



October 2006

Special points of interest:

- Dark Sky Site
- Table Mountain Memories
- Gardening for the Moon
- Not too windy

October Meeting:



Searching for Habitable Planets and Life: A Worthy Goal for 21st Century Science

Charles Beichman

Executive Director, Michelson Science Center, California Inst. of Technology and Jet Propulsion Laboratory

Astronomers are poised to use 21st century technology to answer a 2,500 year old question: "Are there other habitable worlds and life beyond the Earth." Space-based telescopes will allow us to find planets like our Earth orbiting in the "habitable zones" of their parent stars. The habitable zone is that range of orbits where the temperatures are just right for liquid water to exist and, possibly, for life to form and evolve. Eventually, advanced telescopes like as the Terrestrial Planet Finder will able to analyze the atmospheres of these planets for signs of life. Information about Charles Beichman can be found at <http://spider.ipac.caltech.edu/staff/chas/>

Meeting Information

Wednesday, October 18
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:

| | |
|--|----|
| From the President's Desk | 3 |
| September Meeting Minutes | 5 |
| October/November Calendars | 8 |
| NASA Space Place: Staggering Distance | 10 |
| Space Bits: Current News | 12 |

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From the President's Desk...

Dark Sky Site

By Thomas Vaughan

Dark Sky Site

Over the past few months the Dark Sky Site initiative has continued to gather momentum! SAS members have scouted out countless sites, and have camped out at three to see what the skies were like at night.

So far we have one site that is still under consideration, and we are looking all over Eastern Washington for other candidates. Surprisingly, identifying sites is much harder than we thought.

You can help! Do you know of any good locations in Eastern Washington that may be suitable? The ideal site would meet these criteria:

- Dark sky (of course!)
- Around 20 acres
- Southern sky exposure
- Maximum 3 hours drive from Seattle
- Minimum of 8-9 months accessibility
- 2-4,000 feet altitude
- Accessible without 4 wheel drive
- Flat areas for pads/parking

Not too windy

However, we are willing to compromise if a site meets most but not all of the criteria. The current site under consideration meets most of the criteria, but is 4 hours away instead of 3. So we are looking for other sites that are closer.

Southern Skies

I missed the September meeting, and the excellent talk on observing in the Southern Hemisphere. But I had an excuse: I was in the southern hemisphere myself. I didn't have room to bring a telescope, but I did bring along a set of good binoculars. Was I ever glad I did!

For a couple of nights I was up at a hotel in the Andes, close to 10,000 feet of elevation. That made for great seeing, although I had to hike a ways to get away from the hotel lights.

Naked eye observing was fantastic. The Milky Way banded the sky, and the Magellanic clouds were much larger and brighter than I expected. With the binoculars, I was able to see much more. There were several star clusters in the Milky Way, and 47 Tucanae was obvious in the smaller Magellanic cloud.

It was also a pleasure to see Alpha Centauri. It was a bright star in the sky, not as visually impressive as the Magellanic clouds or star clusters, but it was inspiring to think that the star (okay, binary plus smaller companion) was only 4 light years away.

Even better, I was with some friends who weren't familiar with astronomy at all. As anyone who has been to a star party can attest, the best part about stargazing is sharing the experience with someone else. Identifying stars and clusters in the Southern Hemisphere was one of the highlights of the trip.

Even now, back in Seattle, the experience has re-energized me for observing in more familiar skies.

Happy Observing-

-Thomas

●—————●

SAS Annual Book and Calendar Sale at October 18th meeting:

| Item | List Price | SAS Member |
|---|------------|------------|
| Astronomy "Deep Space Mysteries" 2007 Calendar | \$12.95 | \$8.00 |
| The Year in Space 2007 Desk Calendar | \$15.95 | \$11.00 |
| Royal Astronomical Society of Canada Beginner's Observing Guide | \$19.95 | \$17.00 |
| Royal Astronomical Society of Canada Observer's Calendar 2007 | \$13.95 | \$11.00 |
| Royal Astronomical Society of Canada Observer's Handbook 2007 | \$25.95 | \$18.00 |

SAS September 2006 Club Meeting Minutes



Announcements:

The Goldendale Star Party will be held the weekend of 9/22 at Brookes Memorial State Park. Contact Karl Schroeder for information.

Upcoming speakers for general meetings will be Carl Weisman in October on extra-solar planets. Decembers meeting will feature the movie "Our Mr. Sun".

The date for the annual SAS banquet is 1/13/07. A banquet chairperson is still needed.

