

**June 2005**

**Special points of interest:**

- Dark Sky Site Update
- What is Astronomy Camp?
- Imaging the Sky 2005 Conference

## June Meeting:

### "Adventures at Astronomy Camp"

Maxine Nagel

Maxine attended Astronomy Camp outside of Tucson, AZ after hearing Randy Henzler give a presentation about it in our March meeting. She has photos to share and will tell us all about the clear skies in Arizona, high atop Mt. Lemmon.

The University of Arizona sponsors the camp and provides knowledgeable staff that made the long weekend a wonderful experience. They toured the Kitt Peak Observatory on the last day and saw a lot of behind-the-scenes stuff that the general public doesn't.



## Meeting Information

Wednesday, June 15  
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!*



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# Seattle Astronomical Society

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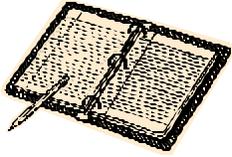
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## **From the President's Desk...** **Dark Sky Site Update**

*By Thomas Vaughan*

Many thanks to the folks who have purchased Dark Sky site memberships, and those who have donated! 10 people have purchased Dark Sky site memberships, and that plus donations means we are at 20% of our \$50K target. Given that fundraising has just gotten started, I'm excited to be at the 20% mark already! We still need your help. Visit the website, download the form, and send in your membership and/or donation today. Also, tell other local astronomers about our Dark Sky site fundraising effort. I think it is feasible that the club be in a position to acquire property later this year. Here is the URL to the website, with links to the dark sky proposal and forms:

<http://www.seattleastro.org/dark-sky.html>. If you have questions, don't hesitate to ask. Email me at [president@seattleastro.org](mailto:president@seattleastro.org), or ask any board member.

### **Newsletter Editor Wanted**

Rose and Saurabh, our excellent newsletter editors for the past year, are stepping down at the end of their term in June. Please help keep the newsletter going--volunteer to put the newsletter together! There are benefits to being newsletter editor:

- Free SAS Membership
- Free dark-sky site access

If you are interested, please contact me ([president@seattleastro.org](mailto:president@seattleastro.org)) and I can tell you more about it.

### **Youth Astronomers Group**

Just a reminder: the SAS has started a Youth Astronomers Group! Karl Schroeder, a longtime member with great experience bringing Astronomy into classrooms with Project Astro, and Margaret Stoermer, an SAS member and teacher, hold monthly Youth Astronomers Group meetings at the UW Observatory. They are targeting kids in grades 3-5, with fun hands-on and observing activities. If you or a family you know are interested, please contact Karl ([kschroe225@aol.com](mailto:kschroe225@aol.com)) or Margaret ([mstoermer@uswest.net](mailto:mstoermer@uswest.net)) for more information. Happy Observing!

-Thomas

# SAS May 2005 Club Meeting Minutes

Announcements:

Dark Sky Site membership form is on the SAS web site and memberships are starting to come in. The youth group has use of the observatory facilities once a month and more memberships and donations are encouraged. This a great way to get kids involved with astronomy. Karl Schroeder is the contact for the group and can provide information on signing up.

A request was made for volunteers to act as official greeters for the club at the monthly meetings. The greeter should be someone who usually arrives early and enjoys meeting and talking to new members and visitors. Anyone interested in this important role should contact Thomas Vaughan. Visitors and new members were welcomed. Bruce Kelley announced the topic and speaker for the meeting and asked that anyone who had ideas or requests for future speakers/topics contact him.

Meeting Topic: Future of the Hubble Space Telescope by Bruce Balick, chairman of UW Astronomy Dept.

Bruce began by thanking SAS members who've assisted the Astronomy Dept. whenever requested and especially those who showed up for the recent UW Astronomy open house. He also announced a colloquium on tracking the Pioneer spacecraft and its unexpected trajectory, possibly affected by the presence of dark matter or other unknown forces as it proceeds out through the solar system. This talk was on Monday 5/23 and everyone is welcome to this and other colloquia given at department. Bruce provided a fascinating discussion of the history of the Hubble Space Telescope, some of the problems involved in its maintenance and upgrades and its future. Bruce is directly involved with some of the imaging programs for the HST. We were treated to an interesting glimpse into some of the politics and costs involved in various scenarios involving HST and other NASA programs. Ultimately, Bruce described an improving outlook for the telescope and hope that it would continue providing and improving on the superb science it has in the past.

