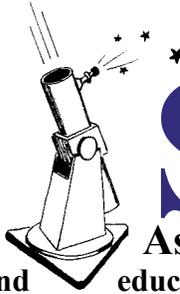


Sonoma Skies

Newsletter of the Sonoma County Astronomical Society
A nonprofit scientific and educational organization

www.sonomaskies.org



November 2007

Volume XXX No. 11



These images, taken by Thorsten Boeckel, Fuerstenfeldbruck, Bavaria, South Germany, compare the comet's expansion between Oct 25 (left) and Oct. 27 (right). The additional bright spots are background stars.

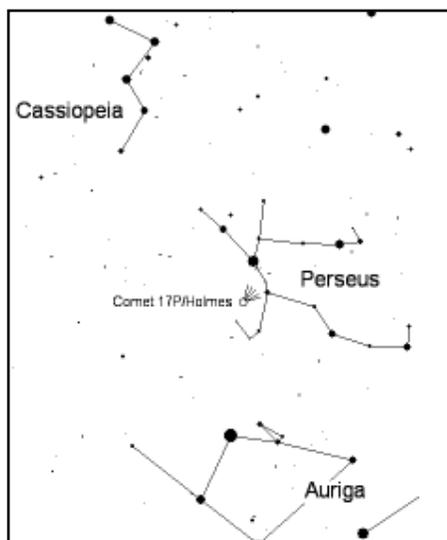
Comet Holmes 17P Continues to Brighten in Perseus

Last week, Comet 17P/Holmes shocked sky watchers around the world with a sudden million-fold increase in brightness. It literally exploded into view, rapidly becoming a naked eye "star" in the constellation Perseus. Since then the comet has expanded dramatically. It is now physically larger than the planet Jupiter and subtends an angle in the night sky similar to the Moon's Sea of Tranquility, the right eye of the "Man in the Moon."

Photographers, this amazing comet is an excellent target for off-the-shelf digital cameras and backyard telescopes. It grows visibly from night to night and no one knows how large it will become.

Editor's Note: The sky cleared in Santa Rosa last night (Sunday) and I finally got a look at it. Even with the nearly-full Moon, it's quite obviously fuzzy to the naked eye, moreso in binoculars.

Stay tuned to <http://spaceweather.com> for news, sky maps and many more images such as the one above.



Meteors and Meteor Showers

SCAS November 14 Meeting,
Proctor Terrace School

Keith Waxman has taught at Santa Rosa Junior College for 18 years, and also taught at both San Francisco State University and Mendocino Colleges, including distance learning courses.

On Wednesday, November 14, Keith will tell us about meteors. He will discuss meteor showers, including the Leonids which will occur about three days after the lecture. Keith will also share some stories about meteorite hunting with his father and Ron Oriti, and bring in part of his collection for us to view.

Keith attended Geyserville High School and SRJC, and received his Physics Degree at Sonoma State. He went on to receive his Masters in Earth and Space Sciences at San Francisco State.

He enjoys baseball (he's a Giants fan) and basketball. His biggest hero is his father, who taught at SRJC from 1976-2004. Parkinson's Disease forced him to retire. He says he owes his career to his father's inspiration.

The meeting starts at 7:30 PM. As always, the public is welcome to attend.



Photo: Russell Zweek

SCAS BOARD ELECTIONS COMING UP SOON

Nominations will be solicited at the November meeting, and elections will be held in December. All Board positions are open. If you'd like to volunteer for any of the Board spots listed on page 2, please contact John Whitehouse at 539-5549 or jmw@sonic.net or at the meeting.

Young Astronomers See page 6

Sonoma County Astronomical Society (SCAS)

Membership Information

Meetings: 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School, 1711 Bryden Lane at Fourth Street, Santa Rosa, unless otherwise announced in this publication. The public is invited.

Dues: \$25, renewable June 1 of each year. New members joining between December 1 and May 31 pay partial-year dues of \$12.50.

Star Parties: See the Events section for dates and times.

Rental Telescope: Members are eligible to borrow the club's 80mm refractor with tripod. Contact any Board member listed below.

