the Webfooted Astronomer
The Seattle Astronomical Society
March 2005

Special points of interest:

- SAS Dark Sky Site
- Observing Tips
- Mini Solar System Discovered

March Meeting:

"SAS Show and Tell. To You, By You."

By popular request, the March meeting of the Seattle Astronomical Society will be SAS Show and Tell. Everyone is invited to share their current projects and interests with the club members. Anyone who wants to give a short presentation is welcome. (Please stick to a 10 minute time limit.) People who feel a bit shy about standing in front of the room are welcome to share less formally with smaller groups during the break.

Suggested topics:

- A current telescope making project
- A new astro-gadget
- Slides or digital photos
- Report on a book you've read or lecture you've attended
- A new telescope
- Astronomy art
- Descriptions of recent observations or trips
- A perfect new observing site
- Report on astronomy outreach like public star parties or Project Astro
- Anything else astronomy related

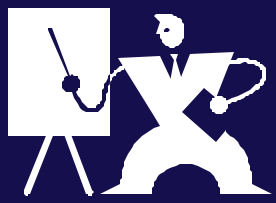
While not required, it will help if people interested in sharing could contact Bruce Kelley (programs@seattleastro.org) before the meeting. This will help him to organize the meeting.

Meeting Information

Wednesday, March 16
7:30 p.m.

Physics-Astronomy Building
Room A102
University of Washington
Seattle

Come early at 7 p.m. for coffee and snacks and to visit with your fellow members!



In this issue:

Seattle Astronomical Society

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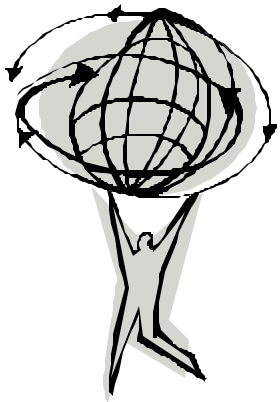
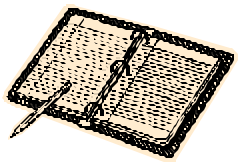




From the President's Desk…

Dark Sky Site

By Thomas Vaughan

Dark Sky Site Proposal

If you haven't already, please take a look at the Dark Sky Site proposal on the SAS website! http://www.seattleastro.org/, the "Dark Sky Site" link on the home page.

After talking to several other Astronomy clubs that have dark sky sites, this is the proposal we've come up with. The Dark Sky document gives more details, but here is the overall plan:

- We intend to purchase 20 or so acres of land.
- The location is probably going to be off I-90, around Cle Elum or Ellensburg (not far from Table Mountain!).
- A separate dark-sky fund will be maintained for fundraising and site maintenance.
- Memberships will cost around $250 up-front, plus a $60 yearly fee once the site has been purchased.
- There will be a separate 5-person Governing Board for the dark sky site.
- Once or twice a year, star parties will be held at the site for all SAS members.

Curious? Have suggestions? Please take a look at the document, and give any feedback to Mark de Regt (deregt@earthlink.net) or myself (president@seattleastro.org).

Dark Sky Site Next Steps

We'll keep the proposal on the website and collect feedback. Assuming only minor changes are needed, we'll start in earnest with fundraising soon, including opening an account, and starting to sell Dark Sky memberships. Donations will also be accepted, and are tax-deductible. Once we have hit our fundraising target ($25,000), we will start looking for an actual site.

Think Up Donation

A big thank-you to the Think Up folks, a group of SAS members and local astronomy enthusiasts who have raised over $2500 for astronomy education! They have donated that amount to the Society, with specific instructions that the funds be used for the Young Astronomers Club, and to help out with SAS members participating in Project AstroBio activities. Already, the Society has purchased a very fun solar telescope for outreach activities. Astronomy outreach and education is a core element of the Society's mission, and the Think Up donation will keep those activities going strong.

Seattle Public Library

Janice Edwards, our indefatigable VP of Membership, is coordinating an SAS display at the Seattle Public Library (at the Central Branch, that very cool glass structure downtown). The SPL has set aside two display cases for us, running from mid-March through April. Do stop by and take a look at the display! We are using the space to promote some big astronomy news (such as the Cassini/Huygens mission), and highlighting the role of the SAS in local astronomy. We'll have images from SAS members, and information about the Society's activities.

Astronomy outreach and education is a core element of the Society's mission

Dark Sky Observing Nights

Stephen Van Rompaey has announced the happy news that dark sky observing nights can resume at Tiger Mountain! Weather permitting, the next (members-only) observing night will be March 5th. Check the SAS website for details.

Once again, we have been blessed with a month of clear skies in Winter. I hope you are taking advantage of them!

