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Amateur astronomers just get better looking . . .

nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Volume 27 Number 4 ***nightwatch*** **April 2007**

President's Address

Well, it is once again that time of month when I have to think of something to write about. Since I don't find myself being flooded with brilliant ideas, I'll just tell you about what's going on.

Our last two star parties were well attended. Our May star party is at the RV park / Campground at Cow Canyon Saddle. No where else is this dark *and* this close to home. As it *is* so close, I'm hoping for a very good turnout. This star party site is on private property. We will be there with the kind permission of the owner, Ron Curtis, his daughter Tiffany, and son-in-law Brian. Please check in at the park headquarters when you arrive. If we're good they might let use this site again.

Also in May is the Riverside Telescope Makers Conference. This is the 39th year of RTMC Astronomy Expo and it just keeps getting better. As I have written a lot about RTMC, I'll just say that I think it is the high point of the year for Southern California amateur astronomy. For more information visit: http://www.rtmcastronomyexpo.org/.

We will be having our annual club trip up to Grandview Campground at White Mountain in July. This is a great observing site! Include the White Mountain star party in your summer plans if possible.

And finally, PVAA's annual elections may still be three months away. But, our bylaws require that the election process actually start in June. So start thinking about who you might want to nominate for office. Or run for office yourself if you like.

Happy stargazing! Ron Hoekwater

Don Nicholson to Speak in May

Don Nicholson was born and grew up in Pasadena and earned a BSc at Pomona College and an MSc at Caltech. Don is a Fellow of the Optical Society of America and in the past served that body as Chair of its Aeronautics and Space Systems Technical Group.

Don's father was an astronomer at the Mount Wilson Observatory and Don spent much of his youth at the Observatory on Mount Wilson and at the Observatory's offices in Pasadena. There he came to know many of the

Star Party Sites

(MBC) Mecca Beach Campground
(CS) Cottonwood Springs campground, Joshua Tree Natl. Pk
(CC) Cow Canyon Saddle, near Mount Baldy Village
(MS) Mesquite Springs campground, Death Valley National Pk
(CWP) Claremont Wilderness Park parking lot
(KD) Kelso Dunes
(WM) White Mountains (Grandview)
(CGT) Calico Ghost Town Campground
(LNDRS) Riverside Astronomical Soc. Landers site

PVAA Events Calendar

Month	Star	Star	General	BoardMe
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May	5/12(CC)	22 (Ont)	5/4	5/17
June	16(CS)		6/1	6/21
July	14(WM)		6/29	7/19

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many of the staff including Edwin Hubble, Milton Humason and Walter Baade and developed a lifelong interest in astronomy. With this firsthand knowledge of the early days of the Observatory's history it was natural that upon his retirement he would return to the mountain as a volunteer.

He is currently Chairman of the Board of Trustees of the Mount Wilson Observatory Association, a support group for the Observatory, and also serves as the Associate Deputy Director for External Affairs of the Mount Wilson Institute which manages the Observatory for the Carnegie Institution of Washington. As one of the few left who were privileged to be directly associated with Mount Wilson during those days when it was the world's leading astronomical Observatory, Don feels particularly fortunate to be able to share that experience with others.

The title of the presentation is "The Mount Wilson Observatory, Then and Now."

General Meeting

Derek, the friend of a club member, joined us at our April meeting. We hope he enjoyed his visit. Kelso Dunes proved to be one of our better attended events, with about a dozen members either spending the night at the Dunes parking lot or camping at one of the unimproved sites at the end of the road. The evening temperatures were very pleasant, as was the company. The skies were clear and light free – except for the faint glow of Las Vegas near the horizon to the east. I think everyone enjoyed themselves.

Frank spoke about the upcoming Braille Institute star party, now named Project Bright Sky for the bright conditions ideal for observations by our sight impaired guests. 2007 marks our 4th event and there is an enhancement this year. Sherri used her Public Library connections to purchase several Braille books: Touch the Sky, Universe, and Moon. In addition to text in Braille, the books have raised areas defining the illustrations of night sky objects to help the group study ahead to understand the shape of the objects we will be helping them to observe.

What's Up discussed the area of the sky occupied by Jupiter during the late evening. From Cottonwood Springs, we began to see this planet above the horizon around 11pm. Numerous galaxies and other Messier objects reside here within Ursa Major, Bootes, and Ophiuchus. This part of the sky contains the controversial M102, the Spindle Galaxy. Some say that Messier's telescope was not powerful enough to see this object and that he actually just observed M101, the Pinwheel Galaxy, and recorded it in error as two separate objects.

