

March, 2011 583rd General Meeting



# EVENT HORIZON

Founded in 1960, the San Mateo County Astronomical Society is a non-profit organization for amateur astronomers. Family memberships are open to the public, and visitors are cordially invited to the Society's meetings, which are held on the first Friday of the month, September through June. Detailed information about our events and membership can be found at [www.smcas.com](http://www.smcas.com)

Membership includes a monthly bulletin, discounted subscriptions to calendars and magazines, monthly star parties, use of our loaner telescopes, tours, field trips and guest speakers, plus an invitation to join our online discussion group. To receive additional information, send a note to [SMCAS@live.com](mailto:SMCAS@live.com) or call (650) 862-9602.

## ASTRONOMER CRACKS WISE!

*(Checks out the coolest stars  
and the hottest galaxies)*

Dr. Bryan Méndez, Education and Public Outreach Specialist with UC Berkeley Space Sciences Lab, has mapped the sky in infrared light, searching for asteroids, the nearest and coolest stars, the origins of stellar and planetary systems, and the most luminous galaxies in the Universe--working with NASA's Wide-field Infrared Survey Explorer (WISE). To hear and see his fascinating report, come to the Science Center on



*Shockwave of runaway star*

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### **MONTHLY STAR PARTIES**

**Crestview Park in San Carlos  
Saturday March 5 & 26**

See page 11 for directions  
See page 7 bottom of calendar for rise & set times

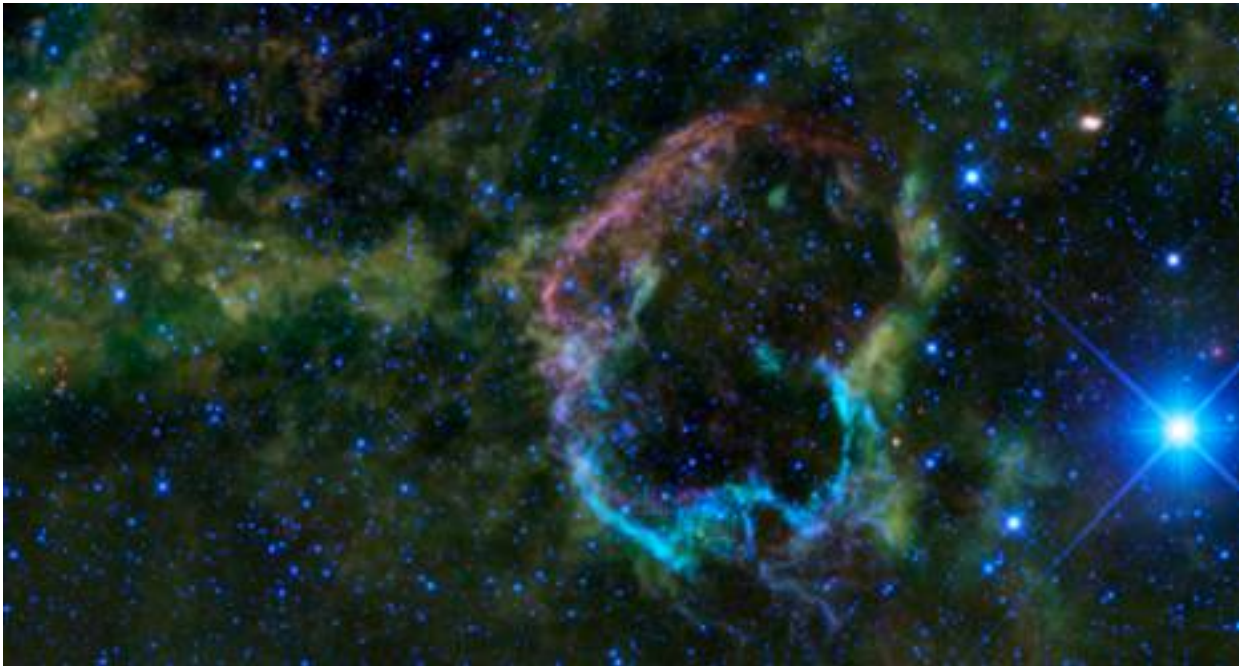
# ANNOUNCEMENTS

**SPEAKER:** Dr. Bryan Méndez, Education and Public Outreach Specialist, [UC Berkeley Space Sciences Lab](#)

**TOPIC:** **WISE Astronomy: The Wide-field Infrared Survey Explorer**

**TIME:** 8:00pm March 4th

**WHERE:** [The CSM Planetarium](#) Bldg 36, Parking Lot 5  
**Free and open to the public**



WISE is an unmanned satellite carrying an infrared-sensitive telescope that images the entire sky, providing a vast storehouse of knowledge about the Solar System, the Milky Way, and the Universe. During his lecture, Dr. Méndez will describe the mission, its history, current status, and some of the discoveries it has already made.

In the above WISE image of a supernova remnant, infrared light has been color-coded to reveal what our eyes cannot see. The colors differ primarily because materials surrounding the supernova remnant vary in density. When the shock waves hit these materials, different gases were triggered to release a mix of infrared wavelengths.

The remnant's northeastern shell, seen here as the violet-colored semi-circle at top left, is composed of sheet-like filaments that are emitting light from iron, neon, silicon and oxygen gas atoms and dust particles heated by a fast shock wave traveling at about 100 kilometers per second, or 223,700 mph