Calendars from the Royal Canadian Astronomical Society will be available soon.

Elections will be held in November. Several board positions are up for election and any members who would like to take an active part in SAS are welcome to step up to the plate.

Bob Suryan talked about his trip to Las Vegas and the Star Trek convention there. Also, Bob insisted that Pluto is indeed a planet.

Several new members were welcomed.

Maxine Nagel gave a Dark Sky Site report and provided a description of candidate sites recently visited, accompanied by photos of the sites. There are now 37 Dark Sky Site members.

Maxine also gave a recap with photos of the recent Japanese Moon Festival in the arboretum. Several SAS members were invited to provide telescopes for moon viewing and this was considered a big success by the coordinators of the festival.

Meeting Topic:

Dennis Janky gave an excellent presentation titled Southern Sky Astronomy in New Zealand. Dennis provided photos and descriptions of his recent trip to New Zealand, the equipment he brought along and his experiences there.

Zach Drew provided another well done "What's Up" presentation highlighting some of the attractions currently in night sky.

Meeting was adjourned around 9:00PM.

Table Mountain Memories

[By Peter Moore, Psy. D.]

After a year and a half of exploring the heavens through the light polluted haze of Seattle, I was ready to set my sights, literally, on the dark sky of the Table Mountain Star Party (TMSP) this summer. I dug out the tent loaded, up the scope, packed my observing books, and off I went. I offer some random impressions of what Table Mountain had to serve to my relatively new stargazing appetite.

SAS member Loren Busch is right. There are those who look through telescopes and those who look at them. This year's TMSP dished up ample both species. Like their owners, the field of telescopes came in all sizes, shapes, colors, and personalities. Some were big, some were small, some were round, some were square, some were loud, and some were quiet.

Believe the veterans who say pack for every kind of weather, pack until you feel stupid, and pack some more.

Table Mountain is rustic but not that rustic. Yes, you climb up a long dusty narrow single lane road with steep drops feet from your door (and eye popping views if you dare take your eyes off the road). Yet while the ground was hard, the living was relatively easy. Stargazers could buy their dinners. An enormous semi trailer provided daily showers, with, yes, hot water. You could even buy a latte first thing in the morning or in the middle of the night.

I was reminded of why I took up this hobby. I came to see the sites and was not disappointed. My novice eyes could not recall seeing the Milky Way so stunningly clear. Its soft ribbon of spilled milk floated overhead. Its sea of glittering stars often camouflaged my old celestial comrades.

I also made some new heavenly friends. Yes, there was the Teapot spouting next to Scorpio. Now, where was the Trifid I had longed to view. Back and forth to the star charts. And the Swan; it's somewhere up there, isn't it. Wow, there it is! It *does* look

like a swan! Galaxies such as M101, M81, and M82 that I could never hope to find in Seattle burst from the eyepiece while the Whirlpool and Andromeda Galaxies were bigger and better than ever.

What keeps me going back to the scope are those knock-your-socks-off moments of awe and wonder at seeing a celestial splendor for the first time. Table Mountain did not disappoint.

Using an OIII filter (thanks to Loren's recommendation) and with some coaching from Mike Langley, I found the mysterious Veil Nebula. It was a magnificently mesmerizing site. Its wispy trails floated ethereally. I scanned its left and right components slowly up and down gazing at this diaphanous delight. It was in all senses of the word, other-worldly. I still cannot get over (as if I wanted to!) the sense of amazement it provided.

Every adventure has new revelations. I came for the sites and I certainly got my fill. However, to my very pleasant surprise I also discovered camaraderie, kindness, and friendship. Strangers let lines of us gawk at the heavens through their mammoth scopes. I made new friends. Two of our modest SAS crew on the mountain let me crash their campsite for company, gave me pointers, and helped me tweak my Dob's collimation. One memorable evening several of us sat around for over an hour talking about how astronomers calculate distances to very far objects. My family's eyes would have glazed over in seconds. Yet here I could unselfconsciously revel in being an "astro-nerd."

SAS promises to "give you the stars." But events like TMSP remind me that it also offers a sense of community. This is as much a gift as the beauties in the eyepiece.

When not gazing at the heavens, Peter is a psychologist in Seattle and Silver Lake.





