To see that blue glow in the chamber was just plain amazing and left me speechless. That opportunity would have never presented itself to me had it not been for Anita's efforts. So it goes without saying that 2007 was one of the best years for me as part of the SAS.

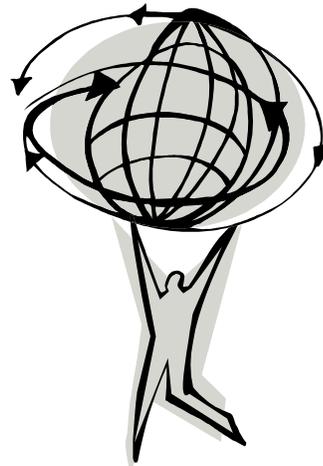
Although our participation at outreach has been less than what I was hoping for, I've enjoyed seeing some of our newest members eagerly participate along with our seasoned members, and I think we've made a nice presence in the community.

With a new Board in place and new trustees on board, along with the same great Past President (Sorry Tom, you're still part of the equation until I'm overthrown), I think we have a great 2008 coming up.

We still have pitfalls to overcome and things to do to make it a better club, and we're still all here to have fun, so I'm sure we can keep things moving in the right direction.

My wish for 2008 is that we somehow reconnect with our fundamental reason for being a non-profit organization, and really get the word out about our hobby, encourage participation, share knowledge and good times, enjoy the night sky, and just get back to basics. Old school, as it were.

I hope all of you have a great 2008, and that the SAS will continue to be a part of your lives. As always, we consist of an all-volunteer force and will continue to do the best we can with what we have. Please join me in celebrating what it's all about...those pesky stars that just won't go away!

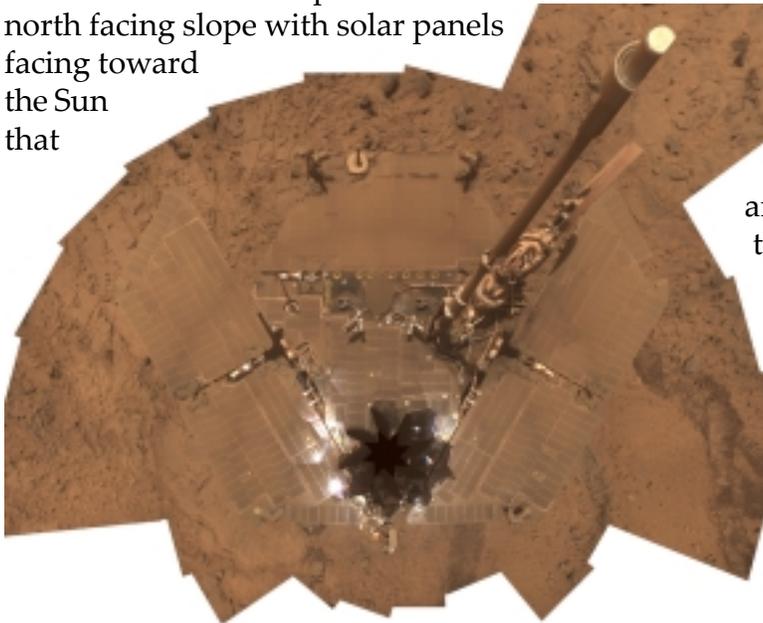


## Solar System Ambassador update

By Ron Hobbs

Autumn returned again to the southern hemisphere of Mars on Earth's December 10, where the two Mars Exploration Rovers are facing the prospect of surviving a third winter on the red planet. These robotic areologists have overcome incredible obstacles, including a massive, almost global dust storm this past summer, and have taken humanity along on the first overland expedition of exploration conducted on another planet. Opportunity is in a fairly good position to survive the coming winter. She is just a couple of degrees south of the equator and winds have removed a lot of the dust that settled out of the atmosphere at the end of the dust storm. The rover's solar panels are generating about two-thirds of the energy they did when they were new and clean.

