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Amateur
astronomers
just get better
looking . . .

nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Volume 24 Number 5 ***nightwatch*** **May 2004**

The May general meeting will be held in Beckman Hall at 7:30 P.M.

President's ADDRESS

As amateur astronomers we realize the importance of space exploration. But many of the public do not. A few weeks ago, I was made privy to a conversation that set me to thinking. It went like this:

Speaker one: "Have you heard about the latest from NASA's robot rovers on Mars?"

Speaker two: "We have robots on Mars?"

Speaker one: "Yes!"

Speaker two: "Why?"

Several days later, in another conversation about the space program, I heard, "Couldn't that money be better spent right here on Earth?" Of course, the money does stay here on Earth, both as salaries to individuals and as profits to businesses. And much of the technology developed for space has other applications. (For more on this see the website: http://www.sti.nasa.gov/tto/) But there are bigger reasons for reaching out from our home on Earth.

Human beings are curious. We want to know as much as we can about our surroundings. If dropped off on the beach of a previously unknown island, would we sit there on the sand and eat shellfish. No! We would get up and take a look around. We would try to discover other resources that the island might hold. We would want to know the dimensions of the island. We would want to make ourselves aware of any potential dangers. We would want to take in the beauty of the place. We would want to know if there were others on the island, or if we were all alone.

When we are born into this universe, we are like the person dropped of on an uncharted island. We are arrived into a place that we know only a little about. How big is the universe? What wonders and beauties does it contain? Will human beings one day be able to move from Earth out onto other worlds? Will Earth be hit by an asteroid, comet, or suffer some other interplanetary catastrophe? Could we prevent these? Are we alone? These are questions worth answering.

Ron Hoekwater

Star Party Sites

(MBC) Mecca Beach Campground (see page 4)
(CS) Cottonwood Springs campgrnd, Josua Tree Ntl. Pk
(CC) Cow Canyon Saddle, Mount Baldy Village
(MS) Mequite Springs campgrnd, Death Valley National Pk
(CWP) Claremont Wilderness Park parking lot
(KD) Kelso Dunes
(WM) White Mountains

PVAA Events Calendar

Month	Star Party	Star Party	General Meeting	Board Meeting
May	CC	22	7	27
June	CS	19	4	24
July	CC&WM	17	30	22
August		14	27	19

Report on the April General Meeting

Announcements

We had two new members join our group at our April meeting. Keep an eye out for these new faces and help make them welcome at our future gatherings.

The proposal to add a PVAA Family membership category was well received by those in attendance. This bylaw change will also be discussed at our May meeting then voted on in June. If you have any input in please provide it to someone on the board or at our next general meeting.

RTMC

Bob Akers gave an entertaining presentation on the upcoming Riverside Telescope Makers Conference. The Conference is held every year over Memorial Day weekend at Camp Oakes near Big Bear. This year the event takes place from May 28 – May 31st. From Bob's photos we could see the vast array of astronomical items available for sale at good prices and the home built observation equipment to drool over. One of the more amusing – and useful, I think – was a reclining chair which could be raised up to eyepiece height for comfortable viewing at a large telescope. Doesn't that beat climbing up and down a ladder in the dark? Comet enthusiast Bob also kept us posted on the possibility that attendees to this dark sky site may see two comets during the conference, Comet Neat (C/2001/Q4) and Comet Linear (C/2002 T7).

This year's keynote speaker will be Dr Phil Plait of Sonoma State University. He will speak on Planet (Hoa)X. For a preview, see his web site www.badastronomy.com. Please consider attending this Conference, a fixture for those interested in astronomy and telescope making since it's inception in 1969. Both dorm room lodging and meal packages are available as well as tent camping. Day passes can also be purchased for those who would like to experience the event without the rigors of an overnight stay.

Prices are cheaper before May 1st and online registration is only accepted through May 15th so look into attending soon if you are interested. You may call Robert Stephens at (909) 948-2205 for details or see their web page: **www.rtmcastronomyexpo.org** for details and to register.