October 2006

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



November 2006

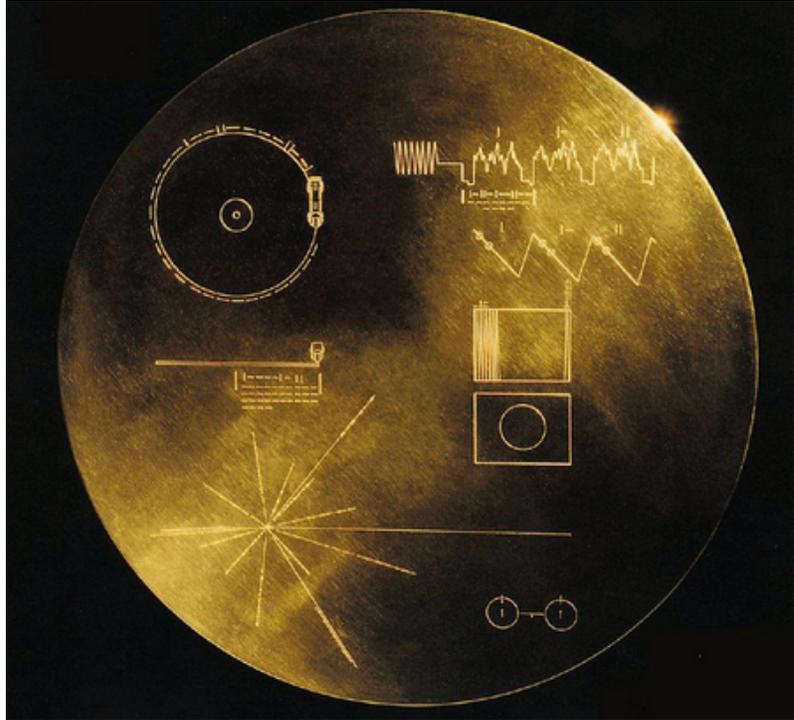
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|--|------------------------------|------|--|-------------------------------------|-----|---|
| | | | 1 UW Campus Observatory public viewing night | 2 UW Astronomy Colloquium | 3 | 4 Amateur Telescope Makers SIG Meeting |
| ○ 5 | 6 | 7 | 8 | 9 UW Astronomy Colloquium | 10 | 11 |
| ◐ 12 Astrophot- ography/ Imaging SIG Meeting | 13 | 14 | 15 SAS Meeting UW Campus Observatory public viewing night | 16 UW Astronomy Colloquium | 17 | 18 Tiger Moun- tain Star Party (Members Only!) |
| 19 | ● 20 SAS Board Meeting | 21 | 22 | 23 | 24 | 25 Green Lake Star Party Paramount Park Star Party |
| 26 | 27 | ◑ 28 | 29 | 30 UW Astronomy Colloquium | | |

Staggering Distance

[By Dr. Tony Phillips]



Tonight, when the sun sets and the twilight fades to black, go outside and look southwest. There's mighty Jupiter, gleaming brightly. It looks so nearby, yet Jupiter is 830 million km away. Light from the sun takes 43 minutes to reach the giant planet, and for Earth's fastest spaceship, New Horizons, it's a trip of 13 months.



That's nothing.

Not far to the left of Jupiter is Pluto. Oh, you won't be able to see it. Tiny Pluto is almost 5 billion km away. Sunlight takes more than 4 hours to get there, and New Horizons 9 years. From Pluto, the sun is merely the brightest star in a cold, jet-black sky.

In case it is ever found by intelligent beings elsewhere in the galaxy, Voyager carries a recording of images and sounds of Earth and its inhabitants. The diagrams on the cover of the recording symbolize Earth's location in the galaxy and how to play the record.

That's nothing.

A smidgen to the right of Pluto, among the stars of the constellation Ophiuchus, is Voyager 1. Launched from Florida 29 years ago, the spacecraft is a staggering 15 billion km away. It has traveled beyond all the known planets, beyond the warmth of the sun, almost beyond the edge of the solar system itself.

Now that's something.

“On August 15, 2006, Voyager 1 reached the 100 AU mark—in other words, it is 100 times farther from the Sun than Earth,” says Ed Stone, Voyager project scientist and the former director of NASA's Jet Propulsion Laboratory. “This is an important milestone in our exploration of the Solar System. No other spacecraft has gone so far.”

At 100 AU (astronomical units), Voyager 1 is in a strange realm called “the heliosheath.”

As Stone explains, our entire solar system—planets and all—sits inside a giant bubble of gas called the heliosphere. The sun is responsible; it blows the bubble by means of the solar wind. Voyager 1 has traveled all the way from the bubble's heart to its outer edge, a gassy membrane dividing the solar system from interstellar space. This “membrane” is the heliosheath.

