



The Starry Messenger

The Official Newsletter of the
Palomar College Planetarium

Fall 2017

Inside this issue:

| | |
|--|---|
| On Our Horizon | 1 |
| Eclipse Expedition | 2 |
| The Space Race: A Special Event | 2 |
| Public Donations Support the Planetarium | 3 |
| Public Show Information | 4 |

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Do you have questions?
The planetarium can
be reached at:
planetarium@palomar.edu

Did you know?

- The Palomar College Planetarium can accurately display the night sky from anywhere on Earth more than a million years into the future?
- During Planetarium shows visitors routinely visit distant planets and stars by flying faster than light, something that is thought to be impossible in the real universe.

On Our Horizon

by Scott Kardel (Planetarium Assistant Director)

We had a very busy summer at the Palomar College Planetarium, perhaps due to the excitement of the August solar eclipse. Over 80% of our available seats were sold for all the shows in the month leading up to the eclipse.

The solar eclipse kicked off the first day of instruction for the fall semester at the College, but most of our staff was away viewing its total phases (see story on page 2). Since then it has been a more quiet fall but with school shows and other projects, the Planetarium staff is keeping busy.

Our Director, Mark Lane, is away on sabbatical this fall, but don't worry, we've still got our eyes on the cosmos and are working hard to improve your experiences at the Planetarium.

Part of Mark's sabbatical leave is devoted to receiving new training on how to do even more with the Planetarium's Digistar 5 system, allowing us to bring the wonders of the universe to you in new and exciting ways. He's attending a week-long workshop at Evans and Sutherland in Salt Lake City and following up on that by spending extra time in our production studio, working on new content for our public and school planetarium shows.

Speaking of new content, Friday nights at the Planetarium are about to get more interesting as we have some new fulldome features coming your way.

The Hot and Energetic Universe, a new fulldome planetarium show, from the European Southern Observatory will be making its debut at the Palomar College Planetarium in early November. The show takes audiences to some of the most extreme objects in the known universe, while highlighting the work done with some of the cutting-edge telescopes on Earth and in space that astronomers use to understand them.

Viewers will get to ride along as astronomers probe colliding galaxies, exploding stars, dead stellar cores and supermassive black holes. This immersive fulldome feature shows how the high-energy light emitted by these objects gives astronomers new ways of understanding them.

But wait, there's more. A second fulldome show—*Faster Than Light: The Dream of Interstellar Flight* is also coming to the Planetarium. Making its debut early next year, *Faster Than Light* explores what humanity might someday achieve by flying across the universe in the spacecraft of the future.

Our audiences will be able to see what's out there as they fly along at ultra-high speeds, using exotic next generation rocket fuels and new breakthrough concepts in physics.

Narrated by actor Sean Bean (*The Fellowship of the Ring*, *The Martian*, *Game of Thrones*), *Faster Than Light* won the Director's Award at the 2017 Fulldome Brno Festival.

The two new shows will play in rotation along with our other popular fulldome features in the 8:15 pm time slot: *Moons of Mystery* and *From Earth to the Universe*.

The Planetarium is committed to providing high quality, informative and entertaining shows for the visiting public and especially our Friends of the Planetarium members. We are grateful for your support, which helps us to be able to continue to expand and improve our programming.

As we head deeper into fall and the end of the year it is time to remind our regular visitors that the Planetarium will be open on most Fridays, but not all of them. This year we will be closed on November 10th (Veterans Day weekend) and as usual we will be closed the day after Thanksgiving (Black Friday). We will also be closed the Fridays surrounding the Christmas and New Year holidays.

But don't forget, we'll be here the rest of the Fridays showing you what's cool in our Autumn and Winter skies. So if it has been a while, why not come over to see what's up.

I hope to see you at the Planetarium soon!

Successful Planetarium Eclipse Expedition

by Scott Kardel (Assistant Planetarium Director)

Monday, August 21st was a day that many members of the Planetarium staff had been looking forward to for years. Decades, in fact. It was the first total solar eclipse in the continental U.S. since 1979, and an event that many on staff didn't want to miss. It also was the first day of instruction for the fall semester at the college. Logistically it would have been very difficult for visitors to come (and park!) at the college to see the eclipse on the first day of classes, so we decided to close the Planetarium for California's partial eclipse, giving staff members a chance to travel to see the Moon totally cover the Sun, instead only the 65% that was covered in Southern California.

