



The FREMONT PEAK **OBSERVER**

Editor: Donn Mukensnoble

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Sixteenth Star-B-Que

The annual FPOA Star-B-Que was held on August 10th this year, and attended by over one hundred twenty folks of all ages. The traditional barbecue dinner was accented by refreshing salads and the always imaginative Gastronomical Desserts including an unusually shaped filled pastry noting that "Pi R Square" (not round). Whatever the shape, it was tasty, along with the other entries.

For the kids, Jane Houston Jones hosted a "comet making" event, where dry ice and water combined to create some tiny replicas of the icy snowballs orbiting the outer solar system. Appropriately, there were also a couple of faint real comets visible that evening in the telescopes.

This year the day of the event fell on an almost new moon and was only a few days before the Perseid peak, so there were many shooting stars throughout the warm summer night. Venus and a silvery sliver of Luna graced the darkening skies.

A twilight talk by distinguished guest speaker Dr. Alex Filippenko on "Einstein's Greatest Blunder" was punctuated by flybys of both the Hubble Space Telescope and the International Space Station (thank you, Pat D and Heavens-Above,) followed by viewing through the 30" Challenger telescope. August is one of the best times for viewing the cluster-rich band of the Milky Way and this year the seeing seemed especially good.

There were a few changes evident, too, with the most striking being the disappearance of the three Coulter pines that had grown along the south edge of the parking area. Now the vista is amazing.

All in all, it was another wonderful Star-B-Que!

President's Message

by Pat Donnelly

I really love September. Early in my life it meant going back to school, changing climates, and changing colours. The stars of September would light up the sky fairly early, and they were always fun to observe. The Milky Way was overhead, and the Big Dipper hung in the northwestern part of the sky. Its movement towards the horizon meant that winter was its way. If Venus were an evening star in September, she would sit low in the southwestern twilight and disappear too soon after sunset. This is much like it is now. Venus sets soon after sunset, and she is gone for the rest of the night. You should plan to go out one evening soon and watch Venus set. If you have a telescope, check out her phase. It is a very nice crescent, but don't wait too long. Venus disappears from the evening sky by the middle of October.

The improvements at the observatory are progressing at his time. The pads in front of the observatory are almost finished, and the electricity should be installed within a month. There is room for eight (8) scopes on five (5) separate pads. The new turn around area is getting started, and the new walkway is under construction. When finished, you will be able to set up your scope on a pad in front of the observatory or down on the new, leveled area in front of the workshop. If lucky, we can have a dedication for the improvements sometime in late October.

With regards to the new areas the Department of Parks and Recreation (DPR) has asked FPOA to provide input as to the policy for using the new pads and the bottom of the hill area. If you have

Perseid Party at the Peak

by Jane Houston Jones

In the early part of August, I participated in a meteor counting project at Fremont Peak State Park led by Dr. Peter Jenniskens. Mojo and I have both participated in meteor counting research with Dr. Peter since 1998, mostly for the November Leonids, but when our schedule permits for other meteor showers as well.

Meteors are the tiny visible remnants of orbiting comets, and they tell us a lot about the early solar system. Meteors are the luminous phenomena associated with the partial ablation (the loss of mass from the surface of the meteoroid by vaporization) of meteoric matter and represent the dominant pathway from space to earth. Extraterrestrial organic matter is accreted on earth by meteors. Meteors may have dominated the supply of organics to earth if organic matter survived this pathway to earth. Also, meteors supply kinetic energy that can convert inert atmospheric gases such as CO₂, N₂ and H₂O into useful compounds.

We conduct meteor research by counting meteors while sitting on lawn chairs. Others sit in front of a computer screen and press a key to capture the spectra of a bright meteor in the camera's field of view, as viewed on another computer screen. The more data we gather and the more spectra we collect, the more we learn about meteors and their role in life on earth. This is why I enjoy participating in meteor research, it's my way to say "thank you" to a phenomenon that may have directly led to life on earth. Plus watching meteors is really fun, relaxing and educational. It is a natural way to present science outreach to family, friends and the general public while it is happening. Everybody loves a shooting star.

I arrived at about 8:00 p.m. Monday night August 12th, the third night of continuous meteor research at Fremont Peak. I had also counted meteors on Saturday night/Sunday morning, and took Sunday night off to sleep.

