The SAN MATEO COUNTY ASTRONOMICAL SOCIETY

November 2015 — 632nd General Meeting Notice

EVENT HORIZON

Founded in 1960, the San Mateo County Astronomical Society is a 501(c)(3)non-profit organization for amateur astronomers and interested members of the public. Visitors may attend Society meetings and lectures on the first Friday of each month, September to June, and star parties two Saturdays a month. All events are free for visitors and guests. Family memberships are offered at a nominal annual cost. Detailed info is found at www.smcas.com, where those who want can join via Paypal.
Membership includes access to this monthly Event Horizon newsletter, discounted costs and subscriptions to calendars and magazines, monthly star parties of the Society and the College of San Mateo, use of loaner telescopes, field trips, social occasions and general meetings presenting guest speakers and programs. For additional information, please email us at SMCAS@live.com, or call us at (650) 678-2762.

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SMCAS VOLUNTEERS joined with the College of San Mateo in planning and hosting two very well attended events this month: a public viewing of the total lunar eclipse of September 27, and the Family Science and Astronomy Festival + Makerspace on October 17. Above: Ken Lum at the solar telescope at the festival. Articles on pages 3 and 4.

UPCOMING DATES

Nov 6: General Meeting, Pizza, and Presentation at the CSM Planetarium. Details on page 6.

Dec 4: The general meeting previously scheduled for this date has been cancelled.

Dec 5: Holiday Party at Crystal Springs Methodist Church, San Mateo.

More events on page 8.

President's Corner

The Family Science and Astronomy Festival + MakerSpace was a success once again this year. SMCAS played a significant role with its volunteer activities ranging from Solar telescope viewing, Comet Chef, and planisphere making to arranging the keynote speakers from NASA—Drs Dale Cruikshank and Oliver White—and putting on the speaker reception. Thanks go out to all the volunteers who helped out, including:

Bob Black – Making planispheres
Karen Boyer – Reception help
Ed Ching – Making planispheres, reception help
John Fiske – How a telescope works
Rachel Freed – Solar telescope
Ken Lum – Solar telescope viewing, arranging speakers, and planning
Ed Pieret – Organizing the activities and volunteers, making comets, and planning
Colette Rudd – Reception catering
Mike Ryan – Pizza for volunteers
Andy Thanos – Membership table and reception
Audrey Thanos – Membership table
Alexa Thanos – Solar system size
Marion Weiler – Planning, coordination, and KIPAC liaison
Wolf Witt – Solar telescope

Ed Pieret, Comet Chef

And, for the first time, we were able to make use of the beautiful new Sun Plaza! The Sun Plaza is just to the north of the Science Building and Planetarium next to parking lot 6. The Sun Plaza was dedicated on September 25th, in a ceremony by CSM officials and attended by several SMCAS board members. The festival was the first major event held there. CSM Math and Physics Professor Mohsen Janatpour had a major role in the overall planning and design of the Sun Plaza, and designed the beautiful sundial on the south entrance to the Sun Plaza. We are looking forward to holding more events there in the future!

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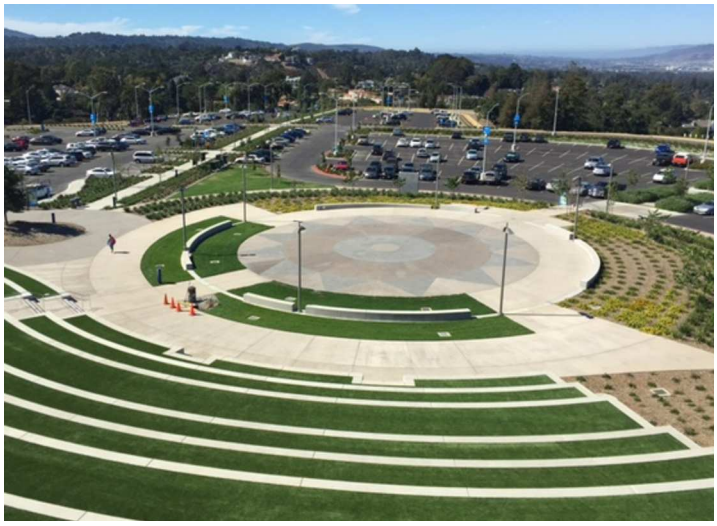
The new Sun Plaza at CSM, as seen looking outward from the science building.

