



the Webfooted Astronomer

News from the Seattle Astronomical Society

November 2007

Tremoulet wows SAS with super home-built scope

During the Seattle Astronomical Society's October 17 meeting, Sonny Tremoulet gave a most informative and inspiring presentation on something most of us have dreamed about: amateur telescope making (ATM).

With his elegant 16-inch, F4.5 Dobsonian standing by his side, Sonny started the presentation with an exciting topic, the art of mirror making. Even at the very beginning of his ATM adventure after retirement seven years ago, Sonny knew that he would be making more than one mirror. So, putting his mechanical engineering background into good use, he built a machine that can grind, polish and figure

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Master telescope builder Sonny Tremoulet brought his 16-inch Dob to the October SAS meeting. Anita Eclissi photo.

NEXT MEETING

November 21 — 7:30 p.m.
University of Washington
Physics/Astronomy Building,
Room A-102

Tom Gwilym — DSLR Astrophotography

Tom Gwilym, President of the Eastside Astronomical Society, will share his "tricks of the trade" for excellent results in astrophotography. Tom, with the help of Maia Pereyda, designed and built the Highlands Astro-Shack Observatory in Renton — which houses a 12 inch Meade LX200, nicknamed "Big Blue". The camera Tom uses is a modified Canon 350D.

Come learn his secrets to digitally capturing the beauties of our universe!

www.eastsideastro.org

SAS Calendar

November 7 — 7 p.m.
UW Observatory — Public viewing night

November 9 — New Moon

November 10 — 7 p.m.
Tiger Mountain Star Party (members only)

November 21 — 7:30 p.m.
Seattle Astronomical Society Meeting
Guest speaker: Tom Gwilym, DSLR
Astrophotography. Details on page 1.

November 17 — First quarter Moon

November 17 — 7 p.m.
Seattle Astronomical Society Star Parties

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

November 17-18
Peak of Leonid meteor shower

November 24 — 6:30 p.m.
Amateur telescope makers SIG meeting
Contact: atm@seattleastro.org

November 25 — 2 p.m.
Astrophotography/Imaging SIG meeting
Contact: astrophoto@seattleastro.org

November 26 — 8:30 p.m.
Moon passes 1.5 degrees north of Mars

December 8 — 7 p.m.
Tiger Mountain Star Party (members only)

January 20
Annual SAS banquet and awards ceremony.
Save the date! Details to follow.

Election: officers needed



From the president's desk
By Jon Bearscove

It's that time of the year when we are approaching our election cycle, so I wanted to touch base with all of you in advance and briefly run down the process and the positions that we will need to fill for 2008.

The SAS bylaws under Article II - Meetings, state that the annual meeting of the society shall be held in November of each year. This year might be a bit tricky because it is so close to Thanksgiving, so I hope to be able to obtain as much feedback as possible from our membership in advance of the annual meeting. Many members may be preparing for the holiday and not able to attend the meeting, so the more time the better.

Please take a look at the following positions and their descriptions and see if this is something you would like to participate in. The SAS is entirely run by volunteers who come from the membership to help keep things

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going each year. New members are highly encouraged to consider being a candidate for one of these roles.

At the annual meeting, the SAS will select its new officers, and those positions not filled will be determined vacant, so if you aren't able to attend the meeting, please let us know if you are interested in being a candidate so we can include your name and present you as a candidate at the meeting.

POSITIONS AVAILABLE

The President: Preside over all meetings of the society, and perform all traditional duties pertaining to the executive office. Each president, upon retiring from office, becomes a member of the executive board as immediate past president.

First Vice-President (Activities): Arrange for a program for each regular monthly meeting and coordinate and plan other regularly scheduled and special activities of the organization.

Third Vice-President (Membership): Coordinate programs designed to recruit new members, introduce new members to the activities of the society and facilitate their participation therein, and promote the recognition of members for their activities and service to the society. The third VP also maintains the membership mailing list.

Fourth Vice-President (Publicity): Coordinate efforts to publicize activities of the society.