Soon we set up a video recorder to film the shower all night long. Then we set up a CCD camera with a diffraction grating over the lens to record persistent train spectrographs. Lastly, we booted up the **Wmeteors** software program written by my hubby Morris Jones on a laptop computer. The laptop was then connected to an 8-port multiplexer box. This box connected serial port cables to 8 mice draped over 8 chaise lounge chairs. We set up extra chairs and chaise lounges for any passers-by who might want to watch and learn about the Perseids with us. Our setup looked like a man-made Stonehenge with a temple to the laptops and cameras in the middle of the circle of colorful plastic and aluminum monoliths.

A group of 8 meteor watchers led by Dr. Peter Jenniskens continuously counted Perseids from 11:00 p.m. Monday until 5:30 a.m. Tuesday. The observing effort was a shakedown of equipment for the upcoming November Leonid meteor shower, as well as hopeful validation of Dr. Jenniskens's forecasted Perseid rates. He also hoped to capture the spectra of some Perseids, which he did! See the 8/14 article in the SF Chron at URL <http://www.sfgate.com/science/>

The meteor rates remained somewhat steady from moonset at about 11:00 p.m. until dawn. Each observer saw from between about 80 and 160 mostly fast and mostly bright Perseids over the entire night, depending on how many hours they counted and what direction they were looking in. We each also saw between 20 and 50 sporadic meteors, and with the help of Peter and Mike, we were able to identify some of these as slow, bright Kappa Cygnids - which are active August 3 - 25, or Delta Aquarids - which are faint and medium-speed meteors visible from July 15 thru August 25. We all kept vigilant watch for the elusive Alpha Capricornids: slow bright fireballs active from July 3 through August 15.

Most people either started the evening at about 11:00 p.m. and quit at 2:00 a.m. or started at 1:00 or 2:00 a.m. and ended at 5:30 a.m. when twilight intruded. A few folks filled in here and there for

breaks, too. There were plenty of really bright Perseids and a couple of them rivaled the brightness of Venus or Jupiter. These bright ones sometimes left colorful persistent trains for as long as 30 seconds, allowing one observer (usually Peter) to run to my nearby 6-inch f/5 reflector telescope fitted with a low power (23x) view using a lightweight 32mm Televue Plossl eyepiece for a look at the swirling and changing shapes of the meteor trails in the upper atmospheric winds, while the CCD camera captured the spectra.

The best meteor rates were observed during the first and last hours of our all-night session: 11:00 p.m. to midnight and from 4:00 a.m. until dawn. The best conditions were the hour before dawn when the marine layer covered the nearby city of Hollister and the transparency improved. At its best the limiting magnitude was 6.5, at worse, maybe half a degree worse, at 6.0. Well after 5:00 a.m. we were still seeing meteors whizzing by the rising planet Saturn and we gazed upon a lyin' Orion low on his side in the summer morning sky.

When the fog blanketed the city lights of Hollister just before dawn, we spotted another glow in the sky. Not the Milky Way but the Zodiacal Light, a cone shaped glow of dust in the ecliptic plane of the solar system. This dust is also cometary remnants and has been blown around by the solar winds, but that's another story.

See URL <http://home.wanadoo.nl/marco.langbroek/zodiac.html>

There was no crowd at Fremont Peak on Monday night. I think the distance from populous areas and the timing of the weeknight shower discouraged the public from observing at faraway dark sites. The observatory was open at 9:00 p.m. and Kevin and Denni Medlock from the Fremont Peak Observatory Association showed the beautiful 4 day-old waxing crescent moon and some Milky Way splendors to an appreciative but small audience of park campers and dark-sky lovers, before they closed the observatory and joined the meteor watching group.

A cluster of meteor enthusiasts from Santa Cruz joined us and sat in our extra chairs and just enjoyed the show. After several hours all their astronomical questions were answered mostly by our meteoric chatter alone. A couple took their two dogs to howl at the moon in the observatory, stayed there for a while, and then walked past us on the way to their campsite. After 2:00 a.m. a steady trickle of sleeping bag laden zombies walked from down the ridge past the observatory to their tents or cars. We saw very few cars leaving the SW or Coulter parking lots at any time. I think most of the viewers stayed for the whole night. The all-night observing session gave us the time to chat among ourselves and ponder great questions, both cosmological and silly.

My own meteor count was 145 Persids and 50 sporadic/minor shower meteors. I saw a dozens of "wow" quality meteors. My chair was facing east most of the night and then I switched to a chair facing west for the last hour or so. I sort of looked closer to the horizon when the radiant was low in the first observing hours, but my peripheral vision took in a large swath of sky yielding many meteors. I took some breaks too, to make hot cocoa for everyone, pass out Rice Krispy Treats and to observe the North American Nebula and Uranus with nothing but my eyes. I also performed a little keyboard duty watching for spectraproducing meteors or checking our meteor counting rates, and logging in new observers or turning over the mice to new meteor counters.