President's Corner, continued from p. 2

Reminder: there will be no general meeting on Friday December 4th! This is due to the Planetarium being closed for system upgrades to the projectors. However, we will be holding our annual holiday potluck party the following evening of December 5th, at Crystal Springs Methodist Church.

Marion Weiler

President, San Mateo County Astronomical Society

The sundial at the south entrance to the Sun Plaza, designed by CSM math and physics Professor Mohsen Janatpour.

More on the Family Science and Astronomy Festival + Makerspace

By Ed Pieret

The annual Family Science and Astronomy Festival + Makerspace was held on October 17, 2017. The event was quite successful. The official estimate of attendance was between 1500 and 1600 people, a very good attendance for an event about science education.

This festival is jointly planned by CSM and SMCAS with Mohsen Janatpour taking lead. About 15 SMCAS members participated although we could have used many more.

This event grew out of the Astronomy Day activities SMCAS had been hosting in the spring for years. After a particularly dismal attendance (around 100) at the 2011 spring Astronomy Day event we decided to try one in the fall. We also invited the other science departments at CSM to

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Ed Ching making planispheres

Observing the Total Eclipse of the Harvest Super Moon

By Ed Pieret

On September 27 there was a total lunar eclipse. This was a “Super Moon” because the moon was in the closest point in its slightly elliptical orbit. It was also the first full moon after the Autumn Equinox, so it is traditionally called the Harvest Moon. Hence it was billed as a Total Eclipse of the Harvest Super Moon.

The media also played up the fact that a moon in total eclipse is a Blood Moon. This is because it appear to be quite red. The red color is because the only light hitting the Moon during a total eclipse is the glow from the Earth’s atmosphere. The atmosphere scatters blue light (causing blue skies) and only the red light comes through (causing red sunsets). The way I like to explain it is that the Moon is lit by all of the sunrises and sunsets on Earth.

The College of San Mateo had a planned Lunar Eclipse viewing event. A few SMCAS members offered to help out. Normally, several dozen people come to observe an eclipse but this event proved to be far more crowded than that. Initial observation was from the Student Center Balconies, which became quite crowded (see photo). After observing moonrise and the initial eclipse, the crowd was encouraged to move to the observatory to view the eclipse through telescopes. The Observatory became so crowded that it had to be closed to additional visitors and four telescopes were moved to the Sun Plaza for the overflow. In total, there were 11 telescopes set up to view the event. The second photo is of the line at just one of the telescopes in the plaza.

Although a Lunar Eclipse is not a particularly uncommon event, there is a rare eclipse coming up in less than two years. On Friday, August 18, 2017, a total solar eclipse will cross the United States. This type of eclipse is the most dramatic astronomical event that you can live through. The Moon’s shadow obscures the Sun for a few minutes. This allows you to see stars and the

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Attendance exceeded expectations.

Eclipse, continued from p. 4

Corona, the beautiful atmosphere of the Sun. Day turns into early evening and the air becomes noticeably cooler. A partial eclipse will be visible throughout the United States but there is a narrow band where the Moon completely covers the Sun. This band passes as close to us as central Oregon.

You do not want to miss the total solar eclipse, especially if you have children or grandchildren. Some of our members travel to the far corners of the earth to observe total solar eclipses, and here is one practically in our back yard. If there is enough interest, SMCAS will try to organize a trip for members.

Long lines at the telescopes

Family Science Festival, continued from p. 3

join us and renamed the event the Family Science and Astronomy Festival. The public's response was great and we had large crowds all day. We decided to continue with the festival and hold it in October. Then, in 2014 the Maker Space organization showed interest and they were invited to join us to round out the event.