Planetarium Director Mark Lane, Assistant Director Scott Kardel, Host Mike Vergara, Planetarium Administrator Susan Vergara, and Telescope Operator Shaun Haynie, along with some spouses and friends packed up their gear and headed for the path of totality, a quiet site next to a wheat field near Menan, Idaho. Logistics for picking the site and gaining permission to observe there were expertly handled by Friends of the Planetarium member Richard Garcia. He did a fine job as observing conditions for the eclipse were perfect with no clouds or wind.



The eclipse began at 10:15 a.m. and as it progressed it was obvious to all that even if you hadn't known a solar eclipse was happening, you would have been aware that something strange was going on. About half an hour into the eclipse the lighting was noticeably grey and the temperature was starting to cool. As the Moon moved further over the face of the Sun the cooling and dimming of the light increased. The observing site was a buzz of activity as cameras, telescopes, and observers wearing those stylish eclipse glasses were all trained skyward. Richard Garcia called out a countdown as totality was approaching.

As the Sun's final last bit of light was fading away at least one member of the observing team sighted shadow bands, an elusive optical effect where faint ripples of light and shadow can be seen moving

across the landscape.

Finally, the big moment arrived. The famous diamond ring effect became visible as the Moon obscured the last bit of the solar disk. Protective eyewear and solar filters were removed so that everyone could see and photograph the ethereal solar corona. The corona is one of the rarest sights in nature—streamers of million-degree gas that form part of the Sun's outer atmosphere. Silvery-white in color, no photograph quite captures the experience of seeing the corona with your own eyes. The light of the corona is much less intense than that of the full moon. Bright stars and planets were visible in the dark sky of totality, while the horizon

in all directions displayed the orange glow often seen in morning or evening twilight.

All glory is fleeting. This especially true for total solar eclipses. From their observing location in Idaho, the Moon's shadow was 65 miles wide and racing across the landscape at 1,900 miles an hour. Totality lasted just 2 minutes and 16 seconds, a time that felt more like eight seconds. The Sun's light returned (a view that is compared to a diamond ring), signaling the end of an amazing, once-in-a-lifetime experience. The

solar filters and eclipse glasses were put back into position as daylight came once again to the landscape.

Most members of the expedition drove to the eclipse, which afforded them the luxury of being able to haul an array of telescopes, cameras, computers, tripods and other gear to help capture the big event. This also allowed them to take their time returning to home. The Kardels needed to make a quick return, which meant that soon after glimpsing the stunningly beautiful solar corona they faced a 7.5 hour traffic jam to get to the airport in Salt Lake City. An experience that brought them back to reality, but didn't diminish the awe of seeing a total solar eclipse.

If you missed the experience, don't despair. Another one is coming to the U.S. in 2024.

The Space Race: A Special Event

Join us at the Planetarium Saturday, October 21st at 7:00 p.m. as the Friends of Palomar College Planetarium welcomes space historian and author Francis French for an exciting talk on the space race.

In the 1960's, two superpowers were engaged in a titanic battle to land the first human on the moon. Why did America get there first? And why was Neil Armstrong chosen as the person to make that first step? In this talk, Francis French will take you through the colorful personalities and risky decisions that led up to the historic moment of the first moon landing.

Francis is the Director of Education at the San Diego Air & Space Museum. He has written numerous magazine articles and co-authored several books, including: Into that Silent Sea and In the Shadow of the Moon. Both books were finalists in 2007 for the Eugene M. Emme Award given by the American Astronautical Society. He co-authored Falling to Earth, the autobiography of Apollo 15 astronaut Al Worden (released in 2011) and was the editor for Apollo Pilot, The Memoir of Astronaut Donn Eisele, released earlier this year.

The doors open at 6:30 p.m. Refreshments will be served. This event is exclusive to Friends of Palomar College Planetarium members. If you are not a member you can join the Planetarium on the day of the program. Contact the planetarium to reserve your seat.