Meeting was adjourned at around 9:00PM

# Adventures at Astronomy Camp

by Maxine Nagel

I never thought that an SAS meeting would change my life in such a wonderful way, but the March 2005 meeting where Randy Henzler gave a presentation about Astronomy Camp was one of those meetings. Astronomy Camp? I had never heard of such a thing before, but it sounded intriguing. Randy spoke about his past experiences at the



camp near Tucson, Arizona, and how he and his friend are planning on making major renovations to it. I looked at my friend, Andrea, she looked at me and we both said, “I wanna go!” Went to the website (<http://www.astronomycamp.org>) and read through everything, which included

camp information, a description of the telescopes and facilities, a “where are they now” section for past campers, a bibliography of published



items, and registration forms. It couldn't be any easier to sign up.

There are two adult sessions per year (May and October) and I just couldn't wait till the October session. Andrea was on a cruise in May, so I decided to go by myself. Heck, there would be other astronomy hobbyists there and I don't mind taking on an adventure. We all gathered in Tucson near the University of Arizona's campus to meet and discuss what would be happening. Don McCarthy, the camp director and U of A professor, had everything well-

organized and his passion and love for this camp was obvious when you heard him talk. We got to meet the three staff members who were going to be helping for the duration of the camp. Don sure knows how to pick 'em. These guys were easy going, knowledgeable, and also have a love for astronomy. That's a hard combination to beat. We were definitely in good hands for the long weekend.

Don tailors each camp to its participants' interests. We discussed possible topics for lectures during the days and what we wanted to do in the evenings. He has grad students and former grad students who are now PhD's there as assistants and teachers. All of them are gifted in their own areas of expertise. His helpers this time included Dr. Patrick Young, Dr. Eric Hooper, and Mr. Chris Gottbrath. They were all available to field questions and offer answers . . . and we were sure full of questions! We kept them on their toes all four days.

The activities were well planned and included: touring the Steward Observatory Mirror Lab at the University of Arizona (8.4 meter mirror in progress); learning the basics of quantum physics from Patrick (let me emphasize the word "basics" here); taking and processing astro images using a CCD camera on the 12-inch Meade LX200; solar observing using several different scopes; learning about black holes and quasars from Eric; learning how astronomers search for NEO's (Dr. Al Grauer was doing this during our session and our group may have found another one); viewing galaxies and other celestial stuff through a 61" scope (yes, that's the diameter of the mirror); viewing stars and galaxies using spectroscopy; taking a solar system scale model walk (boy, it's sure empty in space); making liquid nitrogen ice cream; watching Don set off a liquid nitrogen canon; viewing the sunset then looking for Venus and Jupiter; touring the Kitt Peak Observatory facilities (we got to see much more than the general public does); looking at the stars under really dark skies; and singing kum-by-yah by the fire. Wait . . . we didn't sing kum-by-yah and there weren't any fires, but we did all the other stuff!

While we were touring the Steward Observatory Mirror Lab, Don told us about the plans for the LBT (Large Binocular Telescope). It will be going atop Mt. Graham in Arizona upon completion. Just think, two 8.4 meter mirrors hooked to one scope. It's

almost unimaginable. I may never have another opportunity to look past the surly bonds of our Earth with a 61" scope again, but I can say I did it once on a long weekend high atop Mt. Lemmon at astronomy camp and loved every minute of it.

It was hard to beat the clear skies at night (at 9150 ft), the beautiful sunsets, the enthusiast atmosphere, and the wonderful staff. I'm already thinking of going back for another session. I made some friends and learned so much about astronomy that I couldn't have dreamed of previously. Check the camp out for yourself on their website and you will agree with me. Included in your camp fee is a great list of activities, use of fabulous equipment, meals and lodging, plus a fun time. Don McCarthy would be happy to answer any of your questions. (dmccarthy@as.arizona.edu) Their teen camps are also world class if you have kids.

If you can make it to Tucson, you've got to check it out.





# June 2005

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



# July 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	 28	29	30	1	<b>2</b> Tiger Mountain/Poo Poo Point Star Party (Members Only!)
<b>3</b>	<b>4</b> NASA's Deep Impact spacecraft arrives at Comet Tempel 1	<b>5</b>	 <b>6</b> UW Campus Observatory public viewing night	<b>7</b>	<b>8</b>	<b>9</b> Green Lake / Paramount Park Star Party
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	 <b>14</b>	<b>15</b>	<b>16</b>
<b>17</b> Astrophotography Imaging SIG Meeting	<b>18</b>	<b>19</b>	<b>20</b> SAS Meeting UW Campus Observatory public viewing night	 <b>21</b>	<b>22</b>	<b>23</b> Amateur Telescope Makers SIG Meeting
<b>24</b>	<b>25</b> SAS Board Meeting	<b>26</b>	<b>27</b>	 <b>28</b>	<b>29</b>	<b>30</b>
<b>31</b>	<b>1</b>	<b>2</b>	<b>3</b> UW Campus Observatory public viewing night	<b>4</b> Table Mountain Star Party	 <b>5</b> Table Mountain Star Party Stellafane	<b>6</b> Table Mountain Star Party Stellafane Tiger Mountain/Poo Poo Point Star Party