John Fiske explains the essentials of a refractor

SMCAS General Meeting and Presentation on Nov 6, 2015

The Large Synoptic Survey Telescope

Dr. Joshua Meyers

Stanford University, Kavli Institute for Particle Astrophysics and Cosmology

Friday, Nov 6, 2015
College of San Mateo, Building 36
SMCAS General meeting at 7:00 p.m.
ISC Room, room 110
Presentation at 8:00 p.m. Planetarium
Free and open to the public, free parking.

The LSST is a new kind of telescope. Currently under construction in the US and Chile, the LSST will use its unprecedented combination of large field-of-view (40 times the size of the full moon), enormous camera (3200 megapixels) and significant collecting area (27-foot diameter mirror) to rapidly and precisely map the entire visible sky every few nights. The survey will produce a high-resolution multicolor digital movie of the Southern sky over a ten year period, enabling a wide variety of astronomy pursuits ranging from the Earth's backyard to the edge of the visible Universe.

Individual LSST images will be immediately analyzed to identify objects that have changed or moved: from exploding supernovae billions of light years away to nearby asteroids that might impact the Earth. Over the ten-year survey lifetime, the images will also be combined to reveal a map of tens of billions of stars and galaxies. With this map, scientists will explore the structure of our own solar system and the Milky Way, determine the properties of dark energy and dark matter, and make discoveries that we have not yet imagined. Scientists in the US and Chile, LSST's International Affiliates, and the general public are invited to share in this voyage of discovery. What will you find?

In his presentation, Dr. Meyers will cover the LSST science mission, as well as the unique engineering and data analysis challenges and solutions required by LSST.

Dr. Meyers is a Postdoctoral Student at Stanford University with the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), working on aspects of the LSST. He earned his Bachelor of Science in Physics/Math/Astronomy at the University of Kansas, and his PhD in Physics at the University of California Berkeley in 2012. Before coming to Stanford, he was a graduate student researcher at Lawrence Berkeley National Laboratory.

October Meeting Review

Polar Trek to Mars

By Ken Lum

For our October 3 meeting, Dr. Pascal Lee of the Mars Institute [1], headquartered at NASA Ames, came and spoke about their experiences moving a modified Humvee, called the Haughton-Mars Project (HMP) Okarian, across the sea ice of the Northwest Passage in the Canadian High Arctic from Kuglukuk, to Cambridge Bay, Victoria Island, a distance of 496 km. The destination was their base on Devon Island where Dr. Lee and members of the Mars Institute are conducting simulated Mars missions on a Mars analogue environment while still on Earth. The Okarian Humvee was needed to work in tandem with another Humvee called Mars-1 already on Devon Island. The Okarian Humvee departed Kuglukuk in April, 2009 and finally arrived on Devon Island in 2011.

Despite being on Earth, the Okarian Humvee encountered many problems during its traverse including partially falling into crevasses in the ice, blinding snow storms, mechanical failures (one of which required replacement of a tractor tread) and the psychological challenge of keeping the crew working well together under difficult conditions. Much of the experience will be detailed in a movie about the expedition titled "Passage to Mars" to be released next year. A trailer for the film can be seen on YouTube [2].

During the expedition [3], some science was conducted: measuring the thickness of the sea ice to investigate the effects of climate change, collection of microorganism samples inside and outside the Humvee to document any possible biological contamination from the expedition on the mostly sterile ice environment along the route followed, and studying management and equipment issues during the expedition.

The microbial samples collected during the expedition were frozen and sent to NASA, Kennedy Space Center in Florida to be cultured to

see what grew out. The results suggest that contamination of the pristine Arctic environment would be difficult despite there being no special effort to decontaminate the Humvee and the expedition equipment before departing [4]. This suggests precautions for biological planetary protection of Mars might not be as difficult as initially feared.

The Mars Institute is an international non-profit organization headed by Dr. Pascal Lee to conduct projects to simulate Mars missions in the Canadian Arctic on Devon Island to see what issues would be encountered while working in difficult environments such as Mars. Some of the studies involve testing proposed manned planetary exploration vehicles along with protocols for the conduct of science in these environments.

References

1. Mars Institute. www.marsinstitute.no.

2. *Passage to Mars* -- Trailer. 2015. www.youtube.com/watch?v=3DoMctcmvXWG4, or search for the title.