Egroup URL: Connect with other members about going observing, observing reports and chat about astronomy and news items from AANC and *Sky & Telescope*. Hosted by Robert Leyland at r.leyland@verizon.net. Any SCAS member is welcome to join. Visit <http://groups.yahoo.com/group/scas> and click the "Join" button, or send an email to scas-subscribe@yahoogroups.com

Discount Subscriptions: For *Sky & Telescope*, new subscribers may send a check for \$32.95 payable to "SCAS", with your complete mailing address, directly to: Larry McCune, 544 Thyme Place, San Rafael, CA 94903. For renewals, send him your check with the completed renewal card and return envelope. Discount subscriptions to *Astronomy Magazine* occur annually in October. Check *Sonoma Skies* for details.

Library: SCAS Librarian Joan Thornton hosts a library of astronomy books that may be checked out by members at SCAS meetings, to be returned at the next meeting. Videotaped lectures on astronomy may be rented for \$3 per month.

Sonoma Skies is the monthly newsletter of the Sonoma County Astronomical Society (SCAS). Subscription is included as part of membership. Articles and member announcements are welcome and are published on a first come, first served basis, space permitting, and may be edited. **The deadline for submissions is 10 days prior to the end of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email publications@sonomaskies.org

SCAS Elected Board

President: John Whitehouse 539-5549 jmw@sonic.net

Vice-President & Program Director: Len Nelson 763-8007
lennelsn@comcast.net

Treasurer: Larry McCune, (415)492-1426 llmccune@comcast.net

Secretary: Loren Cooper, 525-8737 lorenco@sonic.net

Membership Director: Walt Bodley 823-5268
membership@sonomaskies.org

Director of Community Activities: Lynn Anderson 433-1154
astroman@sonic.net

Publications Director: Cecelia Yarnell 569-9663
publications@sonomaskies.org

SCAS Appointed Positions

Young Astronomers Advisor: Gary Jordan 829-5288
SieraMolly@comcast.net

Striking Sparks Program Coordinator: Larry McCune
(415)492-1426 llmccune@comcast.net

Amateur Telescope Making: Steve Follett 542-1561
sfollett@sonic.net

Librarian: Joan Thornton 762-0594 johnjoanthornton@sbcglobal.net

Visit us on the web at:
www.sonomaskies.org

November Observing Notes

- 11/3** Occultation of Regulus, 3:30 AM. Mag 1.4
Time Alt/Az Event
0340 21/091 Disappear, Bright limb
0425 30/099 Reappear, Dark limb
Watts angle = 326
Vertex angle = 38
Position angle = 345
- 11/3** Mercury in east thru 11/22. Look for it about an hour before sunrise, low in the ESE—an unusually good apparition.
- 11/4** Daylight Savings Time Ends; set clocks back 1 hour.
Moon near Saturn and Venus, 4AM
- 11/5** **6 AM:** Crescent Moon near Venus with Mercury, Saturn and Mars. This is an extraordinary conjunction of solar system objects in the dawn sky!
Noon: Venus will be about 3° north of the moon. This should be viewable by naked eye during the daylight!
- 11/8** Mercury greatest elongation west, 1 PM
- 11/9** Ceres Opposition, 7 AM. Magnitude 7.2 in Cetus
New Moon, 3PM
- 11/17** Leonid Meteors peak 8PM
- 11/24** Moon very near M45, 4AM
Large Tides; Full moon 14.5 hours after perigee
- 11/26** Moon very near Mars, 10PM
- 12/1** Saturn Quadrature: Ring shadows are maximum and image appears most "3-dimensional."

—Most of above courtesy of Jack Welch

2008 OTTWELL CALENDARS

Lynn Anderson has purchased 20 of the 2008 Ottwell Astronomical Calendars at the discounted price to re-sell to SCAS/RFO members. He will have these available for distribution at the November 14th SCAS meeting. The discounted price is \$20.75 each.

If you would like to reserve one of these calendars (first come, first served), email Lynn at astroman@sonic.net or bring cash or a check to the meeting to purchase one of these fine resources. If you don't have email you may phone Lynn at 433-1154, but email is preferred.

ORDER YOUR 2008 CALENDARS AND OBSERVER'S HANDBOOKS NOW!

A limited quantity of the 2008 Royal Astronomy Society of Canada (RASC) Astronomy Calendars and Observer's Handbooks is expected to be available at the next SCAS meeting.