Featured Speaker

Our April speaker was James Butts, NASA/JPL Ambassador and avid amateur astronomer for the past 40 years. Despite some sound challenges with our video system, we enjoyed films showing upcoming NASA space missions, including the Kepler Mission, due to launce in 2007 and run until 2011, which will look for Earth like worlds from space. Also shown were details of the Stardust mission. The Stardust spacecraft was launched in February 1999 and just last January collected samples from Comet Wild 2 in its aerogel paddle. The paddle will return to Earth safely encased in a reentry capsule in 2006. While original plans called for the parachuted capsule to land in the relatively soft snow at the Utah Test and Training Range in January 2006, current plans are being made to retrieve it in mid-air by helicopter instead, minimizing the risk of contamination of the sample should the return vehicle pop open upon landing. James then presented a

PVAA 24 HR. Hotline.
Get the latest news on the star party, club meetings, special events and astronomy happenings.call **909/596-7274**

Visit our website at
http://pages.pomona.edu/~aka04747/pvaa/

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slide show, in his excellent and loud speaking voice, with many satellite photos taken from the orbiters currently circling Mars.

James is an officer with the San Bernardino Valley Amateur Astronomers and is also involved with the Riverside Astronomical Society. He welcomed our Club members to join the Riverside members at their Landers dark sky observing site. Their web site is www.rivastro.org and has links to their next Star Party dates and locations. Thank you, James, for the interesting talk and for the invitation!

Claire Stover

T7 at Kelso

I have witnessed on many occasions, the weather phenomena of traveling through our valley beneath gray clouds, even light rain, while only a few miles further and several thousand feet higher, suddenly emerge into warm sunshine and blue skies. That would not be happening on this star party trip. In fact, it rained in various degrees, to Hesperia, and northward to Victorville. It continued to drizzle through Barstow and even Ludlow. And nearly three hours later, as I turned north on the Kilbaker road, it was still raining! I was thinking that it was definitely foolish to continue on to Kelso Dunes, but I had already promised Ron Hoekwater that I would accompany him on his initial visit to this observing site.

Almost simultaneously we arrived at the main dune's parking lot and sat in our vehicles reading books for about an hour. Through the windshields, we watched a few couples set off in the drizzle on half-hearted attempts to summit the dunes.

As the evening approached the clouds gradually broke up. This allowed the setting sun's rays to paint the cloud bottoms with broad golden strokes and eventually produce a one legged rainbow- all in front of the world famous Kelso Sand Dunes. Another Kodak moment!

With the storm still leaving the area, seeing was a little unsteady at first, settling down later. Darkness was pretty good, the result of northern clouds squelching the residual light that originates from the Stateline/ Vegas area.

My biggest concern was the forecast of high wind, but into a non-issue. An occasional soft breeze, albeit with 40 degree temperatures, were the worst that we suffered, not enough to disturb the telescopes.

Starting with the second most obvious "star" in the sky, Jupiter and the Jovian moons again revealed their grandeur. Seeing was good enough to reveal most of the smaller cloud bands, but not quite good enough to see the festoons clearly, at least with a 12 in. scope. There were several darker features near the equator, which at first I thought were the shadows of moons, but upon closer examination turned out to be the great Red Spot storm.

The most obvious "star" in the sky was, of course, Venus. Looking more like a landing light than a planet, it shone at –4.4 magnitude and was sporting an obvious 40% crescent.

But we drove 3 hours not to see stuff viewable from our backyard, but to see deep space objects. Leo, near zenith after sunset, was an excellent place to start. Ron treated me to a wonderful view of Copeland's Septet (NGC3950). We commented that the darkness was such that we were seeing many more than just seven galaxies in the immediate area. That is a galaxy rich area, so it was difficult to know when the Septet stopped! Nearby lay Abell 1367, another galaxy saturated and active area in Leo. Too bad we didn't have superman's vision, because in the X-ray spectrum, this area would have looked completely different from the view in the visible light range, in which we see. Although, the stellar production of X-rays can involve several models, it is usually agreed that their production indicates a very high degree of molecular excitement and/ or unusually high heat.

Another object seen was NGC 3115, the Spindle Galaxy, in Sextans. It's interesting to note that this galaxy, with its bright bulging center, was the scene of a supernova back in 1935 (1935B).

