The Fremont Peak Observer

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Everyone Wins at 2008 Star-B-Que!

By Doug Brown, President FPOA

Thanks to all who participated, this year's Star-B-Que was a great success!

Dave Samuels and Ed Huston found several generous and public-spirited suppliers who supported the event with an astounding array of contributions. Sam Sweiss, of Scope City, ran the raffle drawing with help from John Parker, of Orion. Sam, the consummate showman, built enthusiasm to a peak during the huge raffle, giving away dozens of prizes per minute. Literally everybody who wanted to won a prize. In fact, at one point Sam had anybody who had not won anything come to forward to receive a prize. Some of the top items raffled off this year included Celestron NexStar SE 6 and Orion SkyQuest XT10 Dobsonian . Thanks to all our sponsors, and especially Sam!

Dr. Peter Jenniskens who celebrated his birthday with an impromptu flight to view the eclipse the previous night, showed us exciting fresh images before going on to tell us about his fascinating research on meteor streams and their parent bodies, which ties in nicely to the observing station that will be located at the observatory. Richard Oser won an autographed copy of Peter's latest tome.

Ed Huston and Vivian White provided a popular new feature this year—the Kids' Korner—featuring entertaining, educational astronomical activities to keep the kids entertained while their parents were engaged in more important, serious picnic activities...

The food this year worked out very well, due to the systems analysis Mark Levine and Ed Huston performed to optimize the flow, Loren Dynneson and Mark Levins huge food shopping trip and Mark Thiel's grill mastery. The Astronomical Gastronomical contest entries were as creative as ever, and included "Comet Cookies", "M5" (Herzprung-Russell-correct melon balls on skewers), "Galactic Goo", "Lemon Squares of Pegasus", "Titan your Asteroid Belt", "Cosmic Rodeo Stew", "Black Hole Cupcakes", and "Gnocchi Nebulae".

Logistically, we were a bit more organized than usual. The large signs showing the program schedule let everybody know what was happening when and where. Rick Morales' team of Hartnell intern parking coordinators made maximum use of the southwest lot, while reserving Coulter Camp for telescope viewing. The sound system made it easy to hear what was going on.

The Trivia Quiz was diabolical, very worthy of the Pat Donnelly imprimatur.

During the awards ceremony FPOA recognized: Maria Uribe and Miguel Rodriguez with Intern of the Year awards for 2006 and 2007, respectively; Greg Bosler as 2008 Volunteer of the Year for his success in designing and gaining state approval of the new east ramp; Andy Newton as 2008 Educator of the Year for his leadership of the Hartnell intern program; and presented a 2008 Lifetime Achievement Award to Sam Sweiss for his Tireless Promotion of Astronomy throughout the Bay Area and beyond.

We all thank the FPOA volunteers, Hartnell interns, and our generous sponsors, without which this year's event couldn't have happened.

FPO Intern In The News

Ricky Fernandez was a Fremont Peak intern last year. This year he scored an internship at Kennedy Space Center. The attached picture is him standing on the space shuttle launch tower. Congratulations to Ricky!

By Andy Newton, Ricky's former mentor and teacher at Hartnell College

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Night Shift At IRTF

By Donn Mukensnable

For the last year or so I have worked part time at the NASA Infrared Telescope Facility (IRTF) on the summit of Mauna Kea in Hawaii. The work itself, serving as a night attendant for remote observing runs, is pretty straightforward: Stay awake and be ready to help if the telescope operator (TO) keels over. For the record, the latter has never happened, but most nights we're the only two people in the observatory, though in constant contact with the observers via phone, videoconference, or Internet. We "second bodies" typically arrive near sunset with the TO, help check the telescope and instruments for the upcoming run, take care of cryo-fills (the SpeX camera/spectrograph has to be topped up with LN2 nightly) and turn off the air handlers that have kept the dome at close to night temperatures. The TO does all the hard parts, like actually pointing the telescope and doing instrument changes.

Usually there are a few moments to step out onto the 'veranda' to the west and take in the view of this spot on the earth turning away from the sun while the twin Keck domes and the odd cylindrical enclosure of Subaru form the foreground – an inspirationally beautiful moment often supplemented by distant cheers from tour groups parked on the summit ridge to the east next to Gemini or UH88 (the telescope that discovered Sedna and Eris) before going inside to point at the calibration star.

The IRTF 3m telescope was the first of its class in the world to probe the infrared skies; almost 30 years later it is still making groundbreaking discoveries in the areas of asteroid composition, proto-planetary disks, and supernovae. The walls inside the control room are covered with breathtaking discovery images that changed our view of the universe forever. Pretty much every amateur astronomer has seen THE image of Shoemaker-Levy-9 impacting the clouds of Jupiter. That shot was taken at IRTF, by the hulking orange behemoth in the next room. Graphs of molecular emission bands in the tail of Halley's comet, observed with unprecedented precision, compete for bulletin-board space with panoramic photos, clippings from comic strips, old Playboy interviews, and the original words to the parody song "Hotel Mauna Kea." Placed next to the turnover board is a life-sized grey-green alien mask, with huge red eyes and a headband mounted set of wiggling antennae. Not all science is stuffy, here at 14k feet above the tropical ocean. Occasionally folks just need to unwind a little or play a practical joke on visitors.

Outside, twilight falls quickly over the Aeolian wilderness. Snow, sculpted by wind and dust into fantastic spires, lingers in the shadows until mid-summer. The red soil, treeless landscape, and conical vistas look more Mars-like than lunar, though it's easy to apply Buzz Aldrin's description of "magnificent desolation" to the summit preserve. The sky as you would expect is extremely dark and transparent, some of the best astrometric seeing conditions in the world, as well as extremely dry. However, one doesn't see as many stars as there are, thanks to partial anoxia that grays out the background compared to a mile or so lower at the mid-level dormitories, where the sky appears inky black and the zodiacal light is mistaken for a light dome from a nearby city. There aren't any of those; Honolulu is 150 miles to the northwest.

