

SDAA

San Diego Astronomy Association

Promising the Sun, the Moon, and the Stars...and Delivering!



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A Non-Profit Educational Association
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SDAA Business Meeting

Will be held at:

SKF Condition Monitoring
4141 Ruffin Road
San Diego, CA 92123-1841
July 9th at 7:00 pm

It's BBQ Season!

Mark your calendars. The annual SDAA summer barbeque is scheduled for Saturday, August 10 at Tierra Del Sol. Bring a potluck dish to share and then stay for the public star party that night.

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July 2002 Vol. XXXVIII Issue 07
Published Monthly by the
San Diego Astronomy Association
75¢/\$8.00 year
Incorporated in California in 1963

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News and Notes

July 2002

Focusing for Astrophotography—Part 4 by Jerry Lodriguss

Editor's Note: This is part four in a series of articles written by Jerry Lodriguss that are being reprinted in the newsletter with his permission. You can see more of Jerry's work at www.astropix.com.

Filters

The use of filters is frequently desirable during astrophotography.

Wide-band filters can filter out light pollution and sky-glow, and narrow band filters can isolate specific nebula lines and greatly increase contrast between object and sky. Minus violet filters can be used to correct chromatic aberration in inexpensive camera lenses.

There exists a wide selection of filters, some of which are better suited to visual observing than astrophotography. The ones that are excellent for astrophotography with color films are the broad band light pollution filters such as Lumicon's Deep-Sky filter. Sharp cutoff filters such as the hydrogen-alpha filter work very well with gas-hypersensitized Technical Pan film on objects with strong hydrogen-alpha emissions.

Filters that are used in an optical system can affect focus in two different ways, by the color of the light they pass and by the thickness of the filter moving the focal plane back away from the objective.

Filter Color

Lenses that are not apochromatic, that is, lenses that do not focus all wavelengths of light at the same place, will have their focus affected by filters that pass specific colors of light.

Mirror telescopes and apochromatic refractors are not affected by this problem.

A filter such as the hydrogen-alpha filter will pass a wavelength that the eye is not very sensitive to, making visual focusing, even with a knife edge, extremely difficult if not impossible. For these filters, focus should be determined by test, usually a star trail test on film during an actual exposure.

Chuck Vaughn reports that his Olympus 350mm f/2.8 lens does not focus red and blue light at the same place. This results in stars that are larger in white light than they are in a more isolated color. Stars shot with this lens with a hydrogen-alpha filter are smaller.

This can also cause problems with tri-color imaging. Because the different colored light focuses at different places, that means the focal length of the lens is slightly different for each color, making registration of the individual R, G and B channels more difficult, and resulting in blue halos on bright stars.

For lenses that are sensitive to temperature variations, focus change due to color must be included with temperature information.

Filter Thickness

With an optical system that is apochromatic, placing the filter in the light path before the lens, where the light is still parallel, will generally not affect focus. So if you place a filter in front of your camera lens, you don't have to worry about the focus.

Filters placed inside the light cone inside the optical system, such as with Nikkor
(continued on page 6)

Astronomy 101

Astronomy 101 by Scott Baker

Hercules Unchained!

If you go outside tonight, just after dusk, and look due east, about half way up the sky (45 degrees off the Eastern horizon) will be the constellation of Hercules, lying on his side with his head to the South.

The most prominent feature of the constellation of Hercules is the "keystone" which makes the torso portion of Hercules' body. This asterism is made up of four stars, epsilon, zeta, eta and pi Herculi in a semi-square shape or "keystone." Alpha Herculi, which marks the head of Hercules, is called Ras Algethi (arab for "kneeler's head"). It is a red supergiant star whose brightness varies erratically from 3.1 to 3.9 magnitude.

Now we all know the story of Hercules from the movies, the scenes of Steve Reeves with his bustling muscles and thong sandals, but what was the actual mythology? Hercules was the son of Zeus by a mortal woman (Alcmene) and was hated by Zeus' wife, Hera. Hera, in an attempt to kill Hercules, gave him, via his half brother, Eurystheus, twelve impossible tasks, which Hercules completed! After Hercules completed his service to Eurystheus, he took part in the voyage of Jason and the Argonauts to find the Golden Fleece. Hercules died when his second wife accidentally put poison on his robe. She thought that Hercules was being



unfaithful and poured a magic potion on his robe that was suppose to restore his love for her. The poison burned his skin, causing him great pain. He tore at his flesh but the potion could not be removed. Zeus honored his son by making him a god and placed him in the sky forever.