Half a Mars away, Opportunity's older twin, Spirit, is in much worse shape. Spirit is located at almost 15° S. Lat. and she is literally caked with dust. She is now parked on a north facing slope with solar panels facing toward the Sun that



The deck of NASA's Mars Exploration Rover Spirit is so dusty that the rover almost blends into the dusty background in this image assembled from frames taken by the panoramic camera (Pancam) in late October of 2007. Image credit: NASA/JPL-Caltech/Cornell

crosses lower and lower in the northern sky with every passing sol. Spirit may get only enough solar energy to just keep warm and survive through the long, cold nights around the solstice which occurs on our June 25<sup>th</sup>. On January 3, 2008 (Jan. 4 if you go by Universal Time) Spirit will mark four Earth years of operation in the cold, dry environment of Gusev Crater, almost 16 times longer than the rover's prime mission. Opportunity will mark the four year anniversary three weeks later.

On January 14, the MESSENGER spacecraft will sail just 200 km above the largest remaining stretch of unexplored terrain remaining in the Solar System, as it makes the first flyby of Mercury in 32 years. As it looks back at a gibbous Mercury, it will see almost a third of the area unseen by Mariner 10 bathed in the bright sunlight. It will be able to photograph the entire Caloris Planitia, so named because on every other Mercurian perihelion the sub-solar point is in this large impact basin. An extensive imaging campaign is planned, and the images should be available on your computer by the end of January, if not sooner. MESSENGER has flown by Earth once, Venus twice, and will fly by Mercury three times in order to drain off enough momentum from the spacecraft so that it can enter orbit around Mercury on March 18, 2011 with the fuel NASA could afford to send along with when it was launched August 3, 2004. After Mercury Orbit insertion, all of the planets known before the invention of the telescope will have been orbited by artificial satellites. ★

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*The Solar System Ambassadors Program is a public outreach program designed to work with motivated volunteers across the nation. These volunteers communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities. Ron Hobbs, a new member of SAS, has been an Ambassador since 2001.*

# To the Moon, and Mars

## Solar system ambassador takes SAS members on flight of fancy

By Greg Scheiderer

Dr. Ron Hobbs took Seattle Astronomical Society members on a tour of the Moon and Mars at our December 19 meeting. Hobbs, solar system ambassador for NASA's Jet Propulsion Laboratory whose day job is public programs assistant at the Museum of Flight in Seattle, took us "Barnstorming the Planets" at our September meeting.

Hobbs opened his December presentation with a little history, noting that we'd just passed the 45<sup>th</sup> anniversary of the first successful planetary exploration, Mariner 2's flyby of Venus on Dec. 14, 1962.

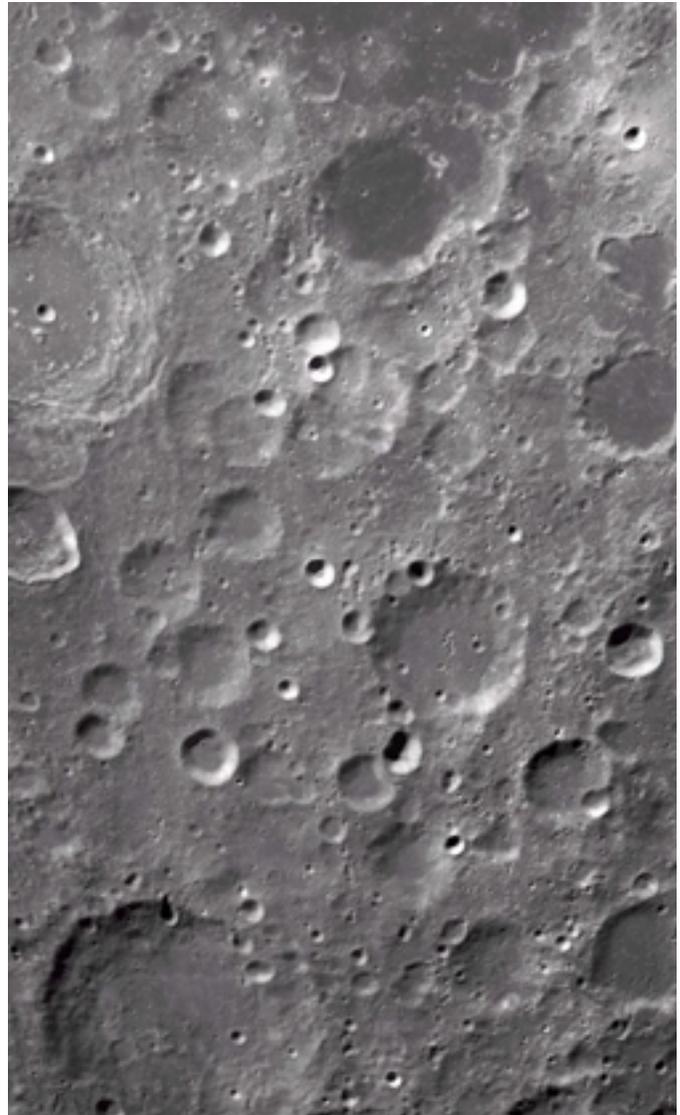
"There are probably some people in this room who remember that back in 1962 some of us were expecting that possibly we would find swamps and primeval forests, maybe even dinosaurs," Hobbs said. "Of course what we found is a very hellish world with surface temperatures of about 900 degrees Fahrenheit, and one of the worst cases of acid rain in the solar system."