3. Northwest Passage Drive Expedition. en.wikipedia.org/wiki/Northwest_Passage_Drive_Expedition.

4. Schueberger, A.C. and Lee, P. 2015. Microbial ecology of a crewed rover traverse in the Arctic: Low microbial dispersal and implications for planetary protection on human Mars missions. *Astrobiology* 15(6):478-491.

Event Update

Upcoming Holiday Party, Star Parties, and Monthly Meetings, for SCMAS this Year and Beyond!

We have many fun and interesting activities planned through the end of the year and continuing into 2016. While the new website is under construction, please contact Marion Weiler (mgwe@pacbell.net) for more information or to volunteer at any of these events. Please contact Ed Pieret (epieret@comcast.net) if you are available to help out with Star Parties at Crestview Park and other locations.

Fri, Nov 6	7:00 pm	**General Membership Meeting, Pizza Social and Presentation**
Sat, Nov 7	5:00 pm	**Crestview Park Star Party**
Sat, Nov 14	5:00 pm	**Crestview Park Star Party**
Fri, Dec 4		**Planetarium closed — No general meeting**
Sat, Dec 5	6:00 pm	**Holiday Party, Crystal Springs Methodist Church, San Mateo**
Sat, Dec 12	5:00 pm	**Crestview Park Star Party**
Sat, Dec 13	Midnight+	**Geminids Meteor Shower peaks — King of meteor showers**
Fri, Jan 1		**New Year's Day — No general meeting**
Sat, Jan 2	5:00 pm	**Crestview Park Star Party**
Sat, Jan 9	5:00 pm	**Crestview Park Star Party**
Sat, Jan 30	5:30 pm	**Crestview Park Star Party**
Sat, Feb 6	5:30 pm	**Crestview Park Star Party**
Sat, Feb 27	6:00 pm	**Crestview Park Star Party**
Sat, Mar 12	6:00 pm	**Crestview Park Star Party**
Sat, Apr 2	7:30 pm	**Crestview Park Star Party**
Sat, Apr 9	7:30 pm	**Crestview Park Star Party**

November Rise and Set Chart

SMCAS 2015 (PST)	**Nov 7 Rise**	**Nov 7 Set**	**Nov 14 Rise**	**Nov 14 Set**	**Nov 21 Rise**	**Nov 21 Set**
Sun	6:40 AM	5:04 PM	6:48 AM	4:58 PM	6:55 AM	4:54 PM
Moon	2:54 AM	3:13 PM	9:18 AM	7:42 PM	2:20 PM	1:53 AM
Mercury	6:10 AM	4:50 PM	6:40 AM	4:53 PM	7:09 AM	4:59 PM
Venus	2:53 AM	3:08 PM	3:02 AM	3:01 PM	3:13 AM	2:54 PM
Mars	2:43 AM	3:03 PM	2:36 AM	2:46 PM	2:29 AM	2:29 PM
Jupiter	12:00 AM	2:39 PM	1:38 AM	2:15 PM	1:15 AM	1:50 PM
Jupiter's moons	g e J i c		g e c J i		g e c J i	
5 AM, East on left	J=Jupiter, c=Callisto, e=Europa, g=Ganymede, i=Io					
Saturn	8:15 AM	6:14 PM	7:52 AM	5:50 PM	7:28 AM	5:25 PM
Uranus	3:45 PM	4:31 AM	3:17 PM	4:02 AM	2:49 PM	3:34 AM
Neptune	2:05 PM	1:13 AM	1:38 PM	12:45 AM	1:10 PM	12:18 AM
Pluto	11:06 AM	8:53 PM	10:39 AM	8:26 PM	10:12 AM	7:59 PM