Secretary: Keep brief minutes of all society meetings, maintain other appropriate correspondence external to the society, and coordinate the assembly, organization, maintenance, and dissemination of materials relating to the history and activities of this society.

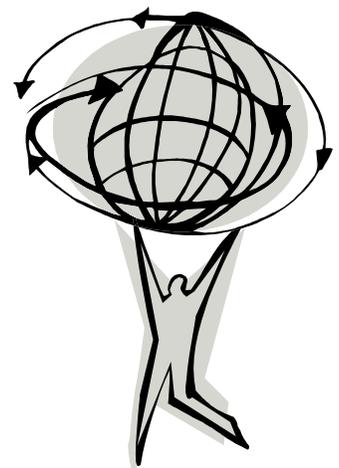
SCOPE LIBRARIAN NEEDED

We are also seeking a Telescope Librarian who would be willing to house the society's telescope collection, and assist with the loan of these telescopes to fellow members. This would be a very interesting role for someone who is interested in observing equipment and maintaining/learning how to maintain equipment, as some of our telescopes are in need of some tender loving care. The person who is able to volunteer for this would have to agree to store the telescopes at their home/garage/basement/storage, and help the SAS by performing minor repairs, let the Board know if new parts are needed, etc.

It's a big role, but one of the perks is that you would have access to several telescopes and be able to either work on them, observe with them if they aren't loaned out, help improve them, and help make our telescope library a solid one that is used by all members.

Over the next few weeks there will be a lot of email traffic on the annual meeting, the election, candidates, and other related topics, so please feel free to ask any questions about these positions, or offer nominations. The full Constitution and Bylaws are on the SAS Web site.

The nomination deadline will be the actual annual meeting itself, on November 21st, because floor nominations are accepted during the meeting. For all submissions, it would be nice to know a little bit about yourself and why you would like the position, or why you are nominating a fellow member for a certain position.



Tremoulet wows SAS

Continued from page 1

mirrors of varying sizes and focal ratios. The heart of the machine is a set of motors that drive the mirror and grinding tool, while the high precision of the motions is achieved through two programmable controllers, the brain of the machine. Sonny showed a few video clips of the machine in action. It was amazing to see how smoothly and quietly the whole system functions!

To ensure high quality of the optics coming off the workbench, Sonny also built a “three-in-one” optical bench that can perform a Ronchi test, Foucault test, or interference test. It achieved such a high sensitivity that any human activity will cause distortion of the testing images. So he added strong springs as suspension for the platform and achieved great results. When using examples of wireframe visualization to explain how to interpret interferometry data, Sonny exhibited wide knowledge, keen insights, and excellent problem solving skills in producing perfect optics.

Then Sonny switched gears and started talking about the mechanical aspects of the award-winning truss Dobsonian. One of the most interesting features of the scope is the rotating secondary cage, which rides on Teflon pads and is guided by soft wheels on top. It is obvious that ingenuity in design and precision in construction are both required to make sure collimation holds all the time, especially for a fast telescope. This is a useful feature since rotating eyepieces makes viewing very comfortable on any object and for a person of practically any height. He showed a picture of his five-foot tall daughter comfortably at the eyepiece. A detachable table was constructed and can be attached at the back of the scope as a working platform for laptops, star charts, sketch papers, etc. Sonny also built a digital setting circle and motor driving mechanisms so that objects can be located by pushing a button and be automatically tracked while enjoying the views. A slip ring was built around the azimuth mount to ensure uninterrupted power supply. Even though the scope is slewing from side to side under the sky, no cable could be seen -- like magic! Sonny's

beautiful, feature-rich scope bears three honors: Telescope Merit Award, Best of Class by Judge's Choice at Table Mountain Star Party of 2002 and 2003; and Merit Award at Riverside Telescope Makers' Conference of 2003.

Overall, it was a great talk from Sonny Tremoulet, the Master Telescope Builder. The overwhelming responses from the audience said it all. ★

--by Jingchun Chen



Tremoulet drew many questions. Inspired beginners asked about mirror making classes, mirror buying tips, and basic telescope design tips such as pros and cons of different focal ratios. Seasoned ATMs asked very technical questions on interferometry interpretation and motion control of the mirror making machine, on which Sonny gave very detailed answers from mathematical and programming points of view. Anita Eclissi photo.