Hobbs also noted that NASA has gotten into recycling in a big way. The "Deep Impact" mothership has been renamed EPOXI after its two new missions. DIXI – Deep Impact Extended Investigation – will take a close look at comet 103P Hartley in October of 2010. While it's on the way it will be EPOCH – Extrasolar Planet Observation and Characterization – and will study at least three extrasolar planets. The Stardust mothership is on the way to look at comet 9P/Tempel 1, the same one Deep Impact impacted in 2005. The event stirred up such a dust cloud that it was impossible to get good pictures. Stardust already has a date for

Valentine's Day, 2011 to take a look at the crater Deep Impact created.

There's something of a space race on these days. Japan and China have Moon missions going, India plans to launch one in April and NASA will shoot a Moon probe up in October.

*Continued on page 7*



*The first image returned from the Moon by Chang'e 1, China's first spacecraft beyond Earth orbit. The 19 separate images that compose this view were captured over two days, November 20 and 21. Each image is 60 kilometers wide; the entire image is about 460 kilometers long and 280 kilometers wide. At the bottom edge is 94-kilometer crater Helmholtz. Photo credit Chinese National Space Administration.*

# Ultraviolet Surprise

by Patrick L. Barry and Tony Phillips

How would you like to visit a universe full of exotic stars and weird galaxies the likes of which astronomers on Earth have never seen before?

Now you can. Just point your web browser to [galex.stsci.edu](http://galex.stsci.edu) and start exploring.

That's the address of the Galaxy Evolution Explorer image archive, a survey of the whole sky at ultraviolet wavelengths that can't be seen from the ground. Earth's atmosphere blocks far-ultraviolet light, so the only way to see the ultraviolet sky is by using a space telescope such as NASA's Galaxy Evolution Explorer.

About 65% of the images from the all-sky survey haven't been closely examined by astronomers yet, so there are plenty of surprises waiting to be uncovered.

"The Galaxy Evolution Explorer produces so much data that, beyond basic quality control, we just don't have time to look at it all," says Mark Seibert, an astronomy postdoc at the Observatories of the Carnegie Institution of Washington in Pasadena.

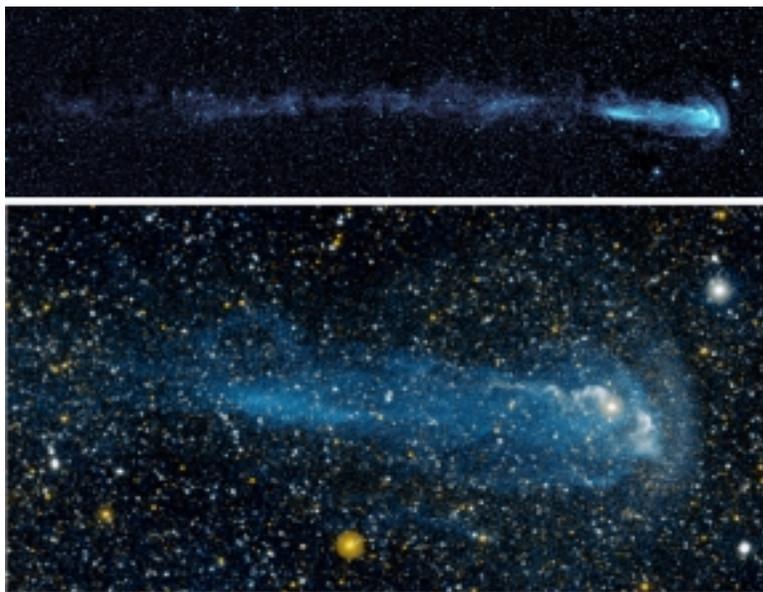
This fresh view of the sky has already revealed striking and unexpected features of familiar celestial objects. Mira is a good example.