Happy Observing-
-Thomas ¤

February Meeting Minutes

There were no minutes from the February meeting since we didn't have a Secretary. Good news, however! A volunteer has stepped forward and will take on the Secretary job starting in March.

Planetary Nebulae & Deep Sky Observing Tips

Optics:

Regardless if you are using a 100mm or a 75cm telescope, ensure that the optics are reasonably clean and the system is collimated (all the optical elements are aligned to one another). Also, check eyepieces, filters, and other optical attachments (reducers, barlows, etc) for cleanliness and are damage free. At the observing site, set up your equipment as soon as possible to allow the optics and the system to temperature acclimate before you start observing.

Lists:

Prepare a short list of objects to observe beforehand. This list can be made up to include 10 to 15 objects at different levels of difficulty. Try to familiarize yourself with their approximate location in the sky and within their constellation.

Dark Skies:

Seek the darkest skies, obviously. But also take into consideration the benefits of altitude, a dry air environment, windless conditions, and a good local horizon. Remember, the darker the skies, the better the contrast between faint objects and the background sky.

Night Vision Aids:

Don't forget to take extra batteries and a bulb for your red-light flashlight. Or take along a backup. Retain your night vision by using a dim red-light. On the day of your planned observing, try to avoid extended stays out in bright sunlight. Always take along a very dark or preferably black cloth large enough

to drape over your head, shoulders, and eyepiece - this eliminates stray and reflected light while viewing, even under dark skies.

Finding Stuff:

Use star-hopping methods to locate your 'targets'. Set up your preferred star-atlas or finder charts in a convenient location so you can quickly view from chart to eyepiece back to chart. If you are using computer control or setting circles, ensure your alignment is of the necessary precision and the tracking motion is correct.

Filters:

Keep your filters and their holding cases handy. Filters that you should have are broadband and narrowband. For planetary nebulae, you should definitely have the OIII filter and the UHC (Ultra High Contrast). Both of these are narrowband. A good broadband filter will be useful under moderately light polluted skies. In addition to the filters, always take along a black piece of cloth large enough to drape over your head, shoulders, and the eyepiece to eliminate stray and reflected light from interfering with your viewing and reflecting off of the filter.

Visionary:

Use averted vision along with direct vision to view extended objects. Look to one side of the object to bring out detail in other parts of the object. You are then using a more sensitive region of your retina. It takes a little practice to perfect, but makes a big difference on viewing faint objects.

Jiggle:

While observing a faint object, try jiggling the telescope a very small amount while viewing through the eyepiece. This action also 'jiggles' the image and any difference in contrast between the object and the background sky will be (hopefully) more easily perceived by your eye.

Blinking:

Most planetaries which appear stellar or almost stellar are difficult to pick out from normal field stars. A helpful technique to isolate which object is the planetary is to hold, with your fingers, a nebula filter between the eyepiece and your eye, and by moving the filter in and out of the field, the 'normal' stars will usually disappear

(spectral light blocked by the filter), but the planetary will remain in view (emission lines transmitted through the filter). This is one 'blinking' technique. In conjunction with this method is the use of a dark, preferably black, cover or 'drape' over your head and shoulders and which also shields the eyepiece. This eliminates stray light (even under dark skies) and reflections from interfering with your attempts to see both the object and what is being passed through the filter.

Stop & Look:

Look for details and structure and faint extensions on all objects. Spend some time using the above techniques, such as averted vision. Examine the field for subtle details. Record the details of what you see, and/or make a sketch of the field, including the brighter stars, or associated objects.

Power Struggle:

Use different eyepieces. Start off with low or medium power ones, then switch to higher power once the object(s) have been located. On nights with excellent 'seeing', high power eyepieces can bring out extraordinary details.

ENJOY!

Credits: Doug Snyder (Co-Discoverer: Comet Snyder-Murakami, C/2002 E2)

March 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	1	2 UW Campus Observatory public viewing night	3 U.W. Astronomy Colloquium	4	5 Tiger Mountain/Poo Poo Point Star Party (members only!)
6 Astrophotography/Imaging SIG Meeting	7	8	9	10 U.W. Astronomy Colloquium	11	12 New Member Orientation Meeting Greenlake Paramount Park Star Party
13	14	15	16 SAS Meeting UW Campus Observatory public viewing night	17	18	19
20	21 SAS Board Meeting	22	23	24	25	26 Amateur Telescope Makers SIG Meeting
27	28	29	30	31	1	2

April 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6 UW Campus Observatory public viewing night	7	8	9 Tiger Mountain/Poo Poo Point Star Party (Members Only!)
10	11	12	13	14	15	16 Astronomy Day Green Lake / Paramount Park Star Party
17	18	19	20 SAS Meeting UW Campus Observatory public viewing night	21	22	23 Amateur Telescope Makers SIG Meeting
24	25 SAS Board Meeting	26	27	28	29	30

A Different Angle on Climate Change

[by Patrick L. Barry]

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

Look toward the horizon in almost any major city, and you'll clearly see the gray-brown layer of smog and air pollution. Yet when you look straight up, the sky can appear perfectly blue; you might think there's no smog at all!