The constellation of Hercules has one the finest "Deep Sky" objects in the heavens, "The Great Cluster of Hercules" or "M13." This object is just visible to the naked eye, under dark sky conditions, as a fuzzy spot about a third of the way from the upper left hand star of the keystone to the upper right one (when in the East). M13 is what is known as a "Globular Cluster" and contains between 500,000 to 1,000,000 stars in an area only 150 light years across. This is 500 times denser, with stars, then the area around our sun! Try to imagine being on a planet in the center of this cluster; the sky at night would be ablaze with stars as bright as Venus is now in our Western sky! It's hard to imagine! Globular clusters are very old, in galactic terms, having formed at the same time as our galaxy; this one being about 12 Billion years old and 25,000 light years distant. M13 is the second largest globular in our galaxy, only being surpassed by Omega Centauri, in the southern hemisphere. Of the 147 known globular clusters, most don't reside in the galactic plane but orbit around the central mass or bulge of our galaxy like satellites around the Earth. If you have binoculars or a small telescope, you should be able to see this fine object from your urban backyard; it's truly worth the effort. Next month: The Scorpion!

Eyepiece Shootout 4, 18mm - 19mm wide-field eyepieces by Bret Akers and John Kuhl

The competitors:

The Meade 18mm Series 4000 Super Wide Angle is a 6-element eyepiece with a 67-degree apparent field of view and 7mm of eye relief. Meade advertises this eyepiece with 7-layer multi-coatings and edge-blacked optics. The street price for this eyepiece is typically \$150.

The 18mm TeleVue Radian is also a 6-element eyepiece, but it has the 20mm of eye relief and the 60-degree apparent field of view that's consistent with the Radian line. This eyepiece is fully multi-coated, has blackened lens edges, and sells for about \$240.

The 19mm TeleVue Panoptic rounds out this lineup with a 6-element design, a 68-degree apparent field of view, and 10mm of eye relief. Just like the Radian, this eyepiece sells for about \$240.

Testers and observing conditions:

This test was performed during the June 1st star party at Tierra del Sol with the same 14" f/4.5 Dobsonian and f/10 achromat as the previous two tests.

On-axis sharpness:

Jupiter was still high enough in the sky to use as a test object. We alternated the three eyepieces in the focuser and came to the conclusion that the Radian was definitely sharper on-axis than the other eyepieces. It definitely exhibited a better "snap" to focus leaving little doubt where the best point of focus was. The Panoptic came in a close second, while the Meade was lagging a bit in third place. The Meade eyepiece seemed to be soft when compared to the two TeleVue eyepieces and we really needed to play with the focuser to find the best image. The "snap" wasn't there.

Edge: Radian

Off-axis sharpness:

Still pointed at Jupiter, we looked at the off-axis images and saw that the Radian

was once again the winner showing reasonably sharp off-axis images. The Panoptic again ranked second with a fair image. The Meade...well...the off-axis images were terrible. They were really blobby and we couldn't even get Jupiter into a reasonable shape as it was consistently elongated and distorted.

Edge: Radian

Contrast:

M51 was the object for this test. The bridge between the two spirals makes a great test for low-level contrast. We pointed the scope at M51 with the Radian in the focuser and took a look. Wow! M51 looked great! We hadn't seen M51 look that good in quite some time. Just like the sharpness tests, the eyepieces seemed to be falling into order: 1. Radian, 2. Panoptic, 3. Meade. The Radian pulled in the most dust-lane detail with the Panoptic a close second. The Meade, wasn't bad, but again, there was a noticeable difference.

Edge: Radian

Light transmission:

Open clusters are great objects for evaluating light transmission so we pointed the scope at M44 and took a look. We're starting to see a pattern here. 1. Radian, 2. Panoptic, 3. Meade.

Edge: Radian

Field flatness:

Hold on, we have a change in the ranking for this category! Yes, the Radian still won, but the Meade took second, and the Panoptic brought up the rear. This isn't surprising, however, since the Panoptics are known for having serious pincushion distortion.

Edge: Radian

Eye relief and comfort:

Now that we've broken the pattern, let's break it again. The big winner in this category was the Panoptic. It had the widest field and the most forgiving eye placement of the three eyepieces. As long as you don't wear glasses while observing, this was the easiest eyepiece to use for long sessions. If you wear eyeglasses, or are an



Instadjust fan, you'll be most comfortable with the Radian, which took second. The Meade, although not really bad, suffered due to less usable eye relief and the frustration with trying to get good focus.