Price is \$9.50 for the Calendars and \$17.00 for the Observer's Handbook. Payment by check, payable to SCAS, or cash is required at the time of receipt. *If you want to be sure to get one*, contact Len Nelson in advance at lennelsn@comcast.net.

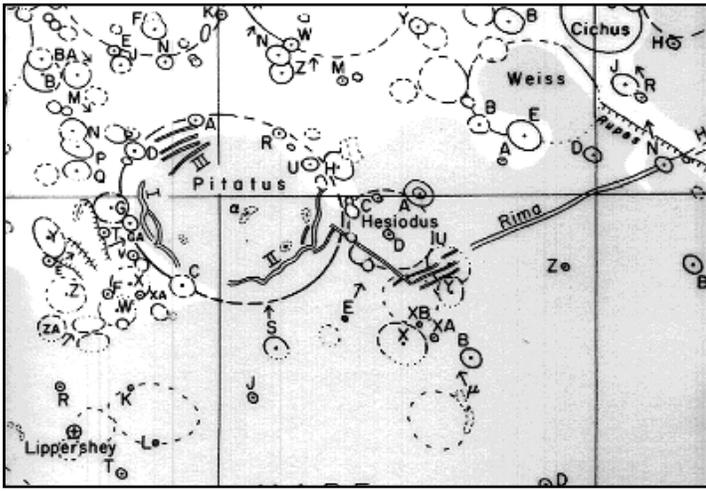


Image from Lunar Quadrant Maps produced by the Lunar and Planetary Lab at the University of Arizona

Hesiodus Ray

by Jane Houston Jones

Lunar sunrise and sunset rays are shafts of light which shine through gaps or notches in crater walls and mountains to illuminate the lunar surface. They occur only at very low angles of light—during lunar sunrise or sunset. Sunrise and sunset rays can range from thin parallel to triangular illuminations. Don't confuse them with impact craters, which are the debris blasted out by crater forming impacts on Copernicus and other young craters.

One of these rays, the Hesiodus Sunrise Ray, is a favorite of mine. It's easy to find the crater, which is just south of Rupes Recta, or the Straight Wall. Lunar ray spotting gained popularity about 10 years ago thanks to an article about the Hesiodus light ray in the July 1996 issue of *Sky & Telescope*. A gap in the neighboring crater Pitatus provides an opening for the shaft of light to cross the floor of this crater at various times throughout the year. Since that time, many amateur astronomers have calculated when the sunrise or sunset will strike a crumpled or broken crater wall and create these short-lived light shows.

Hesiodus is a crater 28 miles in diameter to the west of Pitatus, with a pass into the latter and with gaps in its north wall. Pitatus is

(continued Page 7)

Scope City

New Member Bonus!

- Scope City at 350 Bay Street, San Francisco, is offering a **\$25 merchandise discount to new members.**
- Manager Sam Sweiss has supported SCAS and Striking Sparks and offers a huge selection of telescopes, accessories and more. Obtain a receipt from Walt Bodley, Membership Director, showing you have paid the \$25 SCAS membership dues. To arrange for your merchandise discount, contact Sam at 415/421-8800 or at sanfrancisco@scopecity.com



No, son, shooting stars refers to meteors, not going hunting for stars!



Many of you know Carter Roberts, president of the East Bay Astronomical Society (above, seated). He recently paid a visit to Sam and Maria Sweiss at Scope City, accompanied by Paul Hoy, V.P. of the EAS, and the San Jose Astronomical Association's former president Mike Koop.

Carter and Paul were getting new eyepieces for the Chabot Space and Science Center telescopes. See them here: <http://www.chabotspace.org/visit/observatories.asp>

Mike was there to pick up the many donations Scope City provided for the hugely successful AANC-Conference raffle held in September at the Planetarium of the new College of San Mateo Science Center. For more great photos of the AANC Conference, visit <http://photo.whiteoaks.com/2007-09-29-aanc/>. You might find photos of yourself!

Events

ROBERT FERGUSON OBSERVATORY PUBLIC VIEWING

Saturday, November 3

Solar Viewing: 12:00 AM - 4:00 PM

Night Viewing begins 7:00 PM

Saturday, November 17 (Leonid Meteors)

Night Viewing begins 8PM

Friday, November 23

Solar Viewing: 11:AM - 3PM

The Observatory features three telescopes: A 14-inch SCT with CCD camera in the East wing, an 8-inch refractor under the dome and a 24-inch Dobsonian in the West wing. SCAS members may set up telescopes in the observatory parking lot to assist with public viewing. Auto access closes at dusk; late arrivals must carry equipment from the horse stable parking area.