The smog is overhead as well, but it's much harder to see. Why is there such a difference?

It comes down to viewing angles: A vertical line straight up through the atmosphere crosses much less air than a line angled toward the horizon. Less air means less smog, so the sky overhead looks blue. On the other hand, when you look toward the horizon, you're looking through a lot more air. The smog is easier to see.

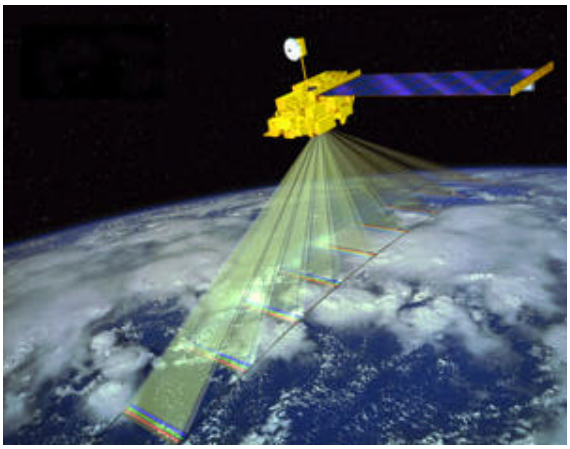
A one-of-a-kind sensor aboard NASA's Terra satellite capitalizes on this angle effect to get a better view of how clouds and air pollutants scatter and absorb sunlight. By doing so, this sensor—called the Multi-angle Imaging SpectroRadiometer (MISR for short)—is helping scientists fill in a major piece of the climate change puzzle.

Most satellite instruments look only straight down at the Earth. Layers of airborne particles (called aerosols) and smog are harder to see with this vertical view, and clouds often appear only as two-dimensional sheets of white. Clouds and aerosols both can reflect incoming sunlight back out to space, thus cooling the planet. But they can also absorb sunlight and trap heat rising from below, thus helping warm the planet.

What is the net effect? MISR helps scientists figure this out by looking at the atmosphere at several angles—nine to be exact. Its nine cameras fan out across a range of angles from steeply looking forward (70.5 degrees from vertical), to straight down,

to the same steep angle backwards. As the Terra satellite passes over a region, the cameras successively view the region at nine different angles.

From these data, scientists can construct a three-dimensional picture of the cloud cover, revealing much more about cloud dynamics than a flat image alone. They can also see light bouncing off aerosol pollution from nine different directions, thus getting a fuller picture of how aerosols scatter sunlight. And they can even spot thin layers of heat-trapping air pollutants that might go unnoticed by other satellites.



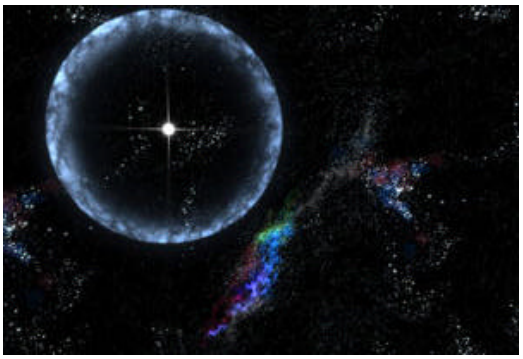
The MISR instrument on the Terra satellite views the atmosphere and Earth's surface from nine different angles.

All this information comes just from looking at the atmosphere from a different angle.

For more information, see http://www-misr.jpl.nasa.gov . Kids can learn about MISR, see MISR images, and do an online MISR crossword at http://spaceplace.nasa.gov/en/kids/misr_xword/misr_xword2.shtml ¤

Space Bits

Gamma Ray Flare Reaches Across the Galaxy



Artist's conception of the December 27, 2004 gamma ray flare expanding from SGR 1806-20 and impacting Earth's atmosphere. Credit: NASA.

A massive gamma ray flare flashed so brightly in December that it briefly outshone the full Moon. Even though it occurred 50,000 light-years away, the flare demonstrated the power of these events, disrupting the Earth's ionosphere. The flare occurred on the surface of a rapidly spinning, highly magnetic neutron star called a magnetar, which can release tremendous amounts of energy through a process called magnetic reconnection. We're lucky the flare occurred so far away; if it had happened within 10 light-years, it could have destroyed the Earth's ozone layer.