Edge: Panoptic

Chromatic aberration:

We'll start with third place here: Meade. At 50% off-axis, this eyepiece had significant problems with aberrations. First and second place were much harder to determine and we had a split decision. One of us thought the Radian was better and the other thought the Panoptic was better. Call it a draw.

Edge: Draw (Panoptic and Radian)

Coatings:

In last month's comparison, we had...trouble...in this category. Well, we've got problems again! The light transmission and appearance of the coatings again don't match up. However, this time our eyes were supported by the photographs of the ambient light scatter. Here are the results: 1. Panoptic (easily the darkest), 2. Radian, 3. Meade.

Edge: Panoptic

Conclusions:

Drawing the conclusion in this comparison was pretty easy. The **18mm TeleVue Radian** was clearly the superior eyepiece. This came as a bit of a surprise. Going into the test, we thought that the Panoptic was going to be the winner. However, about a minute into the test we could see that we were in for a surprise—actually two surprises. We were also surprised at the gap between the TeleVues and the Meade. We really didn't expect to see as much of a quality difference as we did. Yes, the Meade is about \$90 cheaper than the other eyepieces, but it shows. It's not a bad eyepiece, but it was seriously outclassed by the Radian and Panoptic.

Note: The opinions expressed in this review are solely those of the author(s) and do not constitute an endorsement by the San Diego Astronomy Association.



San Diego Astronomy Association



**Congratulations to
Peter DeBaan
on winning the
2002 RTMC
Warren Estes
Award.**

Past Program Meeting by John Restivo

June's Program Meeting, the second one held at Mission Trails Regional Park, provided 47 members and guests an opportunity to see the southern sky. Klaus Brasch, Professor of Biology at California State University San Bernardino, was our guest speaker. Mr. Brasch walked us through his trek to Australia and its extremely dark skies. The slides gave the audience a chance to see the city life as well as the outback region. Education was combined with humor as we traveled to open terrain while dodging an occasional wallaby. The piece de resistance was when we were greeted to the immensely beautiful contrast of the dark skies and notables such as the Milky Way, Southern Cross, Eta Carinae and the Magellanic Clouds. Both piggy back and prime focus photography utilizing Kodak Ektachrome Professional 200 made the viewer wish they had a southern villa just for the awesome nighttime viewing.

A very special thank you goes to Mr. Brasch for driving two hours from his work and residence to San Diego, just to share this majestic view and then driving back home. Truly a generous and loyal SDAA member.

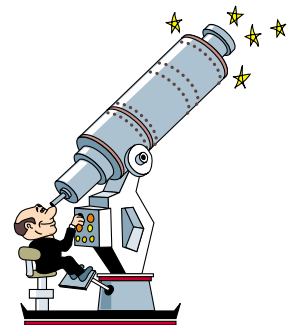
July's Program Meeting by John Restivo

The next Program Meeting is scheduled for July 17th, the third Wednesday, at Mission Trails Regional Park. The guest speaker will be Dr. Gary L. Peterson. Mr. Peterson is a Professor of Geology at San Diego State University. Mr. Peterson's background includes: Visiting Scholar (Stanford University); Chairman, Department of Geological Sciences, SDSU; Visiting Professor of Geology (University of Montana, Missoula); and Acting Chairman, Department of Geological Sciences, SDSU. Dr. Peterson is also a Fellow (The Geological Society of America) and Honorary Member (California Federation of Mineralogical Societies).

Dr. Peterson's topic will be about the volcanic activity on the planet Venus. For those of you who attended the June 2001 Program Meeting, you will remember that Dr. Peterson's lecture and slide presentation, "Why is Mars Red?" was extremely educational for both the lay person and the amateur astronomer. The doors to the Visitor's Center theater will open at 6:30 pm and close at 9:30 pm. There is plenty of parking directly south of the Center. Help make this an enjoyable

evening by attending and getting acquainted with fellow members. I look forward to seeing you there.

SPECIAL NOTE: We really need to boost attendance at the Program Meetings. We are being scrutinized by both the Park Rangers and the city of San Diego. Your involvement also provides for insight and allows you to input both comments and questions you may have that can be addressed by myself or other Board members prior to the guest speaker. The opportunity for a long term useage of this theater will be a plus for both the SDAA and the community. So plan ahead and spend a couple of hours at Mission Trails, which has great hiking and camping facilities, and be entertained and educated all in one evening.