As the evening wore on, Virgo arose, also providing outstanding deep sky targets. One that particularly captured my attention was the Markarian chain. Although the chain is officially listed as having 7 "links" (galaxies), it was difficult to not include more, because of the volume of "faint fuzzies" in this target rich area. All you need to do to find Markarian's chain is to first locate M84 and secondly M86, in that order. Continue in that direction, with a slight arc, and you'll be "galaxy hopping" across the entire chain.
Some objects you never get tired of seeing and to me,

not much compares to the Omega star cluster in Centaurus. This spectacular globular cluster (NGC 5139) is actually a naked eye object, with Ron being the first to spot it- at least on this outing. Actually, for the first time, Edmund Halley is credited with correctly logging the Omega as a "luminous patch", not a star. Prior to this, others, including Ptolemy (130 AD), apparently listed it as a single star. I love to cite that Omega Centauri has the estimated mass of 5 million of our suns and is 10, count'em, ten times more massive than the biggest Globulars! Because the Omega has as much mass as some of the smallest galaxies, it has been speculated by a South Korean study in 1999, that this is likely the remnant core of a galaxy that merged with our own Milky Way.

However, my favorite object and the stated goal of this star party came up at around 5AM. After getting a few hours of "cat eye", I got up just prior to dawn and scanned the area below and slightly south of The Great Square of Pegasus. There, just above the eastern horizon, was comet Linear C/2002 T7 or just "T7". Although listed as 2.3 magnitude, I still could not see it with my naked eye because the lightening of the pre-dawn skies. However, it was easily visible in 11x80's, 15x70's, and even 10x50's. In short, this is absolutely an easily viewed object with any binocular. The potential risk of spotting the sun accidentally will diminish as the comet rises earlier each morning- until the first part of May. After the first of May the comet will dive rapidly back towards the horizon and reappear above the western sunset at around the 20th of that month. Even in washed out skies the comet's coma appears to be large. It did sport a short stubby tail, which was oriented away from the sun, but this was only detected with a telescope.

In the morning Ron and I packed up and returned to our respective homes, but not before enjoying a sumptuous breakfast at Quigley's in Barstow.

We did learn a couple of facts on Kelso Dunes, on our outing. (1) Although "camping," as such, is not allowed in the site's parking lot, apparently less than ¼ of a mile further down the road are unofficial sites that are "suggested," as long as there are no fires started (sand mining area). (2) No, we did not hear any of Kelso's famous "dune booms"- created when the sands shift. It only occurs when humidity is ultra low.

Bob Akers

Membership By laws Change

The PVAA Board would like to add a new membership classification. The bylaws regarding membership are as follows.

Article III- Membership: Fees and Classification

Section 1.0
Membership in the Pomona Valley Astronomical Society..... members in good standing, endowment members, and one year complimentary members .....

Section 2.0
Individual member
Endowment member
Junior member
One Year Complimentary Member

Section 2.1
The board of officers shall set the membership fees.....

Section 2.2
The classificarion of member shall be extended to any person paying the yearly membership fee. Members shall have the right to vote on all matters of Pomona Valley Amateur Astronomers business presented by the board of officers of the pomona valley Amsteur Astronomers at regular meetings and to vote for officers of the Pomona Valley Amateur Astronomers. Members shall have the right to make use of any resources, equipment or facilities of the Pomona Valley Amateur Astronomers, subject to all rules set forth by the Board of Officers. The term of membership commences the first day of the month in which the member is eligible to attend a regular meeting and extends for one calendar year thereafter.

Section 2.3
Endowment member

Section 2.4
Junior member

Section 2.5
One Year Complimentary Member

Proposal:

Amend Section 1.0 to add "Family Membership".

Add new section 2.6:

The classification of Family Membership shall be extended to any family at a single address paying the yearly membership fee established for such membership. A family membership shall have no more than two votes on matters described in section 2.2. A family membership entitles the members of the family to the resource, equipment

and the facility rightrs described in section 2.2. The term of membership is as described in section 2.2. Only one copy of tje club mailings will be sent to each address under family membership.

For the change in bylaws to take effect the following steps must be taken.

Section 1.0
the bylaws can only be changed by a vote of the general membership.

Section 1.1
Prposals must come from two board members or petition of 10 general members.

Section 1.2
The board may approve proposals for bylaws changes, if so, the proposed change will be published. If not, the issue may still be presented by a petition of 10% of the general membership.

Section 1.3
If approved per section 1.2, changes will be published in the newsletter and discussed openly at 2 regularly scheduled monthly meetings.