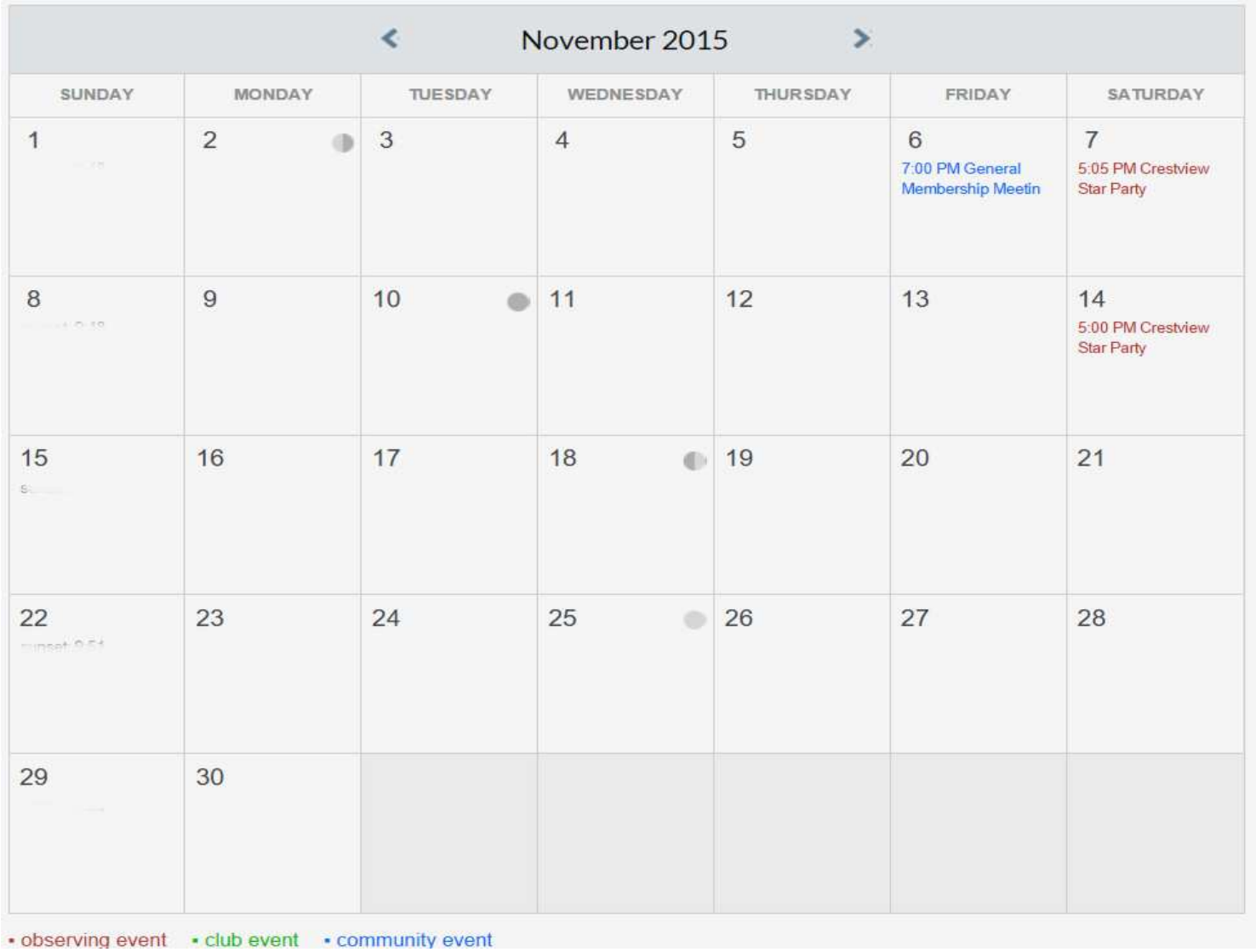
– Standard time begins on the 1st.
– Star parties are at Crestview on the 7th and 14th.
– Jazz Under the Stars is at CSM on the 21st.

– courtesy of Ron Cardinale

Fundraising for the Group: SMCAS Participates in AmazonSmile and Receives a Percentage of Your Purchase

SMCAS is now enrolled in AmazonSmile, a program that enables certified 501(c)(3) non-profit organizations to receive donations from eligible purchases at Amazon.

To enroll in the program, go to smile.amazon.com. On your first visit to this site, you can select a charitable organization – San Mateo County Astronomical Society (SMCAS) – that will receive 0.5% of the purchase price of eligible items on Amazon. How will you know if an item is eligible? Items are clearly and literally marked on the product detail pages with "Eligible for AmazonSmile donation." For more information, go to smile.amazon.com/about.