San Diego Astronomy Association

Acknowledgments by Michael Dietz

The club would like to thank Melinda Baker, Scott Baker, Dean Belcher, Rich Bentley, Gary Carradine, Carolyn Corless, Peter DeBaan, Mike Dietz, Doug Hansen, Philip Heineman, Jose Magsaysay, Nick Marilao, Joe McGerald, Bob Nanz, Ken Olson, Jennifer Pesqueira, Lin Robertson, Gregory Santos, Perry Tuey, Charlie Wallis, and Bob Wetzel for helping with the school star parties, Camp With The Stars, and Stars In The Park programs. Your efforts are greatly appreciated by the students, parents and teachers.

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SkyWatch for June, 2002

John Mood



[Times PDT] [* = Easy] [** = Moderate] [*** = Difficult]

Sat., 6 July ---- STAR PARTY @ Tierra del Sol.

Wed., 10 July ---- NEW MOON, 3:26 a.m.

Sat., 13 July ---- STAR PARTY @ Tierra del Sol.

Wed., 24 July ---- FULL MOON, 2:07 a.m.

Sat., 3 Aug. ---- STAR PARTY @ Tierra del Sol.

EVENING PLANETS:

The only naked eye planet now up after sunset is VENUS [*], which is only a degree above REGULUS on the 9th & 10th as it races from Cancer across Leo & into Virgo. Later, 13.8 mag PLUTO [***] is high up in Ophiuchus, while mag 7.8 NEPTUNE

[**½] & mag 5.7 URANUS [**] are in Capricornus.

MORNING PLANETS:

The only naked eye planet visible before dawn is SATURN [*], leaving Gemini for Taurus. On the morning of the 25th, it will be very close to M-1, the CRAB NEBULA; in fact, Saturn's moon TITAN will be in front of the Crab, a great telescopic (& photographic) possibility.

Summertime is MILKY WAY time. It's also GLOBULAR CLUSTER time, since they group in Ophiuchus & Sagittarius, around the center of our home galaxy, which is in, or more precisely, behind, the latter constellation. So here are a few of the more than 50 brighter ones in this area of the sky.

BEGINNING OBSERVERS ----

A number of the Messier globulars are visible w/ small binoculars. Start w/ M-22 in Sag; @ mag 5.1, it's actually naked eye for you young 'uns! Still in Sag are M-28 (mag 6.9) & M-55 (mag 7.0). Then head for Oph & put the glasses on M-10 & M-12 (both mag 6.6), M-19 (mag 7.2), M-14 (mag 7.6) & M-69 (mag 7.7). If you're feeling bold &/or enthused, dimmer globes are M-9 & M-107 in Oph & M-69, M-70 & M-75 in Sag.

EXPERIENCED OBSERVERS ----

You might warm up by hitting the dimmer Messier globes already mentioned. Then, you'll want to test yr equipment & eyes (or cameras) by heading for, say, NGC 6366 in Oph, low surface brightness & mag estimates ranging from 9½ to 12, or tiny NGC-6309 (mag 11+). There are 3 dozen or so others in these 2 constellations brighter than these 2. Go for it!

TIERRA DEL SOL

LAT = 32° 36' 46" N (± 0.1"), LONG = 116° 19' 55" W (± 0.1"), ELEV = 3710' (± 5'), at the bathroom, as determined from USGS 7.5 min 1/24000 map.

Send comments & questions to me by phone (619/225-9639), USPS (4538 Long Branch Av., San Diego, CA 92107) or my newe-mail address

(1happyalien@cox.net).

¡HAPPY VIEWING!



San Diego Astronomy Association

ED telephotos whose filter slot is right before the film, will have their focus affected and must be corrected.

Filter thickness, the index of refraction of the glass used in the filter, and the wavelength of light are the factors that affect focus with a filter.

Chuck Vaughn reports that the calculation for the shift due to a filter is equal to:

the filter thickness $\times ((I_f - 1) / I_f)$. Where I_f = Index of Refraction. The index of refraction does vary with the wavelength, but is usually small enough to disregard, except in the very fastest systems.

Most glass that is used in the construction of filters has an IF of about 1.5.

Wratten gelatin filters have a thickness of

about 0.1 mm. So plugging these number into the formula, we get $0.1 \times ((1.5-1)/1.5)$, which equals 0.0333 mm.