Bryan hiking with his wife at Stinson Beach

*The dark sky of Traverse City, Michigan enthralled and inspired Bryan to study astronomy. He graduated from the University of Michigan in 1997 with degrees in Astronomy, Physics, and Music. At UC Berkeley, he researched the large scale flow of galaxies in the nearby Universe by measuring their distances. He received a Ph.D. in Astrophysics in 2002. Bryan now works at the Center for Science Education at UC Berkeley's Space Sciences Laboratory to educate and inspire others about the wonder and beauty of the Universe. His work in space science education and public outreach involves developing programs for the public through the web and museums, developing classroom materials for students in K-12 classrooms, and conducting professional development for science educators.*

## **From the Prez:**

Many of you will remember Dr. Pascal Lee, our speaker last November. Dr. Lee talked about the project he was leading using Devon Island in the high arctic of Canada to simulate conditions on Mars. He described experiments with spacesuits, prototype rovers, robots and other technology that would be used for a manned Mars missions in the future.

After a fruitful post-meeting discussion with him, our Treasurer and Activities Director Marion Weiler took on the task of investigating a potential SMCAS involvement in the work on Devon Island.

### **Announcing the SMCAS SMART Project**

Through Marion's project management skills and hard work we have defined such a project - the San Mateo Arctic Research Telescope (SMART). The initial phase of this project will be to send a selected CSM student to Devon Island as part of Dr. Lee's team to conduct a feasibility study and possible set up a weather station. This will cost an estimated \$6000, and we will be asking for contributions. Please see Marion's article on Page 5 for details about the project.

### **Astronomy Day is April 9**

SMCAS will hold this event from 3:00 to 11:00 pm. We will have a number of tables set up to help educate the public in various aspects of astronomy. Just how many will depend on our volunteers.

We have a great deal of material on astronomical and space topics ranging from Asteroids to Galaxies. However, we are limited in the amount of material we can present by the number of members who can help! If you're interested and willing to present one of these fascinating subjects, please let me know. I can supply materials, models, instruction manuals and training videos as well as personal assistance.

Once again we will be offering Galileoscope kits for less than they can be purchased commercially. We will also offer assistance with assembly of these telescopes. The Galileoscope is a good quality small astronomical telescope that mounts on a photographic tripod. It's capable of seeing the moons of Jupiter, the rings of Saturn and deep sky objects like the Andromeda Galaxy.