Occasionally visible to the naked eye, Mira is a pulsating star monitored carefully by astrono-

mers for more than 400 years. Yet until Galaxy Evolution Explorer recently examined Mira, no one would have guessed its secret: Mira possesses a comet-like tail 13 light-years long.

"Mira shows us that even well-observed stars can surprise us if we look at them in a different way and at different frequencies," Seibert says.

Another example: In April, scientists announced that galaxies such as NGC 1512 have giant ultraviolet spiral arms extending three times farther out into space than the arms that can be seen by visible-light telescopes. It would be like looking at your pet dog through an ultraviolet telescope and discovering his ears are really three times longer than you thought!



*Astronomers looking at new ultraviolet images from the Galaxy Evolution Explorer spacecraft were surprised to discover a 13-light-year long tail on Mira, a star that has been extensively studied for 400 years.*

The images from the ultraviolet space telescope are ideal for hunting new phenomena. The telescope's small, 20-inch primary mirror (not much bigger than a typical backyard telescope) offers a wide field of view. Each image covers 1.2 degrees of sky—lots of territory for the unexpected.

If someone combing the archives does find something of interest, Seibert advises that she or he should first search astronomy journals to see whether the phenomenon has been observed before. If it hasn't, email a member of the Galaxy Evolution Explorer science team and let them know, Seibert says.

So what are you waiting for? Fire up your web browser and let the discoveries begin!

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

## To the Moon

*Continued from page 5*

The Japanese mission carries two high-definition video cameras and has returned fascinating footage. The Chinese mission Chang'e 1, named after the Chinese Moon goddess, was launched in October and returned its first photos in November. Hobbs said it's something of a return to exploration for China, relating the story of the great admiral Zheng He, who made far ranging sailing expeditions in the early 15<sup>th</sup> Century. He returned from the last one to a new, hostile emperor who decided to curtail exploration and burn the fleet.