Most glass filters have a thickness of from about 1 to 3 millimeters. This equals about 0.33 to 1 millimeter.

For an f/8 telescope with a depth of focus of 0.013 mm, this is substantial. For faster optical systems, it is even more critical.

Focusing with a Filter

The surest method of determining the focus with a filter is to run a series of star trail tests on film. The knife edge method or a Ronchi screen can be used, but are difficult to use with hydrogen-alpha filters because you essentially can't see through this filter at night.

For mirror telescopes and apochromatic refractors, a clear filter with the same index of refraction and thickness can be substituted and focus can be accomplished visually.

Miscellaneous

Note that interference filters, such as the Deep-Sky filter must be used with light that is parallel, and do not work with wide angle lenses.

Other Considerations

Eyes, Brains, Muscle Memory, Hand-Eye Coordination

About half of the methods described on these pages for focusing for film astrophotography depend on the astrophotographer's eyesight.

Focusing by eye is an exercise in contrast detection by the eye-brain system and hand-eye coordination. It is a skill that can be improved with practice.

It is a method that can work well with a little help from a magnifier, however there are more accurate methods available such as star-trail tests on film, and knife-edge focusing that do not depend on contrast detection.

If you focus by eye, take the time to rack the focuser back and forth through the point of best apparent visual focus. Do this

several times. Become familiar with what the point of best focus looks like as you rack through. Try going through it slowly. Try going through it quickly. Once you know what the point of focus looks like, practice coming directly to focus and then stopping dead. Do this several times.

Fatigue, allergies, astigmatism, anything that can affect your eyesight, can affect your focusing.

For instance, each of my eyes are very different. I am farsighted and have astigmatism. Even with glasses correcting my eyes as well as they can be corrected, my right eye is sharper, but my left eye is a better contrast detector. Each of my eyes also has a different color "bias". The left eye sees things as warmer than the right eye.

For focusing a telescope for visual use, myopia (nearsightedness), and presbyopia (farsightedness) can both be corrected for in focusing the scope by the focuser without wearing glasses.

The eye also has the ability to "accommodate" for slight mis-focus in an optical system by using the muscles in the eye to vary the eye's focus. This ability can cause problems in aerial focusing. It is also why it is important to focus a magnifier on the bottom of the groundglass of the focusing screen if you focus through the viewfinder of the camera with a magnifier.

Astigmatism can only be corrected with surgery or an optical lens correction in glasses or contacts.

As a professional sports photographer, for 22 years, until Nikon finally perfected their auto-focus system, I made my living by focusing long lenses with hand - eye coordination.

I had trained myself to focus with either eye because on a daily basis my eyes were different. It depended on how much sleep I had gotten, my allergies, how much I had slept with my head on my arm pressing on my eye, etc., etc., and probably other factors I couldn't even think of. So every day before I began work, I would check to see which eye was working best that day and use that one for work.

Tips for Visually Focusing

- Get in a comfortable position for focusing.
- Keep your eyes level, don't tilt your head to the side.
- Use an eye-patch on the other eye.
- Don't try to focus by eye alone. Use a magnifier on the groundglass, 15x to 25x is optimum.
- If focusing through the groundglass, focus with the faintest star that can easily be seen without averted vision, not the brightest star.
- Practice focusing. Go through the point of focus and back to learn what it looks like. Practice coming to focus and stopping dead.
- Refocus before every shot.
- Tighten and lock everything down securely, preferably with two lock downs at 120 degrees to each other.
- Double check whatever visual method is used against actual tests on film.
- Use the same film type for tests that is used for astrophotography
- Keep records, evaluate your methods.



San Diego Astronomy Association

Now, having said all that, I have to tell you that I focus my astrophotography with my right eye! This is because my left eye has significantly more astigmatism, and I can't wear my glasses to correct for it when I focus through my 15x magnifier on the ground glass. So, the right eye wins without glasses.

Some Focusing Tips

Wear an eye patch on the eye not doing the focusing and keep the eye under the patch open. The eyepatch will prevent light and distractions, but preserve your vision. This simple procedure will help in preventing strain in the eye you are using. For some reason, probably physiological, the brain can tell when you have one eye closed and vision in the other eye suffers. It will also help preserve your vision in the eye under the eyepatch.

Sit in a comfortable position. If your head is perched down lower than most of the rest of your body as you try to focus a long refractor pointed overhead, and you are all contorted, you are not going to be comfortable and your focusing skills will suffer.