### **A Home for Manuel Fojo's Solar Observations**

I would also like to let you know about the success of another project being handled by our previous president, board member Mike Ryan. Long time SMCAS member Manuel Fojo, who died in 2006, was a dedicated amateur observer and chronicler of the Sun. When he passed on, he left a 30-year compilation of solar observations, photonegatives and books. Mike took charge of this collection and when CSM was unable to house the collection he searched for a home for it.

Mike has finally succeeded. Wilcox Solar Observatory at Stanford University agreed to preserve the collection, and to host it on-site or at the Stanford Science Library. Mike will transfer it to them on March 3rd. They will announce the collection's availability to the community of solar research astronomers both in the U.S. and abroad. They'll also formally notify Manuel's two daughters and his widow, Carmen, of this new status. We can be pleased and proud that our esteemed member's many devoted years at this labor of love will not be lost, but will instead be preserved for posterity.

**Ed Pieret, President**  
**(650)862-9602**

**San Mateo County Astronomical Society**  
**SMCAS@live.com**

# San Mateo Arctic Research Telescope

# SMART

A collaboration of CSM, SMCAS,  
SETI Institute and Mars Institute.

Your contribution will help fund a project to establish a remotely operated telescope at Haughton-Mars Project Research Station on Devon Island in the High Arctic, to be used for scientific research on extrasolar planets.

See the article on page 5.

To contribute, please go to <http://www.smcas.com/SMART> or send a check to SMCAS, PO Box 974, Station A, San Mateo CA 94403.

*SMCAS is a California 501(c)(3) non-profit corporation.*



## **A SMART Partnership**

### **Marion Weiler**

I'm pleased to report exciting news. The SMCAS board of directors has approved our partnering with the College of San Mateo, the Mars Institute, and SETI Institute on the San Mateo Arctic Research Telescope (SMART.) This ambitious new project will further our goals of supporting astronomy education, outreach, and research.

### **Robotic Telescope in the Arctic**

The goal of the SMART project is to design, install and operate an robotic autonomous telescope observatory at the Haughton Mars Project Research Station (HMPRS), located at the Haughton Impact Crater on Devon Island in the High Arctic. Many of you may remember the excellent presentation about HMPRS given by Dr. Pascal Lee, Chairman of the Mars Institute, at our November general meeting. To date, HMPRS has not had an astronomy component as part of its infrastructure. This project will fill that gap.

SMART will be a 'world first' facility: the first robotic observatory near the north pole, and its proposed use of renewable energy would be a world's first. This is a very exciting project, and there are many ways for SMCAS and its members to become involved, from making donations to providing consulting and advice on observatory design! In addition, members may have the opportunity to travel to HMPRS if they desire to do so.

### **Internship Opportunities**

The primary scientific goal of the telescope is to take advantage of wintertime's continuous darkness to conduct long-observation-time scientific research focused on the search for extrasolar planets. The science program for the telescope will be under the guidance of SETI Institute scientist Dr. Doug Caldwell (instrumentation scientist on the Kepler mission), and, importantly for our outreach and education goals, will provide internship opportunities for CSM astronomy students, helping us train the next generation of astronomers.. Other science missions may be accommodated, as well as use by CSM or SMCAS. In addition, the observatory could provide a proof of concept to NASA for a remotely operated autonomous telescope observatory, such as could possibly be set up on the Moon or Mars.

This year's goal is to conduct a feasibility study of the SMART concept. This will involve analyzing the HMPRS site and weather for appropriateness for establishing an observatory there. A key part of the feasibility study will be to send the CSM student intern to HMPRS for the summer 2011 field season. They will review possible observatory sites, install any needed wintertime data collection instrumentation such as a weather station or full sky camera.

A key role for CSM in the project is providing qualified CSM student interns to work on the project. I am pleased to announce that the initial CSM astronomy student intern selected to work on this project is our own SMCAS member Luis Alvarez! Luis will have the opportunity to work directly with scientists as a valued team member.