Section 1.4
Final vote at the third regularly scheduled meeting requires approval by 2/3 of the members present.

This is the second printing of the bylaws change for family membership.

Foothill Knolls Elementary Star Party

This last month, Foothill Knolls Elementary School in Upland invited PVAA to hold a star party for 5th graders. Tuesday, April 27th was the date of the event. Because it was somewhat short notice I feared the turnout would be meager. But, PVAA members really turned out to support this effort to reach the young and to spread more widely the joys of observing the night sky. It was great to meet the families and faculty of Foothill Knolls who were present in great numbers and enthusiastic in their participation. The temperature was comfortable, the air was clear, and the seeing was steady. The planets were a big hit with everyone, as was the first quarter Moon. In addition to about 100 5th graders, there were probably another 100 parents, siblings, and teachers in attendance. Many thanks to those representing PVAA: Bob Akers, Joe Hillberg, Chris Hoekwater, Ron Hoekwater, Ray Magdziarz, and Craig Matthews. (I apologize if I left anyone out.) All in all, besides being great fun, the night was hugely successful at introducing many to amateur astronomy.

Ron Hoekwater

Copeland's Septet
(and other 14th and 15th magnitude Galaxies in Leo)

In March (at Salton Sea) Bob Akers introduced me to the galaxy cluster Abell 1367. I am a fan of galaxy clusters. And, residing in the constellation Leo, this is an *impressive* cluster. 542 galaxies have been cataloged within one degree of the cluster's center. At least 1682 galaxies are within a radius of two degrees. (However, they are not necessarily all members of the Abell 1367 cluster and most of them are fainter than magnitude 15.) Searching online I discovered that Steve Gottlieb (a skilled amateur observer in northern California) succeeded in seeing 63 members of the cluster with a 17.5-inch scope. Using a 12mm Nagler eyepiece and my 22-inch scope, I counted a dozen galaxies in a single .39 degree field-of-view. I did not try to count the total number of galaxies that were visible, but I would guess that it was in the 50-60 range. Maybe more. According to *The Night Sky Observer's Guide* by George Robert Kepple and Glen W. Sanner, members of this cluster are at an average distance of 400 million light years.

I told you all of that to lead up to this. Under beautiful dark skies, in April at Kelso Dunes, and after again spending some time appreciating Abell 1367, I looked in Uranometria for a target both interesting and nearby. There I found (also in Leo) a compact galaxy group that I had never heard of before, Copeland's Septet (a.k.a. Hickson 57 and Arp 320). I have seen Stephen's Quintet and Seyfert's Sextet, but this was a group, I had yet to see. I turned the scope on it.

Copeland's Septet was relatively easy to locate, due to its proximity (about one degree northwest) of the 5th magnitude star 92 Leo. There are actually eight galaxies (magnitude 15 and brighter) in the vicinity but only seven are members of the group. At the eyepiece I saw seven of the eight. Two galaxies (NGC 3753 and 3754) are interacting and to me looked like a single galaxy. (I will have to look more carefully next time to see if I can distinguish between the two.) The interacting pair consist of a big, bright spiral (classified SBc) and a smaller spiral (classified Sb). The two are a radio as well as an infrared source. There is some disagreement about the classifications of the others. Hickson states that five of the group are spirals and two are elliptical. Kepple and Sanner have all seven as spirals. The sky at Kelso was dark enough that (in the 22-inch scope) the group was not difficult to see (with the exception of picking out the smaller of the two overlapping galaxies). The brightest of the group is magnitude 13.6 and the faintest is magnitude 15.2. The entire group has a mean redshift of 0.304 and radial

velocities ranging from 8727 km/s to 9594 km/s. This places it at about the same (400 million light years) distance as Abell 1367.

Now, a little history. The Copeland of "Copeland's Septet" is not the American composer, but is instead Ralph Copeland (1837-1905). Copeland first observed this galaxy group February 9, 1874, using the 72-Inch "Leviathan of Parsonstown" at Birr Castle. At the time he was employed as an observer under Lord Rosse, Earl of Parsonstown in Ireland. In the same year that he observed the galaxy group that bears his name, Copeland also observed the transit of Venus from Mauritius, an island country in the Indian Ocean, east of Madagascar. Later he served as the third Astronomer Royal of Scotland from 1889 until his death.