Take your time. Do it right. If you have any doubts, or get frustrated, take a break and come back to it after a little while.

Keep your eyes level with the horizon. You can focus better with your head in this position. Don't tilt your head to one side.

Refocus before each exposure. Suppose you focus only once, before the first frame, and you are a little bit off, for whatever reason. You may even have actually focused very accurately that first and only time, but you may have accidentally bumped the focus during the lock down, or the focus may have changed during the night due to a temperature change. Then your entire night's efforts are wasted because you have put all your eggs in one basket.

I recommend re-focusing before every shot. You may get it wrong accidentally one time in 20 that way, but at least that is only a 5 percent failure rate, vs 100 percent if you only focus once at get it wrong that time.

Focusing Methods

1. Eyeballing it
2. Eyeball and a magnifier
3. Knife edge
4. Ronchi screen
5. Hartmann mask
6. Star-trail test on film
7. Hybrid methods
8. Parfocal eyepiece
9. Aerial method
10. Autofocus

Different Methods of Focusing

There are many different methods of focusing, and some work better than others.

The better ones are also more consistently repeatable, which is an important consideration because of the time and effort we spend on our hobby.

They range in accuracy from focusing with the unaided eye on the groundglass of the camera through the pentaprism, a very inaccurate and unreliable method, to star-trail exposure tests on film, probably the most accurate and reliable method.

Many of these methods can yield good results if the problems of focusing are taken into account, and the limitations and idiosyncrasies of each method are understood.

We can get away with a lot if our optical system has a slow focal ratio. On the other hand, fast optical systems and high-resolution film, such as Kodak's Technical Pan film, demand critical methods for good results.

The following methods are presented in no particular order, except the first method is usually the first one most of us try.

Methods 3 and 4 can be easy and accurate, and many people use them with great success.

Methods 6 and 7 are probably the most accurate because they take into account almost every variable, and the proof is in the pudding, you decide where to focus the lens or scope by evaluating the best focus on the film itself.

No matter which method you use, testing it against the star-trail exposure or hybrid Hartmann star-trail exposure method is a very good idea.

Science Fair Winners Awarded SDAA Prizes by Bob Wetzel

The SDAA was pleased to have awarded prizes to two winners from this year's Greater San Diego Science and Engineering Fair held at Balboa Park. Assisting Bob Wetzel in the judging were Scott Baker and Doug Johnson.

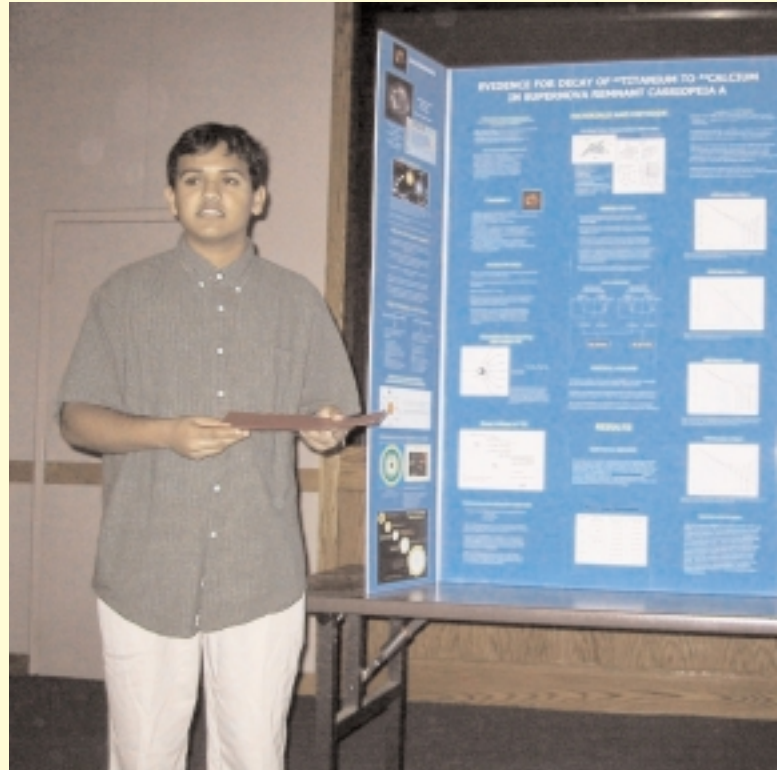
Caitlin Payne is our Junior Division winner for her project titled "Jupiter and its Moons." On May 16th, at Mission Trails Regional Center, Bob Wetzel, Education Chair, announced the winner at our monthly meeting.