# Seeing in the Dark with Spitzer



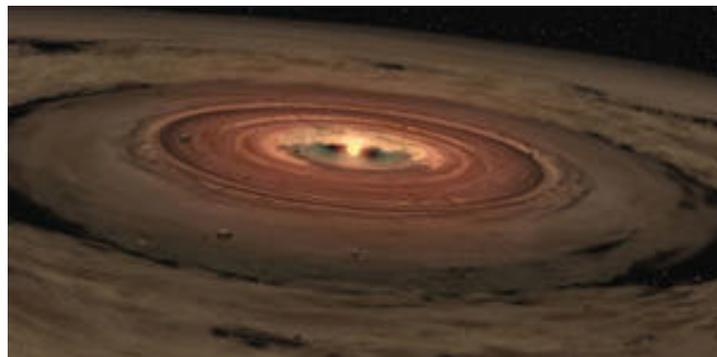
[ by Patrick L. Barry and Tony Phillips ]

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

Have you ever gotten up in the middle of the night, walked to the bathroom and, in the darkness, tripped over your dog? A tip from the world of high-tech espionage: next time use night-vision goggles.

Night vision goggles detect heat in the form of infrared radiation—a “color” normally invisible to the human eye. Wearing a pair you can see sleeping dogs, or anything that’s warm, in complete darkness.

This same trick works in the darkness of space. Much of the exciting action in the cosmos is too dark for ordinary telescopes to see. For example, stars are born in the heart of dark interstellar clouds. While the stars themselves are bright, their birth-clouds are dense, practically impenetrable. The workings of star birth are thus hidden.



Artist's rendering of brown dwarf OTS44 with its rotating planetary disk.

That's why NASA launched the Spitzer Space Telescope into orbit in 2003. Like a giant set of infrared goggles, Spitzer allows scientists to peer into the darkness of space and see, for example, stars and planets being born. Dogs or dog stars: infrared radiation reveals both.

There is one problem, though, for astronomers. “Infrared telescopes on the ground can't see very well,” explains Michelle Thaller, an astronomer at the California Institute of Technology. “Earth's atmosphere blocks most infrared light from above. It was

important to put Spitzer into space where it can get a clear view of the cosmos.” The clear view provided by Spitzer recently allowed scientists to make a remarkable discovery: They found planets coalescing out of a disk of gas and dust that was circling—not a star—but a “failed star” not much bigger than a planet! Planets orbiting a giant planet? The celestial body at the center of this planetary system, called OTS 44, is only about 15 times the mass of Jupiter. Technically, it’s considered a “brown dwarf,” a kind of star that doesn’t have enough mass to trigger nuclear fusion and shine. Scientists had seen planetary systems forming around brown dwarfs before, but never around one so small and planet-like. Spitzer promises to continue making extraordinary discoveries like this one. Think of it as being like a Hubble Space Telescope for looking at invisible, infrared light. Like Hubble, Spitzer offers a view of the cosmos that’s leaps and bounds beyond anything that came before. Spitzer was designed to operate for at least two and a half years, but probably will last for five years or more.

For more about Spitzer and to see the latest images, go to <http://www.spitzer.caltech.edu/spitzer>.

Kids and grown-ups will enjoy browsing common sights in infrared and visible light at the interactive infrared photo album on The Space Place, [http://spaceplace.nasa.gov/en/kids/sirtf1/sirtf\\_action.shtml](http://spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml). ☒

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### **Some Stellar Facts**

One of the stars in the Big Dipper, named Mizar, has another star revolving around it. Each of those two stars have another star revolving around it, and Mizar and it's companion star each have another star revolving around them. So, what looks like one star is actually 6 stars.

Our moon is moving away from the earth at about 3cm per year.

# Space Bits

## Voyager 1 Enters the Heliosheath

NASA's Voyager 1 spacecraft has traveled so far in our Solar System that it's reached the heliosheath. This is an area just past the termination shock region, where the solar wind crashes into the thin interstellar gas of the galaxy. It was difficult to detect exactly when Voyager 1 passed through the termination shock and into the heliosheath, because we have no data about interstellar space yet, just calculations.