Fees: No admission fee for the solar viewing, but donations are appreciated. The Park charges \$6 per vehicle for entry. A \$3 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions.

NIGHT SKY FALL SERIES

Session #4—Nov. 6 Session #5—Nov. 13

Session #6—Dec. 4

Classes held Tuesdays at 7PM. Each class includes a lecture on the constellations of the season, their history and mythology, and how to find objects within them. **Fees:** \$75 for the series of six presentations. (Single session fee is \$23). 10% discount for VMOA members. Classes are held at the Observatory.

For information or to register: (707) 833-6979,

<http://www.rfo.org> or nightsky@rfo.org

MORRISON PLANETARIUM DEAN LECTURE SERIES

Nov. 26, 7:30 PM: "Meteorites and the Asteroids They Came From: Are Asteroids Fluffy?"—Guy Consolmagno, Vatican Observatory

Spaceprobe, radar and telescopic measurements have led to reliable determination of asteroid densities. When compared to the densities of the meteorites, a new understanding is emerging of how asteroids are put together -- with implications both for the origin of planets and for future human encounters with Near Earth Objects.

Location: Kanbar Hall, Jewish Community Center, 3200 California Street (at Presidio). Parking in the UCSF Laurel Heights campus parking lot is \$1.25/night. Parking in the JCC garage is \$1.25 per half-hour. Tickets \$4 at the door or by email. Contact: 415/321-8000.

<http://www.calacademy.org/planetarium/dean.php>

SRJC PLANETARIUM

"Exploring Planet Earth" ends Nov. 18

"The Star of Bethlehem"

Novembere 23-December 16

For years astronomers have been asked about the possibility of astronomical events being responsible for what has been called the star of Bethlehem. In this show we will consider various possibilities such as: comets, super novae, bright meteors, planetary alignments, etc.



Shows are held at Santa Rosa Campus, Lark Hall, Room 2001, on Fridays and Saturdays at 7:00 PM and 8:30 PM, Sundays at 1:30 PM and 3:00 PM during the Fall and Spring semesters. Admission is \$5 General; \$3 Students and Seniors (60+). Tickets are sold at the door only, beginning 30 minutes before show time. A parking permit is required and is included in the Planetarium admission price. Pick it up at the planetarium when you pay admission. Please arrive early enough to place your permit on your vehicle's dashboard before the show starts. Info: 527-4372, <http://www.santarosa.edu/planetarium/>

SILICON VALLEY ASTRONOMY LECTURE SERIES

Nov. 13, 7:00 PM: "New Horizons at Jupiter (and Some Saturn News)"—Astronomer Jeff Moore of NASA's Ames Research Center

In February, NASA's New Horizons spacecraft swung by the giant planet Jupiter on its way to Pluto. Its instruments recorded images and other data about Jupiter's wild weather (including observations of an infant storm 2/3 the size of Earth), its ring, and its giant moons. Dr. Moore will show the wonderful new photos of the Jupiter system and discuss some of the discoveries made by New Horizons.

He will also talk about one of the most exciting discoveries of the Cassini mission around Saturn—the new understanding and exploration of water geysers on the moon Enceladus.

Of Note: Past Silicon Valley Astronomy Lectures are now available in MP3 format at:

<http://www.astrosociety.org/education/podcast/index.html>

Location: Foothill College's Smithwick Theater, El Monte Road and Freeway 280, Los Altos Hills. Free and open to the public. Parking on campus costs \$2. Call the series hot-line at 650-949-7888 for more information and driving directions.

Events

SCAS SCHOOL STAR PARTIES

Well, October wasn't very kind to the schools that requested our volunteers to share the wonders of the night sky. Great weather for most of the month, but both Guerneville and Fitch Mountain star parties had to be canceled due to the weather.