Caitlin, a 7th grader at St. Johns, accepted the award of \$75, a one year subscription to an astronomy magazine of her choice and membership in the club for a year. She gave a small talk about her project in which she discussed the observational work she did in calculating the orbital parameters for Jupiter's moons.

Our Senior division winner, Harish Khandrika, accepted his award at the June 20th meeting at Mission Trails. His project was titled "Evidence for Decay of 44 Titanium to 44 Calcium in Supernova Remnant Cassiopei A." Harish, a 10th grader at La Jolla High, has gone on to the Nationals and there has won a \$3000 scholarship award for his project. He also accepted the club's award at our meeting and shared with us his project.

Way to go!

SDAA Photo Gallery



Above:
Harish Khandrika
presenting his project,
"Evidence for Decay of
44 Titanium to 44
Calcium in Supernova
Remnant Cassiopei A"

Left:
Caitlin Payne and her
project, "Jupiter and its
Moons"

Right:
Terry casually walking
away after drooling all
over Jose's Astro-
Physics refractor



Camp With The Stars **by Michael Dietz**

We had 8 members attend the June program at William Heise Campground. The seeing that night was excellent and about 75 people enjoyed looking through the telescopes.

The following weekend, 8 members attended a second Camp With The Stars program at Paso Picacho Campground. Paso Picacho, at an elevation of 4800 feet, is about 700 feet higher than Heise Campground. We had a large crowd of about 250 people that enjoyed the views of the summer sky. The observing conditions were excellent. After the crowds thinned out, and a couple of hours of serious

observing, I spent about 90 minutes taking pictures. We will be back at Paso Picacho on August 31st (Labor Day Weekend).

We will be at William Heise Campground the weekend of July 13th for this month's Camp With The Stars program. The campground has many hiking trails and lots of shade. We will also be set up at William Heise Campground the weekends of August 3rd, and September 7th. You are welcome to come up on Friday and camp an extra night at Heise. Everyone who brings a telescope to share with the campers can camp for free.

As always, we will set up for solar viewing around noon at Heise in the meadow area. If you have a solar filter please join us in

the afternoon. If you plan on attending please let me know at (619)562-2726 so I can make arrangements to accommodate everyone.

To reach William Heise take Hwy. 67 North through Ramona which then turns into Hwy 78. Continue East on Hwy. 78 through Santa Ysabel heading towards Julian. A couple of miles before Julian, turn right on Pine Hills Road and head South. Continue about 2 miles to Frisius Drive and turn left. Head East on Frisius Drive about 1 ½ miles to the park entrance. Let the rangers know you are with the SDAA and they will show where we will be camping. We will be set up in picnic area II East of the caravan area.



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SDAA Board Meeting Minutes for June 2002

The meeting was called to order by John Restivo at 7:20pm. In attendance was Vice President John Restivo, Treasurer Jennifer Pesquiera, Star Party Director Mike Dietz, Recording Secretary Melinda Baker, TDS Site Director Terry Stewart, SDAA Email Group Moderator Scott Baker, Newsletter Editor Bret Akers, and guests Sean and Diana Kelly and Brian MacFarland.

Treasurer's Report

This month, the SDAA balances are: Checking \$8358.89, Money Market \$8,341.67, CD#1 5,484.83, and CD#2 at 5,155.46 for a grand total of \$27, 340.85. Currently there are 550 members.

Observatory Report (given by Scott and Melinda Baker)

The club scope is getting much better images after maintenance a few weeks ago.

Site Maintenance Report

The cement is done!! Thank you's to all volunteers will appear in a future newsletter. The next task is to install the water tanks, and volunteers are needed. Please contact Terry Stewart. Lights may be installed on the new sidewalk leading from the public pads to the warming room and

observatory. Everything else is running well, and preparations are being made for the upcoming barbecue.

Star Party Report

Barnes and Noble of Mira Mesa donated a wonderful book to the SDAA library. The past few star parties have gone well, many are coming up and volunteers are always needed. Please contact Mike Dietz.

William-Heise park charged a \$1 fee to see the slide show put on by the SDAA, and it was decided that the club will ensure that the money won't be collected in the name of the SDAA, as we are a non-profit.