Link: http://www.universetoday.com/am/publish/gamma_ray_flare.html?2122005 ¤

Saturn's A Ring has oxygen, but not life

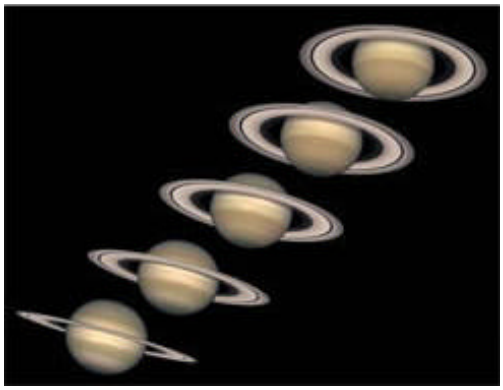


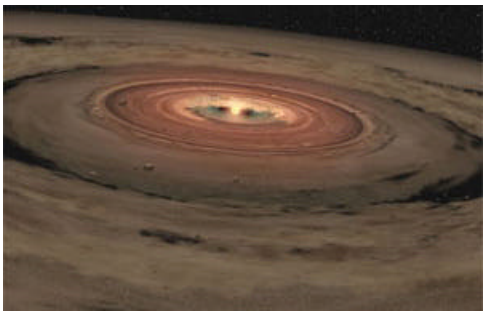
Image description: The Hubble Space Telescope captured these images of Saturn's seasons from a time span of 1996 through 2000

Cassini has discovered oxygen ions in the atmosphere around Saturn's rings, suggesting that life isn't the only process that could produce it. Molecular oxygen, a.k.a. O2, is produced here on Earth as a byproduct of plant respiration - animals like us need it to survive. It was previously thought that O2 is so volatile that it needs the presence of life to occur in a planet's atmosphere. But on Saturn, this oxygen is generated and maintained by a reaction of the Sun's radiation and the icy particles in Saturn's rings.

Link: http://www.umich.edu/news/index.html?Releases/2005/Feb05/r022405 ¤

Astronomers Discover Beginnings of 'Mini' Solar System

NASA's Spitzer Space Telescope has spotted a dusty disc of planet-building material around an extraordinarily low-mass brown dwarf, or "failed star." The brown dwarf, called OTS 44, is only 15 times the mass of Jupiter. Previously, the smallest brown dwarf known to host a planet-forming disc was 25 to 30 times more massive than Jupiter.



This artist's concept shows a brown dwarf surrounded by a swirling disc of planet-building dust. Astronomers believe that this unusual system will eventually spawn planets. Image credit: NASA/JPL-Caltech.

Link: http://www.rednova.com/news/display/?id=125736 ¤

Diamond Worlds Could Exist

The inner planets in our solar system are largely made of rock, which are formed from silicon. But in a different solar system, with a different distribution of minerals, planets could be mostly formed from carbon instead. Inside these planets, where the heat and pressure are intense, this carbon would form layers of diamonds. Small versions of these planets fall to Earth all the time, in the form of carbonaceous chondrite meteorites, which contain different carbon compounds, such as carbides, organics and occasionally even diamonds.

Link: http://www.universetoday.com/am/publish/diamond_worlds.html?1022005 ¤

Some Stellar Facts

On June 28, 1911 a dog in Nakhla, Egypt was killed by a meteorite from Mars.
This is the first verifiable instance of any living thing on Earth being killed by invaders from Mars!

Only four spacecraft have ever left the solar system. They are Voyagers 1 and 2, and Pioneers 10 and 11.

Pluto was discovered February 18, 1930, by Clyde Tombaugh at Lowell Observatory in Flagstaff, Arizona, and it's orbit around the sun is 248.54 years. This means since it's discovery, Pluto has only completed about 27.75% of it's orbit. Mark your calendars! Pluto will have completed exactly one orbit since it's discovery on September 3, 2178! We just celebrated its 75th Anniversary this year.

We promise you the sun, moon and 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 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.

We're on the Web!
www.seattleastro.org

The Seattle Astronomical Society

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☐	Full-Time Student Membership (copy of student ID required)	$10.00
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☐	1 year of Sky and Telescope Magazine (optional)	$33.00
☐	1 year of Astronomy Magazine (optional)	$30.00
☐	Donation (optional)	$_____
	Total amount enclosed:	$_____

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Phone _____

E-mail address (optional) _____

☐ Please do not include my information in the SAS membership directory.

Please print above information clearly.

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