Most of you know the joy of sharing a view through your telescope with friends and family when you get them to look through the eyepiece. Many of you are regular or occasional volunteers at the RFO and school star parties. While most school events take place during the work week, they typically last around two hours. As the clocks get set back to standard time, sunsets will be around 5:00 o'clock, which means that most star parties will begin around 6:00 and be over around 8:00 PM. Look over the list of upcoming school star parties and should any of them be near your home or business please consider volunteering to bring your telescope/big binoculars and sharing the excitement of astronomy with the students and their families who will be showing up at these events. To sign up, contact me via email at astroman@sonic.net. or by phone at 433-1154.

November has five star party requests. Ironically, only one of these star parties occurs when there will be a moon to view.

November 1—Windsor High School: We have been here in prior years, and the teacher tells me to expect around 50-75 participants. November 1st occurs before the end of Daylight Savings Time, so starting time will be 7:00 PM. As of this writing, only myself and one other volunteer has signed on. We could use at least two more volunteers to bring optical instruments to share with the students.

November 6—Rincon Valley Middle School: We have been asked to return to Rincon Valley where we have had enthusiastic participants in prior years. We could use another two or three volunteers. Start time will be 6:00 PM.

November 8—Fitch Mountain Elementary in Healdsburg: Primarily for the 5th graders (the canceled October star party was for the entire district, who has re-scheduled for Friday, March 7, 2008). The students are being told the star party will run from 6:30-8:00. Again, we could use at least two more telescopes.

November 15—Old Adobe Elementar in Petaluma: Len Nelson will be heading up this star party. We will have an almost first quarter moon to contend with. This school has historically had a good turnout, so we need several more volunteers.

November 29—Lincoln Elementary: A new (to us) school, Lincoln Elementary in western Santa Rosa, has requested a star party. This is a new listing and has not yet been emailed to my list of volunteers, so no one has signed up. 6:00 o'clock start time.

Looking ahead, we have one request for December. Piner Elementary has asked for Thursday, Dec. 13 (with Friday the 14th as a back-up date). For 2008, Monte Rio has requested February 8, Windsor Creek has asked for February 21, and Fitch Mountain, Healdsburg has requested March 7th.

I am encouraging the teachers of these students to print up a star party "Passport" listing various types of items to be viewed. As a student looks at (for example) a globular cluster the telescope volunteer will sign off that type of object on the student's passport. The teacher can then collect these papers and give appropriate credit to the student for his/her participation. I've been sending a list of suggested targets to the teachers to help them direct their students attention during the star party. Also, when I give a school presentation I include slides of the various types of objects likely to be seen during the star party.

I would like to give a special shout-out of thanks for some of our most frequent volunteers; Merlin Combs, Frank Siroky, Alan Karbousky, and of course, Len Nelson.

Editor's Note: And a special thank you to Lynn Anderson for his enthusiastic work on behalf of SCAS public outreach!

SONOMA STATE UNIVERSITY SERIES "WHAT PHYSICISTS DO"

Mondays at 4:00 PM

Darwin Hall Room 103 (Coffee at 3:30 PM)

Nov. 5—Thermionic Energy Conversion for Waste Heat Recovery

Dr. Ali Shakouri of the University of California, Santa Cruz will discuss the basics of direct thermal-to-electric energy conversion and how random motion of electrons could be converted into useful electrical energy using nanostructured semiconductors.

Nov. 19—The Hinode Solar Optical Telescope: A Solar Microscope in Space

Dr. Thomas Berger of the Lockheed Martin Advanced Technology Center will present new observations of the solar atmosphere from the Japanese Hinode satellite.

Nov. 26—Supernovae: Violent Deaths of Stars

Dr. Maryam Modjaz of the University of California at Berkeley will discuss observations of exploding massive stars and their connection to Gamma-Ray Bursts, the most energetic explosions in the universe.

Contact <http://phys-astro.sonoma.edu/wpd/>

Young Astronomers



Build a Comet at the YA meeting!

YA Meeting Friday, November 9, 7:30 PM
Apple Blossom School, Sebastopol

Comets, those periodic visitors from the far reaches of our solar system, have intrigued humankind throughout history. Seen by the ancients as traveling stars with a tail, evil omens predicting disaster and doom, or even messengers of the gods themselves, we now believe comets to be the icy remnants from the formation of our solar system.

At the November YA we'll bring comets "down to earth" for you, allowing you to build your own model of these frozen celestial travelers.