Then, as I try to do at every meteor observing session, I located two newly-discovered comets through my small telescope. Comet C/2002 04 (Hoenig) in Cepheus was my first comet of the morning, and it looked about the same as it has on my two previous looks, a large diffuse glow, but with no tail. I like to tell people this is what a comet looks like when first discovered, usually. My second morning comet was Comet C/2002/ 06 (discovered by the SOHO spacecraft August 1) in Gemini. Between the false-dawned zodiacal light and the approaching morning, it was tough to spot and not much to look at.

After that, I resumed observing the remnants of comets as they brilliantly streaked across the morning sky.

If this sounds like fun to you, drop me a note and I'll pass your name on to Dr. Peter Jenniskens for our November Leonid project. We often try to set up meteor counting stations at three locations over a couple nights, and volunteers are most welcome!

You can read all about the past Leonid missions and their results and future plans here at URL:
<http://leonid.arc.nasa.gov/index.html>

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How Do I find out the Gate Combination?

The gate combination to the Observatory changes on a periodic basis and can be obtained from several sources. First, you could E-mail an FPOA Board Member (listed at the back of this newsletter), and one of us can provide the combo. Note that the combo is normally changed at the beginning of each calendar month.

Also, you could call the state parks in San Juan at 831-623-4526 or 831-623-4881. You could also mail our CAL, C.L. Price at cprice@parks.ca.gov or call him at 831-623-0610. I believe the ranger on duty is at the park from about 1:00 PM to 10:00 PM on Wednesday through Saturday as well.

Finding FPOA on the Earth

A visit by Carter Roberts and his handy GPS receiver has pegged the Fremont Peak Observatory on the planet at north latitude $36^{\circ}45'36.55''$ and west longitude $121^{\circ}29'55.12''$, both with an accuracy of ± 15 ft. Altitude was measured as 2749 ft. or 838 meters for those more comfortable with that standard.

Asteroid Misses Earth by *that much...*

by Pat Donnelly, President

On the evening of August 18th, the sky was almost cloudless by sunset despite the dingy forecasts on our clear sky meter. After the program the public was taken out to watch the ISS pass over the peak at 8:50 PM. We began our search for the asteroid 2002 NY40 around 9:00 PM and almost immediately found the speeding point of light just west of Kappa Lyrae. Due to its location on the celestial sphere near the zenith it was necessary to have the Challenger Telescope to the west of the pier so that we could maneuver the ladder close enough to the eyepiece. We used the 40mm wide angle eyepiece for a maximum field of view. The 5" refractor had the 28mm eyepiece for the same reason. With these eyepieces in place it took the asteroid about 1-2 minutes to transverse their field of view. The telescope was constantly being re-adjusted to keep the asteroid in the eyepiece.

Because of these adjustments I stayed up on the ladder during the public viewing. Each member of the public would come up the ladder to the very top to observe. It was necessary to describe to each observer where to look in the field of view. I don't think there was anyone of the public who did not see the asteroid in the eyepiece. One 12 or 13 year old boy remarked that was the "coolest thing I've ever seen." Other members of the public watched it through the 5" refractor. I made several inquiries to the public if they were disappointed that we did not observe anything else. As far as I know no one complained a bit.

About 10 PM Roger Fu set up the 8" reflector in front of the observatory and began showing the public the asteroid with that instrument. Around 10:30 PM it was necessary to move the Challenger to the other side of the pier and there was a concern that the fleet asteroid would be lost. Fortunately, due to some keen observing from Donn Mukensnabe we were able to re-acquire the asteroid and resume viewing.

The members of the public kept coming till about 11:30 PM. Our resident ranger, Brett Reid, came by around 11:00PM and observed the asteroid. He remarked that his wife really would have enjoyed seeing the asteroid.

We estimated that the maximum magnitude was about 8.5, based upon comparisons to other stars of known magnitude near the asteroid. There was a slight variance due to rotation of the body or the phase change from full to crescent as it closed in on the sun. We continued observing the asteroid till about 1:00 AM, when it was lost in the northwest about 15 degrees above the horizon. It should be noted that the bright gibbous moon did not interfere in any way with the asteroid observations.