November 2015

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6 7:00 PM General Membership Meetin	7 5:05 PM Crestview Star Party
8	9	10	11	12	13	14 5:00 PM Crestview Star Party
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

▪ observing event ▪ club event ▪ community event

Calendar courtesy of Ed Pieret

Solar System

In November, Mercury will be hidden by the Sun's glare all month. Early in the month Saturn will also disappear from the evening sky as it approaches conjunction.

Venus, Mars, and Jupiter will continue to stand out in the morning sky. Venus and Mars will approach to within less than a degree apart for a few days beginning on November 2. Jupiter will be about six degrees away from the pair at that time.

Uranus and Neptune, both past opposition, will remain visible in the evenings.

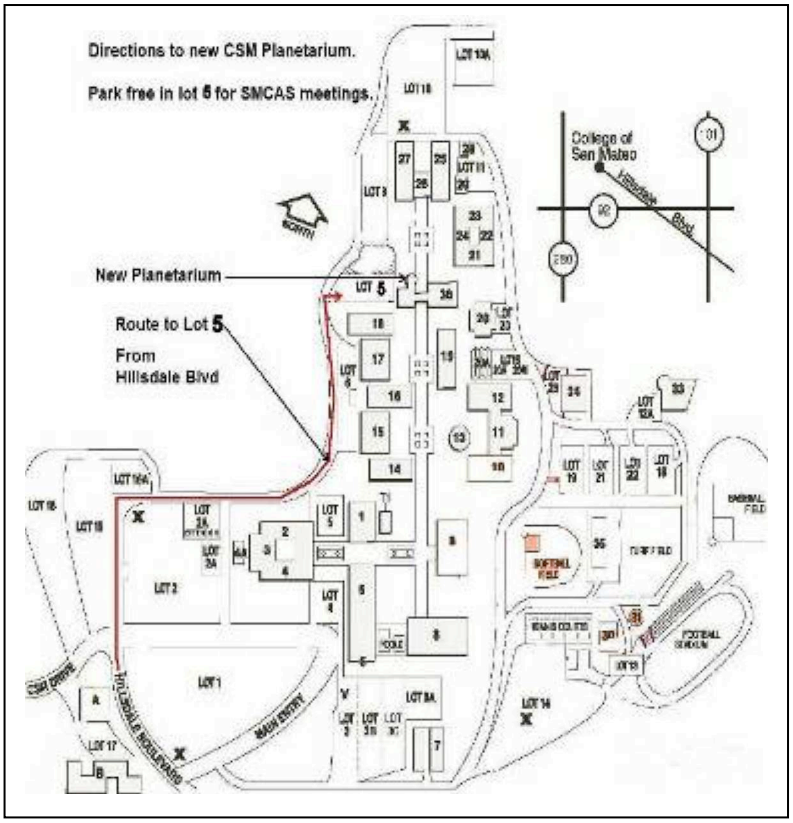
Late in the month comet C/2013 US10 (Catalina) will become visible for observers in the Northern Hemisphere. It will first appear in the morning sky near the boundary between Libra and Virgo, moving roughly Northward. Recently its magnitude has been reported at about 6.5. It had been expected to brighten to magnitude 4–5, but its behavior in recent weeks suggests that the expectation may not be met. Nevertheless, it is still a bright comet.

Directions to SMCAS Meetings at CSM, and to Star Parties

Star Parties are Free to Members and Visitors and are Held Regularly, Weather Permitting

Directions to the CSM Planetarium for Meetings

After exiting Hwy 92 at Hillsdale Blvd, climb the hill towards CSM, passing two traffic lights to the stop sign at the top. Continue straight, bear right then, after the 2nd stop sign, bear left over the rise. Enter the next parking lot on the right, called Lot 5, "Marie Curie'. Science Bldg 36 and the planetarium lie straight ahead. Enter Bldg. 36 thru the door facing the lot, or walk around the dome to the courtyard entrance.



Crestview Park

Come on out, and bring the kids, for a mind-blowing look at the Universe!