### **Donations Required**

It is important to note that SMART will be funded and equipped primary through donations. A key role for SMCAS in the SMART project is assisting with ongoing fundraising, and particularly for the short term need to cover the travel expenses of the CSM intern, estimated to be \$6,000 for the 2011 field season. Look for further communications and the SMART flyer elsewhere in this issue of the EH for information about how to donate.

In summary, this is a very exciting and worthwhile partnership for SMCAS. We expect this to be a long term relationship, a team collaboration which will provide value to astronomy science, the community, CSM astronomy students, as well as to our membership. Please feel free to contact me with any questions regarding SMART. I look forward to keeping you informed about the project!

More information about the project will be posted at <http://www.smcas.com/SMART>

# PROJECT ASTRO

## Increase Science Literacy: Share Your Love of Astronomy With Students

Partner with a local teacher to bring astronomy into a classroom and improve student understanding of science. Learn techniques to engage students and then visit a classroom four times over the next year. The time commitment is small and the effects can last a lifetime. Students love to have their “very own astronomer.” Past participants claim they were treated like rock stars! Astronomy is a great way to inspire students and Project ASTRO gives you the tools to be effective in the classroom.

Find out more and apply online here:

<http://www.astrosociety.org/baprojectastro.html>

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# ASTRONOMY DAY

Saturday, April 9, 2011 3:00PM – 11:00PM

Activities and parking are



**FREE**



**BUILDING 36 -SCIENCE BUILDING**

**College of San Mateo.**

**(directions and maps on [www.smcas.com](http://www.smcas.com))**

**Give your kids the gift of Astronomy  
and spark a lifelong interest  
in science.**



## Thank Goodness the Sun is Single

By Trudy E. Bell

It's a good thing the Sun is single. According to new research, Sun-like stars in close double-star systems "can be okay for a few billion years—but then they go bad," says Jeremy Drake of the Harvard-Smithsonian Astrophysical Observatory in Cambridge, Mass.

How bad? According to data from NASA's Spitzer Space Telescope, close binary stars can destroy their planets along with any life. Drake and four colleagues reported the results in the September 10, 2010, issue of *The Astrophysical Journal Letters*.

Our Sun, about 864,000 miles across, rotates on its axis once in 24.5 days. "Three billion years ago, roughly when bacteria evolved on Earth, the Sun rotated in only 5 days," explains Drake. Its rotation rate has been gradually slowing because the solar wind gets tangled up in the solar magnetic field, and acts as a brake.

But some sun-like stars occur in close pairs only a few million miles apart. That's only about five times the diameter of each star—so close the stars are gravitationally distorted. They are actually elongated toward each other. They also interact tidally, keeping just one face toward the other, as the Moon does toward Earth.

Such a close binary is "a built-in time bomb," Drake declares. The continuous loss of mass from the two stars via solar wind carries away some of the double-star system's angular momentum, causing the two stars to spiral inward toward each other, orbiting faster and faster as the distance shrinks. When each star's rotation period on its axis is the same as its orbital period around the other, the pair effectively rotates as a single body in just 3 or 4 days.

Then, watch out! Such fast spinning intensifies the magnetic dynamo inside each star. The stars "generate bigger, stronger 'star spots' 5 to 10 percent the size of the star—so big they can be detected from Earth," Drake says. "The stars also interact magnetically very violently, shooting out monster flares."