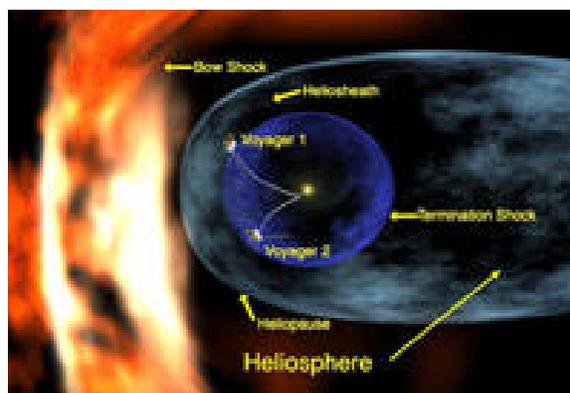


Illustration courtesy NASA

Link: [http://www.universetoday.com/am/publish/voyager\\_enters\\_heliosheath.html?2452005](http://www.universetoday.com/am/publish/voyager_enters_heliosheath.html?2452005) ✕

## Role Reversal: Planet Controls a Star

In a reversal of roles, a planet has gravitationally bullied its star to rotate in step with the planet's orbit. The star's behavior is similar to that of our Moon, which turns just fast enough to keep one face always pointing at the Earth. It is unusual, however, to see the larger body – in this case a star 1.4 times the mass of the Sun – being tidally locked by a smaller body.



Link: [http://www.astro.umontreal.ca/~casca/PR/Casca2005\\_Matthews\\_b.html](http://www.astro.umontreal.ca/~casca/PR/Casca2005_Matthews_b.html) ✕

## Powerful Flare Shook Up Our Understanding of the Sun

One of the most intense bursts of solar radiation in more than 50 years happened in mid-January this year, and scientists are still mulling over the implications for current space weather theories. Another interesting aspect of this flare is how quickly it traveled through the solar system. Normally a proton shower associated with a flare takes several hours to reach the Earth, but we were hit with the first particles in just 15 minutes. This could have important implications for future space weather warning systems, to keep astronauts safe from solar storms.

# Imaging the Sky 2005 Conference

Astro-imaging with dedicated CCD cameras & digital SLR cameras What's right for you?

Large aperture telescopes extend an astronomer's ability to observe fainter objects and fainter details. And like wise, digital astro-imaging provides the same benefit to the amateur astronomer. Digital astro-imaging provides an excellent way to observe new objects and fainter details with smaller optics. Astro-imaging extends an astronomer's ability to enjoy observing the universe.

There are many types of cameras, lens, telescopes, mounts, filters and software programs that are used in astro-imaging. This year's conference focuses on astro-imaging and image processing techniques using digital SLR cameras and cooled CCD cameras. Both of these cameras extend an astronomer's observing capabilities. You will learn how to obtain the best imaging performance using these cameras and how they are similar and different. Image processing examples will be shown using Photoshop, AIP4WIN V2 and ImagesPlus.

Weather permitting there will be evening imaging demonstrations. A conference CD-ROM with presentations, reference materials and software is provided to each attendee. The conference is sponsored by Mt. Hood Community College Science Club and Planetarium Sky Theater.

**Date:** Saturday, July 23, 2005, 8:00 am to Midnight

**Location:** Visual Arts Theater, Mt. Hood Community College (MHCC), 26000 SE Stark Street, Gresham, Oregon

**Registration:** Register early because seating is limited. Registration is \$30.00 by June 30, 2005 and in July it is \$40.00. To register send your name, address, email address and registration money (check made out to Imaging The Sky) to Imaging The Sky Conference, Rick Kang, PO Box 5795, Eugene, OR 97405

**Link:** <http://www.stargazing.net/david/ITS> (Current Imaging the Sky conference information)

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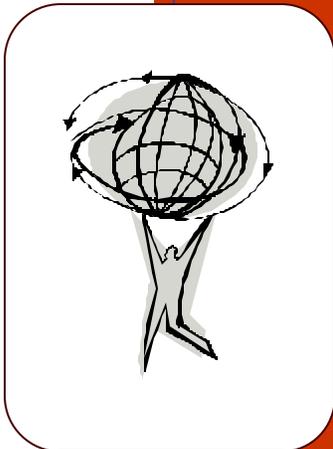
## Some Stellar Facts

Half-a-billionth of the energy released by the sun reaches the Earth.

Jupiter acts as a huge vacuum cleaner, attracting and absorbing comets and meteors. Some estimates say that without Jupiter's gravitational influence the number of massive projectiles hitting Earth would be 10,000 times greater.

## **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!**  
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### **The Seattle Astronomical Society**

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