Bring your binoculars, telescopes, star guides, and lounge chairs for some informal star gazing at Crestview Park.

Dress warmly and wear a hat. Only visitors with telescopes should drive in. Others should park on the street and walk in, or arrive before dark so that car headlights don't affect the observers' dark adaptation. Bring small flash-lights only, covered with red cellophane or red balloon.

These measures avoid safety issues of maneuvering in the dark, as well as ruining the night vision of the viewers.

Please don't touch a telescope without permission. And, parents, please don't let children run around in the dark.

Directions to Crestview Park for Star Parties

From Hwy 101 or El Camino, take Brittan Avenue in San Carlos, west (to the hills). Follow Brittan 2.3 miles (from El Camino) to Crestview Drive. Turn right on Crestview. In half-a-block, you will see a small blue posted sign with an arrow, indicating the entry road into Crestview Park. It lies between houses with addresses #998 and #1000 Crestview Drive.

From Highway 280, take Edgewood Road exit. Go east (toward the Bay) about 0.8 miles. Turn left at Crestview Drive. Go 0.5 mile uphill to where Crestview meets Brittan. Again, drive the half-block, to the sign on the right, and the entry road on the left.

Note: If bringing a telescope and arriving after dark, please enter the Park with your headlamps and white interior lights off. If you aren't bringing a telescope, whether before or after dark, please park along Crestview Drive, and walk in.

2nd Note: Crestview Park is residential, adjacent to homes and backyards. Before inviting potentially noisy groups, please call Ed Pieret at (650) 595-3691 for advice and advisories. Call Ed also to check the weather and 'sky clock', and to see whether the star party is still scheduled.

Membership Application and Society Information

To join the San Mateo County Astronomical Society or to renew membership, you can pay dues via Pay Pal on our website (www.smcas.net), at any monthly meeting, or send your check, payable to SMCAS, to: **SMCAS, PO Box 974, Station A, San Mateo, CA, 94403.**

Dues are currently $30 for a new (family) membership and renewing member and $15 for a student membership.
Please check one of the following boxes: ( ) New member ( ) Membership renewal ( ) Student ( ) Address or info change

NOTE TO RENEWING MEMBERS: Please complete the following form only if you have a change to your membership or contact info.

Name(s) _____

Address/City/Zip: _____

Phone(s) _____Email_____

SMCAS – Society Information

Meetings of the San Mateo County Astronomical Society are held the **first Friday of the month (except in July and August)** in the Planetarium at the College of San Mateo, 1700 West Hillsdale Blvd. in San Mateo. Exit Hwy. 92 at West Hillsdale Blvd. and, proceed uphill through the second and third sets of traffic lights, to the first stop sign at the top of the hill. Continue straight, bearing right then, after the second stop sign, left up over a rise. After the third stop sign, enter the first parking lot on the right with a sign 'Lot 5, Marie Curie', identifying the top level plus those below.

Science Bldg. 36 adjoins the lot, with the geodesic planetarium dome to its left. Circle the planetarium, or enter Bldg 36 thru the door facing Lot 5. For the 4th floor observatory, use the elevator just inside on the right. The planetarium corridor is ahead on the left. Turn left at the restroom sign.

Officers: President: Marion Weiler; **Vice-President:** Ed Pieret; **Treasurer:** Karen Boyer; **Secretary:** Vacant.
Board Directors-At-Large: Bob Franklin, Ken Lum, Ed Ching, Mike Ryan, and Andy Thanos.

November Event Horizon Editor: Ted Jones. **NOTE**: Newsletter is posted by the beginning of each month (except for July and August). Submissions and photos are welcome by the 15th of the month before publication.

SMCAS Contact Information
Website: www.smcas.net
The CSM Astronomy Department schedule is at www.collegeofsanmateo.edu/astronomy/events.
Email: SMCAS@live.com
Society Yahoo group: http://groups.yahoo.com/group/smcas.
Yahoo Group Subscription: email smcas-subscribe@yahoogroups.com to subscribe.
Event Horizon: To submit articles or photos, please contact Ed Pieret — epieret@comcast.net or 650.862.9602.