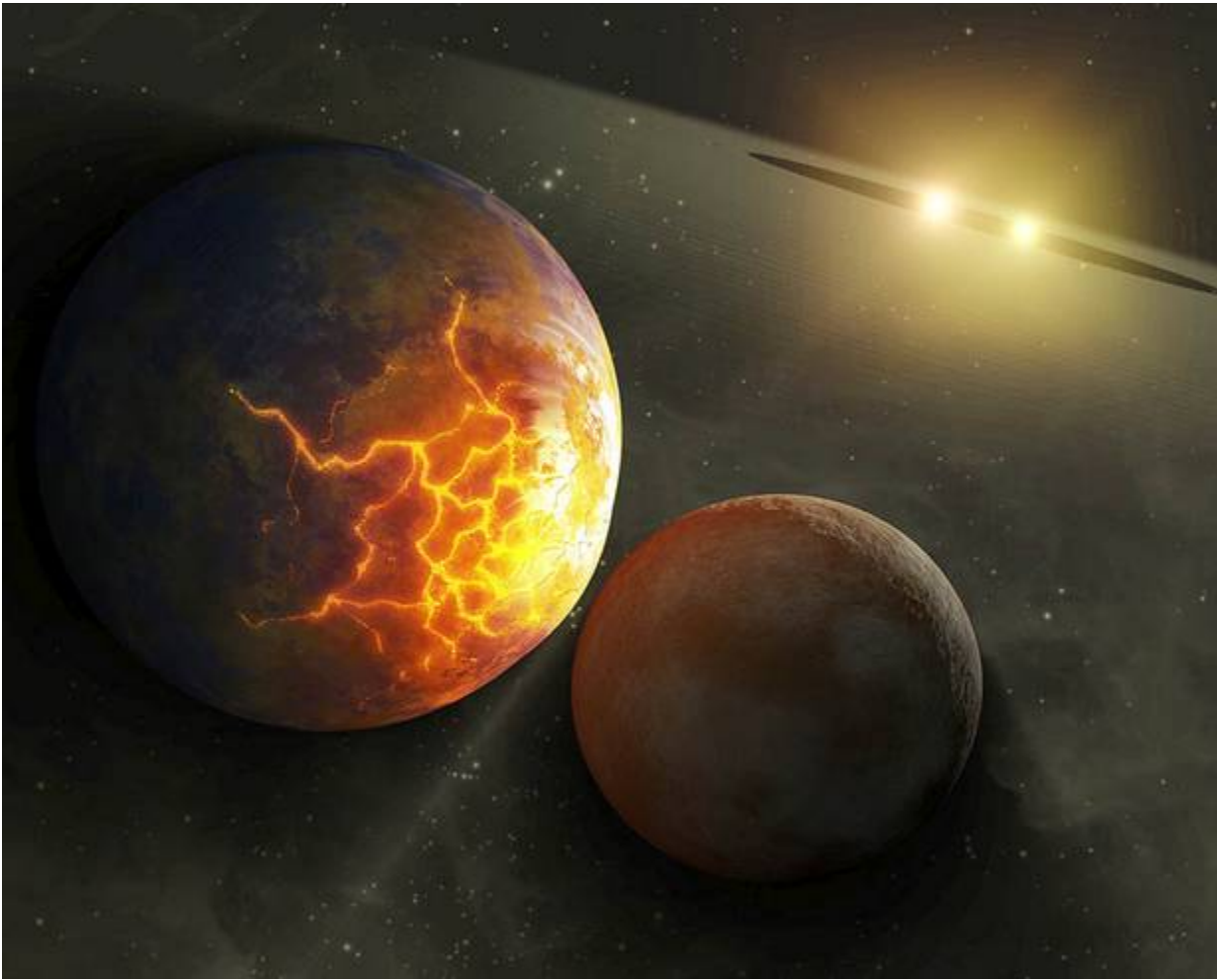
Worst of all, the decreasing distance between the two stars "changes the gravitational resonances of the planetary system," Drake continued, destabilizing the orbits of any planets circling the pair. Planets may become so strongly perturbed they are sent into collision paths. As they repeatedly slam into each other, they shatter into red-hot asteroid-sized bodies, killing any life. In as short as a century, the repeated collisions pulverize the planets into a ring of warm dust.