As a follow up to our talk last month on the Spitzer Space Telescope and infrared astronomy by Dr. Luisa Rebull, here is a link to another NASA mission – SOFIA, for Stratospheric Observatory for Infrared Astronomy. It consists of a modified Boeing 747 fitted with a 2.5 meter reflecting telescope. It appears the mission may currently be under further study. Information can be found at the following website:

http://www.sofia.usra.edu/

April Speaker

Our speaker for the evening was Eric Grosfils who is an Associate Professor in the Geology Department at Pomona College. Dr. Grosfils specializes in planetary geology and physical volcanology. He currently teaches Planetary Geology, Remote Sensing of the Earth's Environment, and Geophysics of the Solid Earth. His topic for the evening's lecture was Impact Cratering.

PVAA e-mail and hotline

Those interested in getting information which was not received in time for the newsletter, please send your e-mail address to Ron Hoekwater at

astro.ron@juno.com

To get the latest news on star parties, club meetings, special events and astronomy happenings call

909/596-7274 or

visit our website at www.pvaa.us

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Asteroids are definitely interesting objects for study. Such space rocks have been given lots of attention lately, especially since the 1994 impact of Comet Shoemaker- Levy 9 on Jupiter and Hollywood movies which depict Bruce Willis saving us all from certain destruction. In addition to their potential for harm, they also have economic potential as a source of metals and minerals useful here on Earth. Given that their composition includes hydrogen and oxygen, they would also make very helpful intermediate launch points for explorations into other parts of the solar system.

Next we learned about the mechanics of the impacts themselves. When an object hits faster then its energy is able to dissipate, it buries itself during the first 2 seconds after impact until about the diameter of the object. Next, the shockwave compresses the ground underneath and ejects material back up above it. From 2 – 90 seconds after impact, the ejected material rains back down forming a slumped rim around the edge of the simple crater.

Slightly bigger objects produce a rebound effect in the material in the center of the crater – like the water drop which rebounds back up after a water drop falls into a pool of water. In this case the crater contains a central peak with rings of material radiating out from this central point.

To assess the risk of a large impact on the Earth, past impact records on the Moon and on other planets are studied. While the high impact rates from early in the formation of our solar system have slowed, since about 3 billion years ago the rate at which rocks are swept up by the planets is roughly equal to the rate at which new rocks are created through asteroids impacting one another and breaking into smaller, more numerous objects. In other words, the impact rates we see right now have leveled off and should continue into the foreseeable future.

For reference, the Tunguska impactor which hit Siberia in 1908 was thought to be about 30-50 meters in diameter. It was slowed by the atmosphere and didn't actually hit the ground but exploded just above the surface. An impact of this size should be expected about every 100 years. Meteor crater in Arizona is thought to be formed by a slightly larger 60-120meter rock which did hit the surface and created the large crater we see there today. An impact the size of Chicxulub, fortunately, will only occur on average every 100 million years or so.

Since 70% of the Earth's surface is covered with water, the odds are greater of a water impact. An object about 400 meters in size is predicted to create tsunami waves from 6 – 17 meters in height – so one would expect similar damage and fatalities as occurred during the Asian wave caused by the 9.0 magnitude earthquake off Sumatra on December 26th, 2004.

Thank you so much for a very interesting and thought provoking talk, Dr. Grosfils. We hope your schedule will permit a return visit to one of our future meetings so we can learn more about one of your other specialties.

Below are some interesting sites for more information about the study of impacts.

http://www.lpl.arizona.edu/impactseffects/

http://neo.jpl.nasa.gov/

Claire Stover

Stargazing in Utah

Ah, southern Utah! Zion and Bryce Canyons and….dark skies! Ron Hoekwater and I made a star party out of a trip to visit our national parks. Before leaving, I phoned the rangers at Bryce Canyon where they have regular summer star parties and inquired about the best sites for stargazing. One ranger, who is also an amateur astronomer, suggested we camp at the Kodakchrome Basin State Park because the trees at Bryce block the view and Zion National Park's campground is deep inside the walls of Zion Canyon. The suggestion proved apt and we had two great nights of seeing from the Kodakchrome Basin State Park. This state park is beautiful as are the national parks. The campground is in a low basin which blocks the bottom 20% of the sky but it has no lights on at night and is far from any city. It is only about 15 minutes beyond Bryce Canyon but has its own set of hiking trails and unique rock formations to explore. The rangers at the state park were very helpful and suggested a good campsite for stargazing. The campground itself is fully equipped with flush toilet bathrooms and warm

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showers. There is a small dry goods vendor in the campground too. We spent our days exploring and found that the skies were indeed very dark and the seeing was great. Unfortunately April brings showers and snow to southern Utah so after two good nights we headed back toward California to meet up with the PVAA at the Salton Sea. But, as in Utah, the weather gods were opposed to stargazing and we PVAAers enjoyed each others' company at the Salton Sea instead of the stars.