Newsletter Report

It was formally announced that Lloyd Duhon has resigned as Newsletter Co-Editor, and a search is underway for a new assistant editor, otherwise everything is running smoothly.

Vice President's Report

The next two Program Meetings are planned and will be located at Mission Trails Park. Efforts are being made to make a contract with Mission Trails for the upcoming year. Program meetings will be moved to Wednesdays to ensure ease at Mission Trails. Board meetings may be moved to another location, though no decision was made as President Jim Traweek

was absent. Thank you to Brian Staples for his help in establishing our Program Meetings at Mission Trails.

New Business

An idea was presented to drop Basic and Senior memberships, to ease in newsletter production, the proposal was tabled for the next meeting.

Terry Stewart will be in charge of the annual barbecue, and Diana Kelly will be in charge of the annual banquet.

A new phone directory which will include email addresses is under construction.

Banquet Report

Different locations for the annual banquet were proposed. All members planning to attend the banquet who require special diet meals please contact Diana Kelly as soon as possible.

The meeting was adjourned at 8:47pm.

Thanks Bettie

I would like to thank Bettie Apelfor her patience and help in making the chocolate chip cookies for the board meetings. It's an appreciated effort.

- Diana Kelly

Clip and Save

2002 Board of Directors and Chairpersons

President, Observatory Director, Jim Traweek
email: President@sdaa.org619-477-7279

Vice President, John Restivo
email: VicePresident@sdaa.org858-268-3856

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South County Star Party Directors, Rich Bentely and Stewart Hall
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Newsletter Editor, Bret Akers
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TDS Site Director, Terry Stewart
email: t-c-b@juno.com619-295-2449



SDAA Calendar of Events July 2002

S	M	T	W	T	F	S
	1	2 ●	3 ●	4	5	6
		Mason Elementary 10340 San Ramon Mira Mesa	Stars in the Park 7 pm			Star Party at Tierra Del Sol
7	8	9	10 ●	11	12	13
		SDAA Board Meeting 7 pm			Indian Hills Camp 15763 Lyons Valley Road Jamul	Camp with the Stars @ William Heise Campground Julian
14	15	16 ●	17	18	19	20
			Program Meeting			
21	22	23	24 ○	25	26	27
28	29	30	31			

The Back Page

Newsletter Help Needed by Bret Akers

If you've been wanting to get involved in the SDAA, here's your chance. I'm looking for another editor to help me with the SDAA newsletter every month. I'd really like to find someone who has experience with QuarkXPress, but any page layout experience, or even a desire to learn, would be ok. If you're interested, please send me an email at newsletter@sdaa.org and I can give you more details.

Treasurer's Report by Jennifer Pesqueira

With the addition of the following new members we now have 540 SDAA members. We would like to welcome our new members: Robert Agnew, Terri Caldwell, Tammy Grogan, Lou Jackson, Timothy Lewis, Mike and Julie Quinn, Terry Roberts, Thomas Teske, David Voros, Christopher Watson and our second 2002 Science and Engineering Fair Winner, Harish Khandrika. May you enjoy clear dark skies.

Membership List by Jennifer Pesqueira

We are in the process of updating our Annual SDAA Membership list. Please let me know if we have your correct telephone number and email address. Also, let me know if you do not want your information to be published.

FOR SALE:

German equatorial mount with wooden tripod, \$50.

619-461-9769

MEMBERSHIP INFORMATION

Send dues and renewals to P.O. Box 23215, San Diego, CA 92193. Include any renewal cards from Sky & Telescope, Astronomy, or Odyssey magazine in which you wish to continue your subscription. The expiration date shown on your newsletter mailing label is the only notice that your membership in SDAA will expire. Dues are \$35 for Contributing Memberships; \$25 for Senior (Basic) Membership; \$3 for each Family membership. In addition to the club dues the annual rates for magazines available at the club discount are: Sky & Telescope \$29.95, Astronomy \$29, and Odyssey \$25.46. Make checks payable to S.D. Astronomy Assn. **PLEASE DO NOT send renewals directly to Sky Publishing.** They return them to us for processing.

Subscription \$8.00/Year • Single Issue 75¢
Published Monthly by the San Diego Astronomy Association

VOL. XXXVIII • ISSUE 07 • JULY 2002

(619) 645-8940

SAN DIEGO, CA 92193-3215

P.O. BOX 23215

SAN DIEGO ASTRONOMY ASSOCIATION

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