The infrared glow from this pulverized debris is what Spitzer has seen in some self-destructing star systems. Drake and his colleagues now want to examine a much bigger sample of binaries to see just how bad double star systems really are.

They're already sure of one thing: "We're glad the Sun is single!"

Read more about these findings at the NASA Spitzer site at [www.spitzer.caltech.edu/news/1182-ssc2010-07-Pulverized-Planet-Dust-May-Lie-Around-Double-Stars](http://www.spitzer.caltech.edu/news/1182-ssc2010-07-Pulverized-Planet-Dust-May-Lie-Around-Double-Stars). For kids, the Spitzer Concentration game shows a big collection of memorable (if you're good at the game) images from the Spitzer Space Telescope. Visit [spaceplace.nasa.gov/en/kids/spitzer/concentration/](http://spaceplace.nasa.gov/en/kids/spitzer/concentration/).

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



*Planetary collisions such as shown in this artist's rendering could be quite common in binary star systems where the stars are*

See other surprising UV images from the Galaxy Evolution Explorer at <http://www.galex.caltech.edu>. Kids (and grownups) can play the challenging new Photon Pileup game at <http://spaceplace.nasa.gov/en/kids/galex/photon/>.

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## **General Meeting Notes – February 4, 2011**

Sixty eight people attended to the General Meeting in the College of San Mateo Planetarium, which was preceded by a social half-hour of pizza consumption. President Ed Pieret made a few announcements about upcoming events (Star Parties and Jazz Under the Stars).

The featured talk was given by Dr. Lynn Rothschild, NASA Ames Research Center, *Defining the Envelope for the Search for Life in the Universe*. Dr. Rothschild gave a brief review of the environmental extremes on Earth that support life forms, such as temperature and pH ranges, salinity extremes, and desiccation, UV radiation, and oxygen limits. She described the theory that early Earth-based life forms must have been thermophiles. Then she reviewed some basic chemistry and physics in proposing probably “universal” constraints on life elsewhere: based on organic carbon, uses water as a solvent, subject to the laws of chemistry and physics and to Natural Selection processes, and sufficient time under appropriate environmental conditions. Dr. Rothschild concluded by speculating where extraterrestrial life might occur in our Solar System ... in the clouds of Venus, subsurface Mars, the subsurface oceans of Europe or Enceladus, or on Titan.

# March 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4 <b>New Moon</b>  SMCAS Meeting	5 Crestview Star Party
6	7	8	9 Silicon Valley Lecture Series	10	11 The Sky Tonight Planetarium Show	12 <b>First Quarter</b>  Jazz Under the Stars
13 DST Begins	14	15	16	17	18	19 <b>Full Moon</b> 
20 Spring Equinox	21	22	23	24	25	26 <b>Last Quarter</b>  Crestview Star Party
27	28	29	30	31		

**2011 (PST for 5th, PDT for 26th-- time change is +1h on the 13th)**

		<u>Mar. 5 Rise</u>	<u>Mar. 5 Set</u>	<u>Mar. 26 Rise</u>	<u>Mar. 26 Set</u>
Sun	Equinox on 20th	6:38 AM	6:05 PM	7:04 AM	7:26 PM
Moon		5:47 AM	5:23 PM	2:29 AM	12:21 PM
Mercury	After sunset	6:59 AM	6:41 PM	7:33 AM	8:54 PM
Venus	Before sunrise	4:39 AM	2:47 PM	5:35 AM	4:26 PM
Mars	Sunrise glare	6:23 AM	5:32 PM	6:41 AM	6:30 PM
Jupiter	After sunset	7:37 AM	8:00 PM	7:27 AM	8:02 PM
	8/9 PM East on left red spot transit		g i J e c 6:21 PM		c J e 9:50 PM
Saturn	Much of the evening	8:27 PM	8:07 AM	7:57 PM	7:41 AM
Uranus	Mostly in sun's glare	7:13 AM	7:15 PM	6:53 AM	6:59 PM
Neptune	Before sunrise	5:54 AM	4:45 PM	5:34 AM	4:23 PM
Pluto	In the wee hours	2:42 AM	12:46 PM	2:20 AM	12:24 PM
M 42	In the evening	12:58 PM	12:32 AM	12:35 PM	12:09 AM