Next time you are out under a dark sky and the constellation Leo is high overhead, you may want to look for the NGC galaxies 3745, 3746, 3748, 3750, 3751, 3753, and 3754, which make up Copeland's Septet.

Ron Hoekwater

More on CCD Imaging

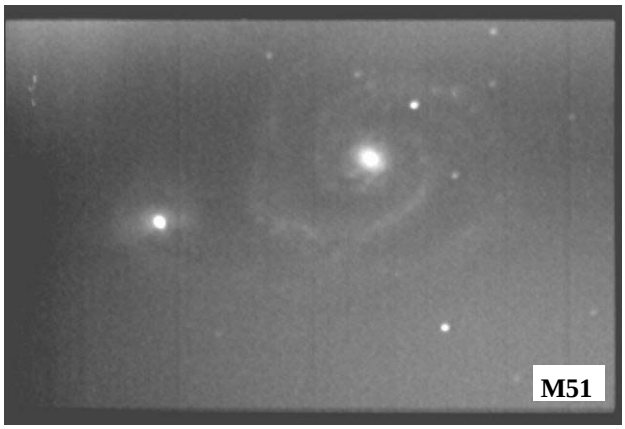
I have been working with the SAC8 camera for a little more than a month. I have a nice image of M51, M42 and M82. In order to be able to find these objects with a telescope, I have to prepare a list of stars which are close to the desired objects. The telescopes that are computer controlled need to be properly set up and have their clocks correct.

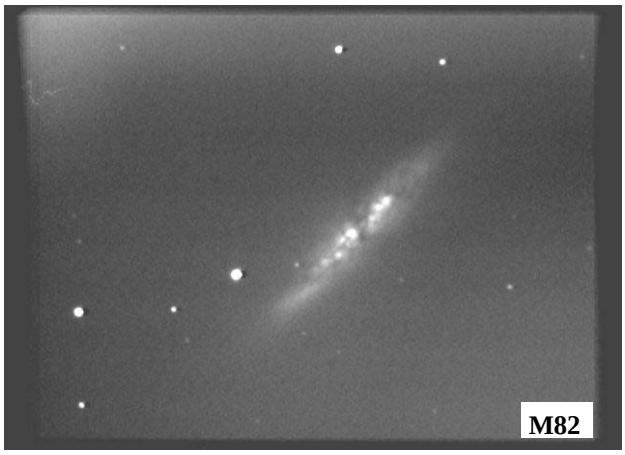
When you find the star, then "goto" the deep space object, and if all is well, the object is on the CCD. M42 was easy because the trapezium was bright enough to see in the Video Preview mode. But dimmer objects like M81 are not visible, and a long exposure is required.

Where I live in Claremont, one second is the point where the sky glow becomes exessive. With such an exposure the frame is examined on the computer monitor, and you hope something is there.

M81 was a dim smudge and not very impressive. But with stacking a bunch of images it starts to look good. M82 is dimmer, but shows up better. M51 was the first object that impressed me, because the spiral structure was so obvious.

I am fortunate that my CCD has only 3 hot pixels that show up, and they are at the edge of the CCD. They are the only starlike objects in the image. The real stars are not so crisp.. But these hot pixels and other artifacts are subtracted from the image using the dark frame. I have to learn how to do that yet.





Ray Magdziarz

School Star party Coming in La Verne

On Thursday, May 6th PVAA has been invited by Roynon Elementary School in La Verne to hold a star party. In addition to the evenings activities, in the morning our Chief Observer, Bob Branch will be addressing the third grade class on the topic of astronomy. Roynon School is located at 2715 "E" Street, three blocks north of Bonita Ave. We want to be set up by about 7:45 PM. If you are able, please attend (with a telescope) this educational event.

Ron Hoekwater

May Meeting to Feature Dueling Speakers

At 7:30 on Friday, May 7th the PVAA General Meeting will feature not one, but two speakers. First our own Bob Branch will enlighten us on the upcoming transit of the Sun by Venus. Invited back this month is James Butts from the JPL/NASA Ambassador Program. Last month technical difficulties prevented Mr. Butts from getting to the part of the presentation that many were most eager to see: Mars exploration. In May we will see what it was that we missed in April.

Ron Hoekwater