Join us for this fun, hands-on activity on Friday November 9th, 7:30 p.m. at Apple Blossom School in Sebastopol.

If the skies are clear, bring your telescope for a viewing session after our general meeting.



NASA SpacePlace

The Red (Hot?) Planet

by Patrick L. Barry

Don't let Mars' cold, quiet demeanor fool you. For much of its history, the Red Planet has been a fiery world.

Dozens of volcanoes that dot the planet's surface stand as monuments to the eruptions that once reddened Mars's skies with plumes of glowing lava. But the planet has settled down in its old age, and these volcanoes have been dormant for hundreds of millions of years.

Or have they? Some evidence indicates that lava may have flowed on Mars much more recently. Images of the Martian surface taken by orbiting probes show regions of solidified lava with surprisingly few impact craters, suggesting that the volcanic rock is perhaps only a million years old.

If so, could molten lava still occasionally flow on the surface of Mars today?

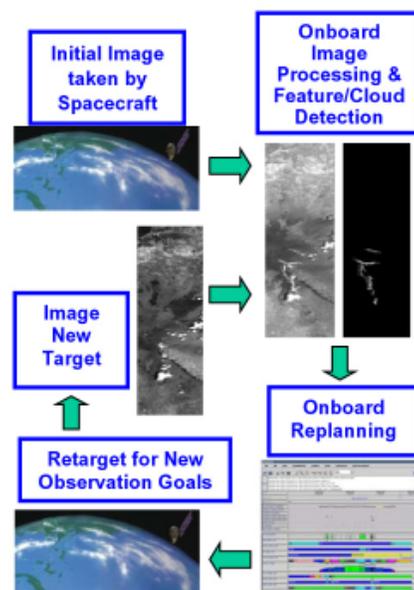
With the help of some artificial intelligence software, a heat-sensing instrument currently orbiting Mars aboard NASA's Mars Odyssey spacecraft could be just the tool for finding active lava flows.

"Discovering such flows would be a phenomenally exciting scientific finding," says Steve Chien, supervisor of the Artificial Intelligence Group at JPL. For example, volcanic activity could provide a source of heat, thus making it more likely that Martian microbes might be living in the frosty soil.

The instrument, called THEMIS (for Thermal Emission Imaging System), can "see" the heat emissions of the Martian surface in high resolution—each pixel in a THEMIS image represents only 100 meters on the ground. But THEMIS produces about five times more data than it can transmit back to Earth.

Scientists usually know ahead of time which THEMIS data they want to keep, but they can't plan ahead for unexpected events like lava flows. So Chien and his colleagues are customizing artificial intelligence software called ScienceCraft to empower THEMIS to identify important data on its own.

This decision-making ability of the ScienceCraft software was first tested in Earth orbit aboard a satellite called Earth Observing-1 by NASA's New Millennium Program. Earth



Just as changing cloud patterns on Earth were identified using Earth Observing-1's Advanced Land Imager along with ScienceCraft software, the THEMIS instrument with ScienceCraft on the Mars Odyssey spacecraft can avoid transmitting useless images.

YA INFORMATION

Meetings: 7:30 PM the second Friday of each month of the school year, at Apple Blossom School, 700 Water Trough Road, Sebastopol, in the Multipurpose Hall. Open to all Sonoma County students. Telescope viewing is held in the upper parking lot after the meeting. Directions: From Hwy. 116 in Sebastopol, go west onto Bodega Ave. Continue almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right.

YA ELECTED OFFICERS

PRESIDENT: Melissa Downey 632-5661

VP/PROGRAM DIRECTOR: Open

RECORDER: Open

NEWSLETTER EDITOR: Max Eliaser

LIBRARIAN: Open

ADULT ADVISOR: Gary Jordan 829-5288, Sieramolly@comcast.net

Observing-1 had already completed its primary mission, and the ScienceCraft experiment was part of the New Millennium Program's Space Technology 6 mission.

On Odyssey, ScienceCraft will look for anomalous hotspots on the cold, night side of Mars and flag that data as important. "Then the satellite can look at it more closely on the next orbit," Chien explains.

Finding lava is considered a long shot, but since THEMIS is on all the time, "it makes sense to look," Chien says. Or better yet, have ScienceCraft look for you—it's the intelligent thing to do.