## Meet Marion Weiler

*Note: this is the sixth in a series of articles introducing club members. The previous five articles featured Bob Black, Ron Cardinale, Leroy Amen, Bob Fies, and Bob Franklin respectively.*

Marion Weiler was a late-comer to astronomy ... starting in 1998 when he joined SMCAS. Marion grew up in Arizona, including “a lot of camping in the desert; the Milky Way filled up the sky on moonless desert nights!” Marion joined SMCAS because his son “was involved in a middle school extra-curricular activity dealing with astronomy and had joined the club. I went along with him to the meetings. I remember particularly the first meeting ... where Chris McKay was the speaker. He gave a fascinating talk, and I was hooked.”



Marion has served as club Treasurer (twice!), President for 3 years, and Program Director (which means that Marion gets the credit for all of the terrific speakers we have had the pleasure of hearing at General Meetings in recent years). His primary astronomical interests are “following the science results from all the wonderful missions in progress, as well as the history of astronomy. As a biologist by undergraduate training I am particularly interested in the search for other earthlike planets and the possibility for life elsewhere. We are in the golden age of astronomical discoveries and our knowledge of the universe. It’s a great age to live in!”

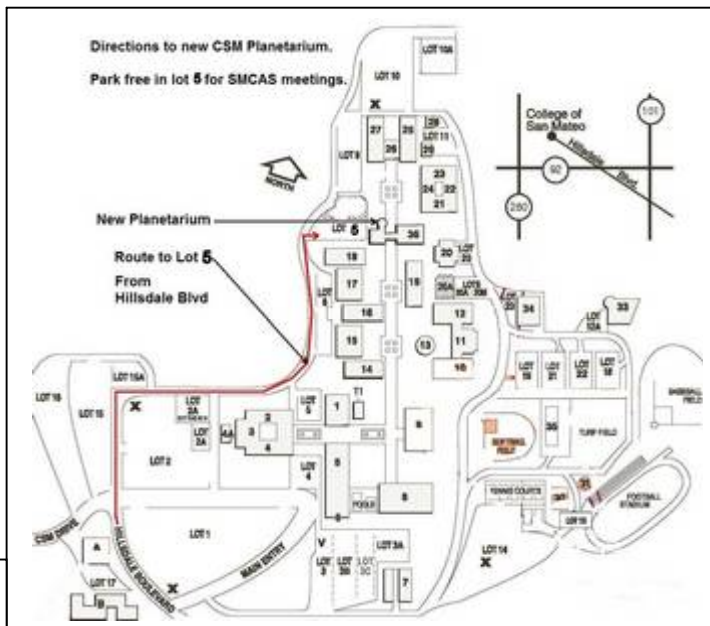
“I own a ... basic starter telescope ... a Meade Model 4500 4.5-inch equatorial reflector, f 8 with a 25 mm eyepiece. It was a great learning tool for me, as it being manual, forced me to think through all the issues about alignment ... If I purchased something today, I would definitely go for something automated and suitable for astrophotography.”

Besides providing speakers for the SMCAS General Meetings, Marion also participates in Astronomy Day activities and other public events. He recalls organizing an “infamous” event for the “Mars Closest Approach night in 2003 where something like two thousand people showed up ... and overwhelmed us, as we were expecting maybe one or two hundred, if we were lucky. The old CSM planetarium area looked like an ant’s nest with all the people milling about.”

Marion says that his most interesting astronomical experiences were viewing the Northern Lights from interior Alaska when he worked there in the mid-1970’s.