I highly recommend a visit to Kodakchrome Basin State Park for stargazing. While Bryce Canyon's campground is at 8,300 feet above seal level, the Kodachrome Basin campground is only at 5,300 feet above sea level and even during our visit in April the night weather was comfortable. It probably doesn't get too hot there in the summer but it would probably be a good idea to speak with the rangers there beforehand and find out when the best time of year is to stargaze since the summer may bring thunderstorms.

Laura Jaoui

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Stephen William Hawking

(born 8 January 1942) is a British theoretical physicist. Hawking is the Lucasian Professor of Mathematics at the University of Oxford, and a Fellow of Gonville and Caius College, Cambridge. He is known for his contributions to the fields of cosmology and quantum gravity, especially in the context of black holes, and his popular works in which he discusses his own theories and cosmology in general. These include the runaway popular science bestseller *A Brief History of Time*, which stayed on the British *Sunday Times* bestseller list for a record-breaking 237 weeks.

His key scientific works to date have included providing, with Roger Penrose, theorems regarding singularities in the framework of general relativity, and the theoretical discovery that black holes emit radiation, which is today known as Hawking radiation (or sometimes as Bekenstein-Hawking radiation). His scientific career spans more than 40 years and his books and public appearances have made him an academic celebrity and world-renowned theoretical physicist. He is an Honorary Fellow of the Royal Society of Arts.

Always interested in science, he enrolled at University College, Oxford with the intent of studying mathematics, but after his first year was persuaded by his father to switch to physics. His interests during this time were in thermodynamics, relativity, and quantum mechanics. His physics tutor, Robert Berman, later said in the *New York Times Magazine*, "It was only necessary for him to know that something could be done, and he could do it without looking to see how other people did it. ... He didn't have very many books, and he didn't take notes. Of course, his mind was completely different from all of his contemporaries." He was passing with his fellow students, but his unimpressive study habits gave him a final examination score on the borderline between first a second class honours, making an "oral examination" necessary. Berman said of the oral examination, "And of course the examiners then were intelligent enough to realise they were talking to someone far more clever than most of themselves." After receiving his B.A. degree at Oxford University in 1962, he stayed to study astronomy, deciding to leave when he found that studying sunspots, which was all the observatory was equipped for, didn't appeal to him and that he was more interested in theory than in observation. He left Oxford for Trinity Hall, Cambridge, where he engaged in the study of theoretical astronomy and cosmology. Almost as soon as he arrived at Cambridge, he started developing symptoms of Amyotrophic Lateral Sclerosis (colloquially known as Lou Gehrig's disease), a type of motor neuron disease which would cost him the loss of almost all neuromuscular control. During his first two years at Cambridge, he did not distinguish himself, but, after the disease had stabilised and with the help of his doctoral tutor, Dennis William Sciama, he returned to working on his Ph.D. Stephen revealed that he did not see much point in obtaining a doctorate if he was to die soon. Hawking later said that the real turning point was his 1965 marriage to Jane Wilde, a language student. Jane Wilde, Hawking's first wife, with whom he had three children, cared for him until 1991 when the couple separated, reportedly due to the pressures of fame and his increasing disability. Hawking married his nurse Elaine Mason in 1995. (Elaine Mason's first husband, David Mason, had designed the first version of Hawking's talking computer). In October 2006 Hawking filed for divorce. Hawking was elected as one of the youngest Fellows of the Royal Society in 1974, was created a Commander of the Order of the British Empire in 1982, and became a Companion of Honour in 1989. Prof. Hawking is a member of the Board of Sponsors of The Bulletin of the Atomic Scientists. At the celebration of his 65th birthday on January 8, 2007, Hawking announced his plans for a zero-gravity flight in 2007 to prepare for a sub-orbital space flight in 2009 on Virgin Galactic's space service. Billionaire Richard Branson pledged to pay all expenses for the flight, costing an estimated £100,000. Stephen Hawking's zero-gravity flight, during which he experienced zero gravity eight times, took place on April 26, 2007.

.This was the first time in 40 years that he moved freely beyond his wheelchair. The fee is normally $3,750 for 10-15 plunges. Hawking was not required to pay the fee. Before the flight he was quoted as saying "Many people have asked me why I am taking this flight. I am doing it for many reasons. First of all, I believe that life on Earth is at an ever increasing risk of being wiped out by a disaster such as sudden global warming, nuclear war, a genetically engineered virus, or other dangers. I think the human race has no future if it doesn't go into space. I therefore want to encourage public interest in space."

From Wikipedia, the free encyclopedia