Before Voyager 1 reached its present location, researchers had calculated what the heliosheath might be like. “Many of our predictions were wrong,” says Stone. In situ, Voyager 1 has encountered unexpected magnetic anomalies and a surprising increase in low-energy cosmic rays, among other things. It's all very strange—“and we're not even out of the Solar System yet.”

To report new developments, Voyager radios Earth almost every day. At the speed of light, the messages take 14 hours to arrive. Says Stone, “it's worth the wait.”

Keep up with the Voyager mission at voyager.jpl.nasa.gov. To learn the language of Voyager's messages, kids (of all ages) can check out spaceplace.nasa.gov/en/kids/vgr_fact1.shtml.

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

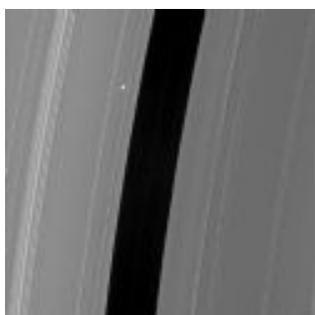
Space Bits

Gardening for the Moon

When astronauts return to the Moon and visit Mars in the coming decades, they'll want to bring as little as possible from Earth. That means living off the land wherever possible. Wouldn't it be great if they could grow their own food? Researchers from Texas A&M University have grown lettuce in special cylinders that provide the plants everything they need to grow - but in a very low pressure environment.



Link: <http://www.universetoday.com/2006/10/10/gardening-for-the-moon/>



Aldebaran Slips Behind the Rings

In this Cassini image, the bright giant red star Aldebaran slips behind Saturn's rings. This kind of view is known as a stellar occultation, and it gives scientists an opportunity to study the rings themselves by how the block and distort light from the star. The star's light fluctuates as it passes behind various regions of the rings, providing details on ring thickness and composition.

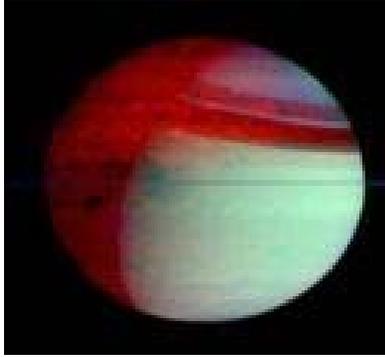
Link: <http://www.universetoday.com/2006/10/10/aldebaran-slips-behind-the-rings/>

Hubble Examines the Closest Known Extrasolar Planet

The Hubble Space Telescope turned its gaze towards a relatively nearby Jupiter-sized world recently. The planet orbits the Sun-like star Epsilon Eridani, which is located only 10.5 light-years away. This makes the planet so close that it could be directly observable by Hubble, and large ground-based observatories. The best opportunity will come in 2007, when the planet makes its closest approach to its parent star, and the reflected light should make it observable with our best instruments.



Link: <http://www.universetoday.com/2006/10/09/hubble-examines-the-closest-known-extrasolar-planet/>



Survey of Nearby Black Holes

Ever wonder how many black holes are nearby? Well, NASA has gone and counted them for you. According to data gathered by NASA's Swift satellite, there are about 200 supermassive black holes within about 400 million light-years of the Earth. Swift's first job is to scan the skies for gamma ray bursts, but during downtime, the spacecraft hunts for objects that emit X-rays. And supermassive black holes are one of the most powerful sources of X-rays out there.

Link: <http://www.universetoday.com/2006/10/06/survey-of-nearby-black-holes/>

Saturn's Clouds in Silhouette

This false-colour mosaic of Saturn was taken by NASA's Cassini spacecraft in February, 2006. The strange red colour is the glow of thermal radiation from inside Saturn's warm interior, which is visible on the night-side of the planet. The northern hemisphere is brighter because the atmosphere is relatively clear - this reveals the turbulent lower clouds. Cassini took this image when it was 1.6 million kilometers (1 million miles) from Saturn.



Link: <http://www.universetoday.com/2006/10/06/saturns-clouds-in-silhouette/>



Black Hole Stops Star Formation in Elliptical Galaxy

New images from NASA's Chandra X-Ray Observatory show the environment around the supermassive black hole at the heart of M87, a nearby giant elliptical galaxy. Chandra detected loops and rings in the hot gas that surrounds the galaxy. These loops are evidence of periodic eruptions near the supermassive black hole, which send shockwaves through the surrounding gas. These outbursts happen every few million years, and prevent the gas in the cluster from cooling to create stars.

<http://www.universetoday.com/2006/10/06/black-hole-stops-star-formation-in->

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We're on the Web!
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