Marion’s “other favorite hobbies and activities are skiing, hiking, photography, and travel!”

*Text by John Fiske; photograph courtesy of Marion*



### Directions to Planetarium

After coming off HW92 at Hillsdale Blvd towards CSM, proceed up hill through the second and third sets of traffic lights until you come to the first stop sign, where you enter the campus, and continue straight. After the third stop sign, turn into the first parking lot on the right. This is now called Lot 5. The planetarium is directly ahead of you. Enter the building (36) through the door facing the parking lot.

### Directions to Crestview Park

## Crestview Park

**Come out and bring the kids for a mind-expanding 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. Visitors should park on the street or arrive before dark so that headlights don't affect the observers' dark adaptation. Bring small flashlights only, with the lens covered with red cellophane or red balloon. Please don't touch a telescope without permission. And parents, please watch your children.

Take Hwy 101 or El Camino to Brittan Avenue in San Carlos, and turn west (right from El Camino). From El Camino, follow Brittan about 2.3 miles to the intersection with Crestview Drive.

**From Alameda**, go about 1.4 miles to Crestview. Turn right on Crestview. A small sign saying "Crestview Park" is a half-block ahead on the right. Look to the left for the park entry road, a small street between houses #998 and #1000. If after dark, please park on Crestview near the park entrance and walk in the short distance, to avoid safety issues and disturbing the telescope setup and viewing.

**From Highway 280** to Edgewood Road. Go east (toward Bay) about 0.8 miles. Left on Crestview Dr. Go 0.5 miles uphill to the intersection with Brittan Avenue. Go one short block to the park entrance on the left.

**Note:** The park is residential, and adjacent to homes and backyards. Before inviting noisy groups, please call Ed Pieret or Leroy Amen.

**For more information, call:**  
Leroy Amen: 573-0935  
Leroy's cell: 504-5196  
Ed Pieret: 595-3691

**Membership Dues:** Membership annual dues are payable yearly, on your renewal date which is shown on your Event Horizon mailing label. See the back page of the Event Horizon for mailing instructions. Members who are over 3 months past due will be removed from the Event Horizon mailing list until their dues are paid. Members who are over 6 months past due will be removed from the active membership rolls. These members will not be eligible for club privileges but can retain membership in the Yahoo group. We will try to contact the members personally prior to making them inactive.

Membership Application

To join the San Mateo County Astronomical Society or to renew your membership please send dues by check payable to "SMCAS" to the address below. Dues are \$35 for a new member, \$30 for Renewing members and \$25 for students and seniors.

**SMCAS, at PO Box 974, Station A, San Mateo, CA 94403**

Check one: ( ) New member ( ) Membership renewal ( ) Address or info change

**NOTE TO EXISTING MEMBERS: do not fill in address etc. unless it's changed!**

Name(s) \_\_\_\_\_

Address/City/Zip: \_\_\_\_\_

Phone(s) \_\_\_\_\_ Email \_\_\_\_\_

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, located at 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 until you come to the first stop sign, where you enter the campus, and continue straight. After the third stop sign, turn into the first parking lot on the right. This is Lot 7. The planetarium is directly ahead of you. Enter the building (36) through the door facing the parking lot.

**Officers: President:** Edmund Pieret; **Vice-President:** Chanan Greenberg; **Secretary:** John Fiske; **Treasurer:** Marion Weiler

**Board Members-At-Large:** Bob Franklin, Ken Lum, Mike Ryan, Murad Hamidouche.

**Membership:** open position **Newsletter:** Dave Wolf, Ron Cardinale, Darryl Stanford, John Garis, Bob Fies.

**Program:** Marion Weiler, **Publicity:** open position; **Reporter:** open position

**Event Horizon Editor:** Dave Wolf **NOTE:** We welcome articles and photos submitted by the 15th of the month prior to publication.

**Contacts:**

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**Email:** [SMCAS@live.com](mailto:SMCAS@live.com)

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