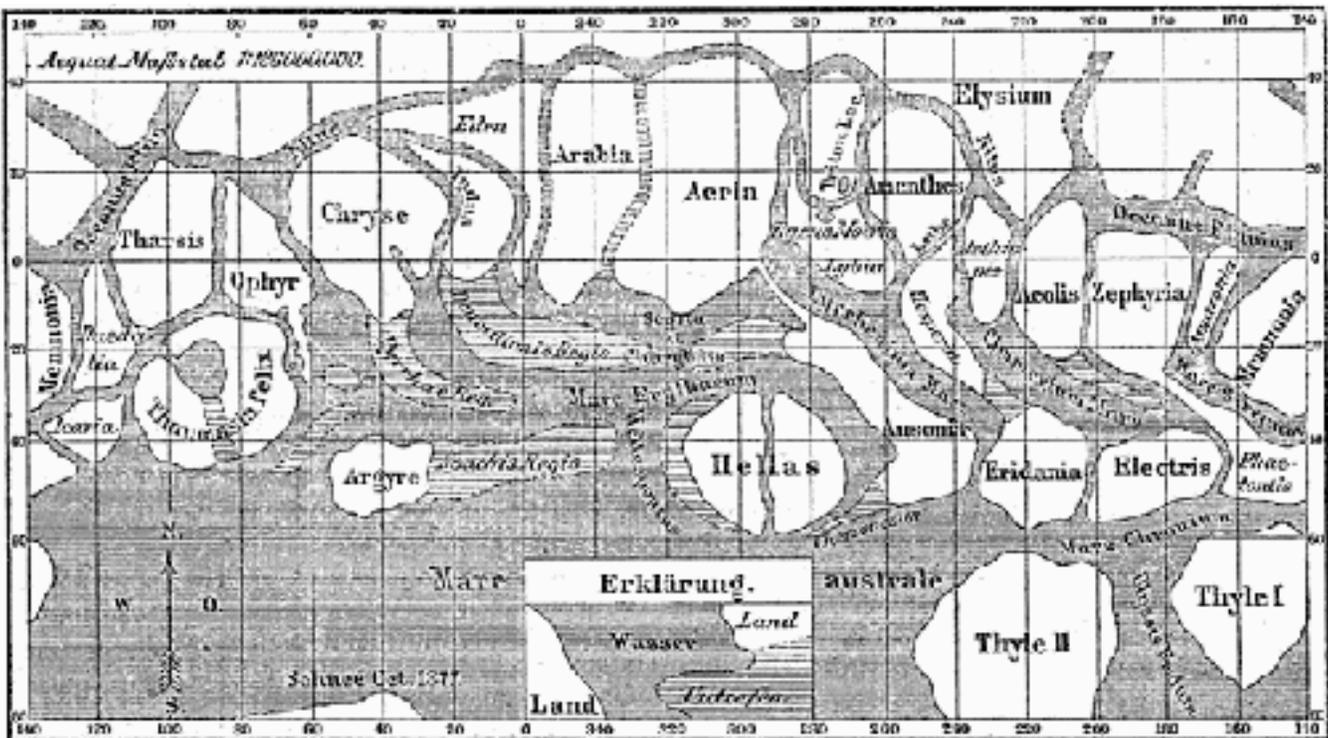
"We speak English now instead of Chinese," Hobbs said noting the dramatic results of that decision. "I don't think the Chinese are going to give up this time."

Moving on to the Red Planet, "Mars seems like a Rorschach test for the human race," Hobbs said, adding that the whole angst started with the excellent apparition of 1877.

Telescopes had improved and lots of folks were looking, including Italian astronomer Giovanni Schiaparelli, who sketched what he called, in Italian, *canali* on Mars. The word can also mean channel or gully, but with the Suez Canal under construction many people latched on to the notion of canals, which would mean Martians to build them.

Nearly a century later, in 1965, Mariner 4 took up-close pictures of Mars. It found no canals. The notion of life on Mars persisted until Viking 1 landed there in 1976, dug up some soil, did some experiments, but found no life.

"Between 1960 and 1975, every 26 months the Soviet Union, the United States, or both launched spacecraft toward Mars," Hobbs said. "This pretty much ended it. We got there, we got on the surface, we didn't find life, and we decided to go elsewhere in the solar system." Nearly a quarter century went by until we went back, and today we have some amazing new science coming back from Mars every day. ★



*Historical map of Mars by Giovanni Schiaparelli.*

**NEXT MEETING**  
**January 20, 2008**

Annual banquet with  
guest speaker  
Bonnie Dunbar

Details, page 1

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**The Webfooted Astronomer**  
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SEATTLE, WA 98103-1746



NASA photo

*Dr. Bonnie J. Dunbar, president and CEO of the Museum of Flight in Seattle and former astronaut, will keynote the annual SAS banquet Jan. 20. See page one.*

**We promise you the Sun, the Moon,  
and the stars... and we deliver!**

The Seattle Astronomical Society is an organization created and sustained by people who share a common interest in the observational, educational, and social aspects of amateur astronomy.

Established in 1948, the SAS is a diverse collection of over 200 individuals. A variety of programs and activities is presented by the SAS throughout the year. Monthly meetings feature speakers on a wide range of topics, from the Hubble Space Telescope to electronic imaging to personal observing experiences. The club holds public observing "star parties" at Green Lake and Paramount Park every month, dark sky observing parties outside Seattle, plus such activities as meteor watches, public telescope and astronomy displays, National Astronomy Day, and an annual Awards Banquet.