The control room, where I spend most of my time, reflects the changing aspects of telescope control over the past three decades as well. Originally built for manual operation, the IRTF is now almost completely computer controlled and, given the right software, can be run remotely, though for safety reasons there is always an operator present. Bundles of obsolete co-ax snake under the uneven raised floor (you learn to not walk on the 'soft' spots) and computers that haven't been sold in 20 years are still part of active systems. Servers are named after physicists, while the instruments bear cryptic acronyms like MIRSI, CSHELL, and HIPWAC. There's a very real sense of being part of history, here, both past and present.

Like most modern research telescopes, IRTF isn't a visual instrument, more so since its forté is the infrared. So the best views come in the instrument readouts: Saturn in 12-micron light, the glow of Venus' surface seen **through** its clouds, the glimmer of a cool disk of dust and gas around a distant star that may be forming planets. Other discoveries are more esoteric; IRTF recently observed Nova Cygni 2008 to obtain radial velocities of the remains of the star as it expanded through a dust ring. Every time the dome moves, the whole building rumbles a little bit; walking out onto the darkened dome floor, it seems almost as if the telescope is alive as the "heartbeat" of cryo-pumps and motors break the silence. The drives themselves are almost silent and the large telescope moves with ghostly calm overhead. Outside the slit, infinity beckons.

Before you realize it, the night has passed and the telescope gets slewed to zenith; the mirror covers and dome are closed. Time to fill out the logs, note any problems with the instruments, and head on down "the hill" for a quick hot breakfast and a warm dormitory room, complete with blackout window shades. Tonight (for it's a new day) is another night shift at IRTF. Discoveries await. I feel honored to be a small part of making them.

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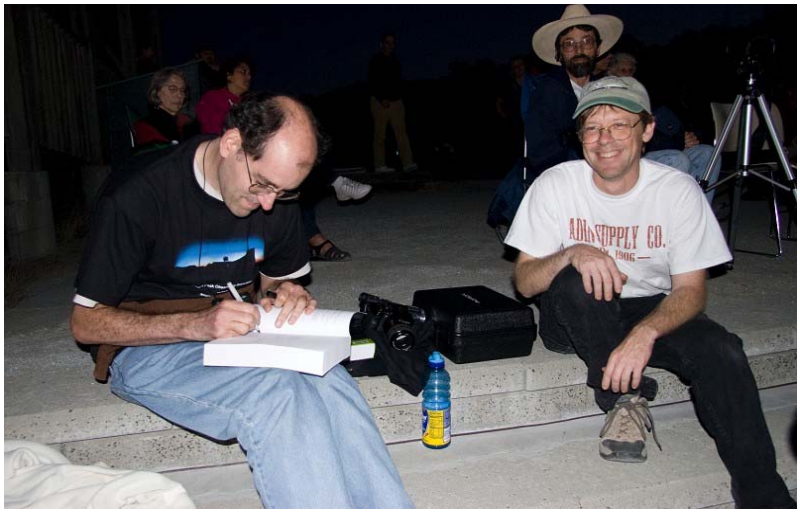
The Throng Star - B - Que 2008

Kids doing solar system projects with Vivian White of the ASP.

Garfinkle Simpson wins Grand Prize Celestron NextStar 6SE



Speaker Peter Jenniskens signs a copy of his book “Meteor Showers and their Parent Comets” for Richard Ozer.

Astronomical-Gastronomical enteries, including “Green Star” guacamole.

Kids Korner...

By Ed Huston

ECLIPSE MODEL: ASP offer this great tool for visualizing solar and lunar eclipses. Start with a yard stick, a one-inch ball (light color is best), a quarter-inch ball, two sticks a few inches long to support the balls (make sure the balls have holes to insert the sticks), and two clamps to fasten the small sticks to the yard stick. Fasten the large ball, representing the Earth, a couple of inches from one end of the yard stick. Make sure the Earth is supported by a small stick an inch or so away from the yard stick (for better shadows).

Ask a few volunteers from your audience or class to hold the small ball, representing the Moon, its proper distance from the Earth (along the yard stick) proportional to the scale of their sizes. After a few guesses (almost always too short), fasten the Moon 30" from the Earth, making sure it is also supported away from the yard stick.

Demonstrating this during daylight in real sunlight is great, as you can now use your model to show that lunar eclipses – the small ball in the shadow of the large one – are seen only from the night side of the Earth. Also demonstrate how the whole Moon can be engulfed in shadow. Turn your yard stick with the other end to the Sun and show that solar eclipses are seen only during the day, but that only a small portion of the Earth is in shadow at any one time.

Extra credit: How far away would the Sun be in this scale? (400 times the 30", or 1000 feet) How large would Jupiter be? (10 inches) How far from Earth, at opposition? (4700 feet and a mile from the Sun) Why aren't there eclipses every month? (the orbit of the Moon is tilted relative to the ecliptic).

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Note: *Newsletter editor and novice astro-imager Frank Dibbell has been really busy learning the ins and outs of his new SBIG ST4000XCM CCD Camera. If you liked (or tolerated) his past articles on the trials and tribulations of learning how to take CCD images, stay tuned for 2009. Frank has been busy learning a whole new vocabulary—terms like bias frame, dark frame, flat frame, deconvolving, "bicubic b spline", sigma rejection, oy vey! He also (with the help of Kevin Medlock, whose prowess with all things astronomically mechanical is legendary) is now able to autoguide with his old Takahashi EM10 mount, thanks to a little electronic ingenuity and the aforementioned Kevin. Frank has a couple of articles in the works for the upcoming year...*

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