The Red (hot?) Planet

by Patrick L. Barry

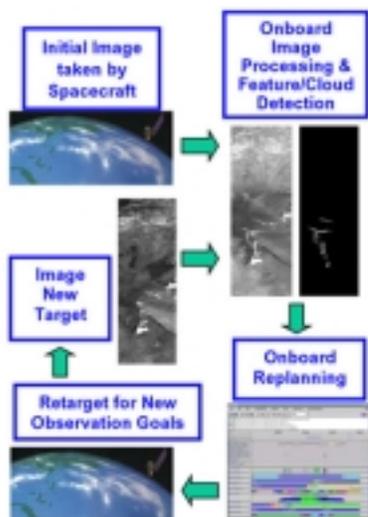
Don't let Mars's cold, quiet demeanor fool you. For much of its history, the Red Planet has been a fiery world.

Dozens of volcanoes that dot the planet's surface stand as monuments to the eruptions that once reddened Mars's skies with plumes of glowing lava. But the planet has settled down in its old age, and these volcanoes have been dormant for hundreds of millions of years.

Or have they? Some evidence indicates that lava may have flowed on Mars much more recently. Images of the Martian surface taken by orbiting probes show regions of solidified lava with surprisingly few impact craters, suggesting that the volcanic rock is perhaps only a million years old.

If so, could molten lava still occasionally flow on the surface of Mars today?

With the help of some artificial intelligence software, a heat-sensing instrument currently orbiting Mars aboard NASA's Mars Odyssey spacecraft could be just the tool for finding active lava flows.



Just as changing cloud patterns on Earth were identified using Earth Observing-1's Advanced Land Imager along with ScienceCraft software, the THEMIS instrument with ScienceCraft on the Mars Odyssey spacecraft can avoid transmitting useless images.

"Discovering such flows would be a phenomenally exciting scientific finding," says Steve Chien, supervisor of the Artificial Intelligence Group at JPL. For example, volcanic activity could provide a source of heat, thus making it more likely that Martian microbes might be living in the frosty soil.

The instrument, called THEMIS (for Thermal Emission Imaging System), can "see" the heat emissions of the Martian surface in high resolution—each pixel in a THEMIS image represents only 100 meters on the ground. But THEMIS produces about five times more data than it can transmit back to Earth.

Scientists usually know ahead of time which THEMIS data they want to keep, but they can't plan ahead for unexpected events like lava flows. So Chien and his colleagues are customizing artificial intelligence software called ScienceCraft to empower THEMIS to identify important data on its own.

This decision-making ability of the ScienceCraft software was first tested in Earth orbit aboard a satellite called Earth Observing-1 by NASA's New Millennium Program. Earth Observing-1 had already completed its primary mission, and the ScienceCraft experiment was part of the New Millennium Program's Space Technology 6 mission.

On Odyssey, ScienceCraft will look for anomalous hotspots on the cold, night side of Mars and flag that data as important. "Then the satellite can look at it more closely on the next orbit," Chien explains.

Finding lava is considered a long shot, but since THEMIS is on all the time, "it makes sense to look," Chien says. Or better yet, have ScienceCraft look for you—it's the intelligent thing to do.

To learn more about the Autonomous ScienceCraft software and see an animation of how it works, visit <http://ase.jpl.nasa.gov>.

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

SAS a hit at Museum of Flight's Astronomy Day

Seattle Astronomical Society participated in the Museum of Flight's Astronomy Day celebration on October 4 by setting up a display including samples of members' astrophotography, club pamphlets, helpful printouts for choosing a first telescope, astronomy books and star charts, and of course TELESCOPES!!

Mike Langley brought in a handy 5" Celestron on an equatorial mount, and Rick Libsack brought a user-friendly pair of 88mm fork-mounted binoculars and his fabulous 20" Starsplitter Dobsonian telescope – which definitely drew extra attention to the SAS display! Both Mike and Rick were kept busy answering an abundance of questions. Andrea Torland and Anita Eclissi were there to help as well.