I want to thank our volunteers, Ron Dammann, Donn Mukensnoble, and Roger Fu for helping out during the night, because of the special constant work necessary to show the public the asteroid. Perhaps, the next asteroid encounter will be during a dark moon night.

Mounting for Donated Ten-inch 'scope Sought

One of the instruments donated to the Observatory is an optically excellent ten-inch Newtonian that lacks a suitable mounting. If you have one that you'd like to donate please contact Ron Dammann

Telescope Reservation Procedure Changes

by Ron Dammann

FPOA President, Pat Donnelly, has asked me to take over the reservations for the use of the Challenger telescope in his absence. So, from now until further notice, please e-mail me directly at ron.dammann@lmco.com or call (408) 255-1863 to reserve the Challenger telescope. As in the past, you must be on the Certified User's List and have aided in a Public Program this year to use the telescope.

Rob Toebe Night at the Peak

by Jane Houston Jones

Saturday, July 13, was Rob Toebe night at Fremont Peak Observatory. Rob, who passed away last October, was an avid observer, logging countless observing hours on the Challenger Telescope over the years. A look in the FPOA observing logbook bears this out. Many of the pages are littered with his notes, running to listings of literally hundreds of galaxies on those perfect Fremont Peak nights, and containing those gems of literature such as "No fog or mosquitoes tonight...I love winter observing!" Before dark, the observers took out the old logbooks so Rob's family and friends could read his reports and remember the times they had accompanied Rob to his favorite observing locale.

You couldn't have asked for a better day and night for friends and family to gather at Fremont Peak to remember Rob. The much anticipated summer weather pattern brought fog below the peak, stretching to the Moss Point Power Station, making the southwest parking lot a haven for lovers of the night as well.

Then we had a steak BBQ and headed up to the observatory for an informal memorial. FPOA president Pat Donnelly unveiled the memorial plaque honoring Rob Toebe. Then a few friends and acquaintances spoke of Rob. Most poignant were Robert Garfinkle's words, about breakfast after observing many years ago when he first met Rob, and their subsequent collaborations. Rob's lovely deep-sky sketches adorn Bob's popular book, "Starhopping, your Visa to Viewing the Universe". Bob G. donated an autographed copy of his book to association's library and also became a life member of FPOA that night in Rob Toebe's honor. It was very touching.

When the moon set, our telescope was aimed at the kind of objects Rob looked at night after night, year after year. Clusters and galaxies, planetary nebulae, and supernova remnants. I think Rob would have liked that part of the night the best.

(President's Message, continued)

any ideas as to the rules for these areas, please E-mail me, call me, or send me a letter. Any input received will be sent to the DPR as input to help establish procedures for using these areas. Keep in mind that the FPOA will be paying for the electricity used at the pads. Please give this some thought, and let me know what you think.

In case you missed it, the earth had a near miss with a tiny asteroid the night of August 17-18. Asteroid 2002NY40 came within 309,000 miles of the earth that night. It was about a magnitude 8.5 object that moved through the field of view of the scope in about 1-2 minutes. We observed it for about four hours until we lost it.

[For more detail and impressions of the flyby, see Pat's article starting on Page 4 of this newsletter. Ed.]

I have been giving some thought to having a midsummer FPOA field trip next summer. I think a trip to a very dark sky site in Nevada or Arizona would seem to be in order. If you have any ideas for the location or the trip, please let me know. I was thinking about somewhere near Eureka, Nevada.

One final note for all of you, we shall be having our fall work party on October 12, 2002, starting at 10:00 AM. For this work party we shall clean up the observatory, install a new door, and work to winterize the observatory. If you can help, please contact Rick Morales, Loren Dynneson, or myself.

Clear, dark, and steady skies,
Pat

Finding FPOA on the Net

Web Site: <http://www.fpoa.net>
E-mail List: members@fpoa.net
Member Information: Site:
<http://members.fpoa.net>
Userid: xxxxx
Password: xxxxx

FPOA Public Schedule 2002

September

07 Board, **Member Appreciation Night**
14 Public Program
28 Public Program

October

05 Solar, Public Programs *, Board Meeting
12 Public Program*, Work Party
26 Public Program*

November

09 Board Meeting (offsite, TBD)
* - Call FPOA Hotline 831-623-2465
beforehand to verify program schedule

To volunteer for a public night, you **must** have completed the docent training course. Contact Ron Dammann at 408-255-1863 to reserve dates; ideally one month but at least two weeks prior to the date desired.

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