To learn more about the Autonomous ScienceCraft software and see an animation of how it works, visit <http://ase.jpl.nasa.gov>.

—Article provided by JPL/NASA

INTERESTING LINKS

Check out SpaceWeather for alerts on all kinds of sky events. That's how I heard about Comet Holmes the day it burst into view (see story Page 1). You might want (need) to subscribe: <http://spaceweather.com>

Great new sites for serious Moon students:

<http://www.lpod.org/?m=20071002>

<http://www.lpi.usra.edu/resources/lunarorbiter/>

With the most extensive library of material at:

<http://www.lpi.usra.edu/lunar/>

Aurora: We almost (!) were able to view an aurora recently (we're usually too far south), but it sparked an interest. Merlin Combs was kind enough to forward the following links to learn about them and watch their movements.

<http://www.phy6.org/Education/aurora.htm>

Information about the Auroral Oval:

<http://www.northern-lights.no/english/what/oval.shtml>

A nice animation of the daily movement of the Auroral Oval can be seen at:

<http://www.northern-lights.no/english/measurements/>

Click on "Poes" and then "updated North animation."

EXPLORATORIUM ICE STORIES

December 2, 7-9, 14&15, 21, 28, continuing in January

Join the Exploratorium as it ventures to the bottom of the world for a series of webcasts, live events, and demonstrations, in celebration of the International Polar Year (2007-2008).

The Exploratorium's Live@ crew will be talking with scientists at McMurdo Station and the South Pole about the myriad of research being done there. Meet scientists pulling giant cores of ice from miles down, watch as penguins dive under the ice, and see scientists reach for the sky with their weather balloons. Learn about the giant trap under the ice that catches the tiniest particles from outer space, and a new 10-meter telescope at the South Pole.

These programs and the continuation of webcasts in January will be shown at www.exploratorium.edu/icestories.

Hesiodus Ray (from Page 3)

a magnificent lagoon-like ring, 50 miles in diameter, on the southern shore of Mare Nubium. The light of the rising Sun shines westward through the two crater's common gap and bisects Hesiodus. Two weeks later, the eastward shining light of the setting Sun bisects Pitatus. Several times a year the geometry of Earth, Sun and Moon allow the light path to pass exactly through the low spot creating the ray.



Image of the hesiodus ray taken by Robin Casady

On October 19, 2007 I had mostly been showing people the Straight Wall, Plato, Cassini and Mons Huygens during our monthly sidewalk astronomy night.

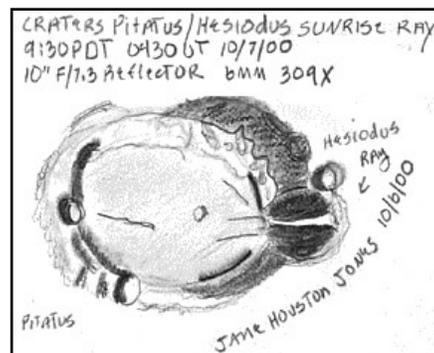
My eye drifted from the Straight Wall to Pitatus and Hesiodus.

The center of Pitatus was bathed in sunlight, which cast a shadow on its central peak. The crater floor looked convex or dome-like to me. And guess what, the Hesiodus Ray, a narrow triangular shaft of light, illuminated the dark floor of Hesiodus.

You'll find predictions for about 75 rays, including the Hesiodus and Pitatus Rays, on the Robinson Lunar Observatory website. <http://www.lunar-occultations.com/rlo/rays/rays.htm>.

There are many opportunities to see each of these two fleeting shafts of light next year. The first dates listed are January 16 and 31 2008, calculated at the geographic center of the US.

Now get out and catch some rays!



Sketch of the ray by Jane Houston Jones

STRIKING SPARKS SPONSORSHIP

There is an opportunity for you or your organization to sponsor a telescope and participate in this worthwhile program.

We will be ordering the telescopes soon, so now is the time to step forward. The cost to sponsor a "Striking Sparks" telescope is \$200. Contact Larry McCune, Striking Sparks Coordinator, at llmccune@comcast.net

**Sonoma County
Astronomical Society**

P.O. Box 183
Santa Rosa, CA 95402



Sonoma Skies
November 2007

NOVEMBER 14

Keith Waxman

**Meteors and
Meteor Showers**