What was the result of so many museum visitors stopping by to investigate our telescopes and other astronomical paraphernalia? Many intrigued minds and sparkling eyes – from adults and children alike!

– by Anita Eclissi



The ever-serious SAS crew poses with Rick Libsack's 20-inch Dob at the Museum of Flight on Astronomy Day. From left are Libsack, Mike Langley, Andrea Torland, and Anita Eclissi. Photo by Anita Eclissi.



SAS displays were popular at Astronomy Day. Above, two Boy Scouts take turns for a peek through binoculars at the Museum of Flight. At left, a mom and son check out a planisphere among the society literature. Photos by Anita Eclissi.



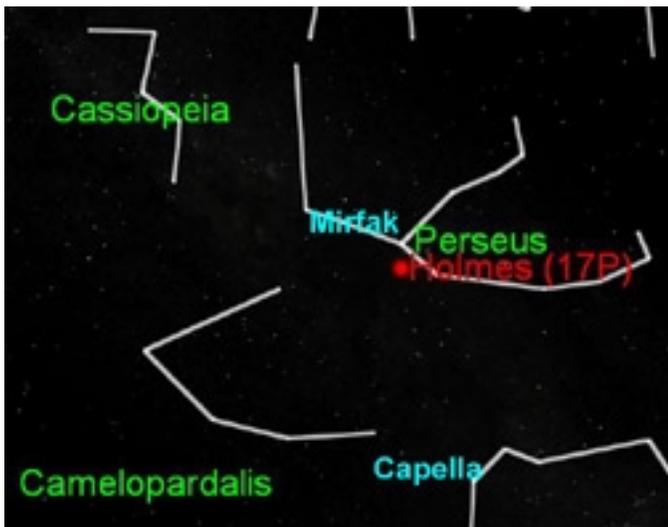
Don't miss comet 17P/Holmes!

In late October Comet 17P/Holmes flared up in brightness by about a million times, going from a virtually unspottable 17th magnitude object to magnitude three, visible with the naked eye even in light-polluted city skies, in a matter of a couple of days.

Holmes is in Perseus, near the star Mirfak. The map below shows it's location for the evening of November 9, the date of the new Moon.

It's striking even in binoculars, and a fabulous telescope object. Astrophotographers, including our November meeting guest speaker Tom Gwilym, have been getting great shots of it.

Don't miss it; while it will probably be visible into 2008, Earth is at its closest to Holmes in early November, so that should give us our best observing.



Future file: upcoming meeting topics

WEDNESDAY, DECEMBER 19, 7:30 PM

DR. RON HOBBS - OUR LOCAL MOON,
AND MARS

Dr. Ron Hobbs, Public Programs Assistant at the Museum of Flight and Solar System Ambassador for NASA's Jet Propulsion Laboratory, is back "by popular demand." In September, Dr. Hobbs treated SAS to a marvelous overview of the Solar System via photos and facts procured by various space probes. This evening Dr. Hobbs will focus on an in-depth exploration of the Moon and Mars — our next destinations for manned spaceflight! Welcome to another magical journey with Dr. Ron Hobbs.

http://www2.jpl.nasa.gov/ambassador/profiles/Ron_Hobbs.htm

SAS banquet: save the date

The annual Seattle Astronomical Society banquet will be held on Sunday evening, **January 20, 2008**. Mark your calendars! Watch the SAS Web site; we hope to have an announcement on a fabulous guest speaker very soon. You'll also be able to register and pay for the banquet on-line using Pay Pal.

Price hike for *Webfooted Astronomer*

Because of increases in postage and printing costs, the annual subscription price for paper copies of *The Webfooted Astronomer* will increase to \$15, effective the next time you renew your membership.

Electronic copies of the newsletter will remain free. All issues are posted on the SAS Web site at www.seattleastro.org.

NEXT MEETING
November 21
Tom Gwilym, DSLR
Astrophotography
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Master telescope builder Sonny Tremoulet talked about building his 16-inch Dob in a presentation at the October SAS meeting. Details inside on page 1. Anita Eclissi photo.