The event is free to members, but seating is limited. Please reserve your seat by emailing the Planetarium at planetarium@palomar.edu or calling 706-744-1150 ext. 2833 and leaving a message of how many people will be attending.



Join the “Friends of the Planetarium”

Your membership will help support Public Outreach!

The planetarium at Palomar College is a beautiful facility built to serve Palomar College and the Community of San Diego. However it is very expensive place to operate — operational costs are paid for only from our weekly revenue. We take great pride in offering a quality educational and entertaining presentation to all visitors to the planetarium while keeping our ticket prices low and affordable - offering many discounts to kids, seniors, military, and students. With the exception of the salary of the Planetarium Director, there is NO additional regular funding provided by the College. As you may know the College is facing one of the most difficult financial times of its 65 year history and additional funding for the planetarium is not possible. The Planetarium must be self-supporting and so relies on revenue from ticket sales and, more importantly, we rely on the generous donations made by the community.

Your donation can help support the Planetarium!

Student Workers

The planetarium support staff is composed of student workers from Palomar College and other local colleges. These workers learn valuable skills related to running a public outreach venue, operating telescopes, and using the Digistar 5 presentation technology. Your donation helps us pay the hourly wages of these student workers and provides an income while they are attending college courses.



Public Outreach

Public outreach is one of the main missions of the planetarium. Most of the public outreach events that we offer are free to the public but have certain inherent costs involved that become difficult when we offer an event to the public at no cost but still pay our student workers and pay for refreshments and other costs involved. Your donation helps us offset these costs and allows us to offer more events for you to participate in!

Here are a few ways your donation helps our public outreach mission:

- ***Providing opportunities for the public to participate in timely astronomical events***
The planetarium opens its doors to the public when there are astronomical events that can be observed by the public. We set up telescopes and provide programming in the planetarium theater to help the public learn more about the event.
- ***Guest Speaker Program***
Your donation pays for logistical support of inviting guest speakers and paying for the related costs such as honoraria, lodging, etc.
- ***Purchasing telescope equipment that is used on our Public Nights and other public events***
Each Friday we set up our telescopes to allow the public to

view the various celestial objects that are visible for that night. We are in need of additional equipment to go with the telescopes (such as eyepieces, filters, finders, charts, etc.) Your donation helps us pay for this equipment.

Full Dome Features

Each week we offer a full dome feature that is a visually immersive way to take the audience on an astronomically related journey. These shows are critically acclaimed and professionally produced by Hollywood caliber production studios. However these features are expensive - often costing \$12,000 or more to license to the planetarium so that we can offer them to you. Your donation helps us come up with the funds to acquire more shows and offer a richer variety of features to the public.



How To Make A Donation

Just by attending any of our planetarium shows you are supporting the planetarium with your ticket purchase. However if you are interested in supporting public outreach at the planetarium your donations are tax-deductible and can be made to the planetarium in any amount. Here are a few ways to make a donation:

Join the “Friends of the Planetarium” - By joining the Friends of the Planetarium you will become part of our planetarium family. Members enjoy discounted or free show tickets, early seating for planetarium shows, discounts in the gift shop, invitations to members only events at the planetarium and more. Your membership is tax-deductible. More information is found at www.palomar.edu/planetarium/FOP.htm

Mail us a check - Make the check payable to "Palomar College Foundation" and put in the memo "Planetarium". Mail it to: Palomar College Planetarium, 1140 West Mission Road, San Marcos CA 92069. Once the check is received we will send you a thank you letter with information for your taxes.

Donation Made Through Our Website - Donations can be made with a credit/debit card through our planetarium website.

Donation Made When Purchasing Tickets - During the online ticket purchase procedure there is an option to make a donation to the planetarium in any amount.

In Person - We have a donation box in the lobby of our planetarium. Every dollar donated helps us reach our public outreach goals!

We thank you for considering a donation to the Palomar College Planetarium. Your donation will support the public outreach mission of the planetarium and help us keep this wonderful facility a dynamic place that offers a quality experience and educational shows to the students and public of the Palomar College community!

Come Join Us at the Planetarium

The Planetarium at Palomar College is open to the public every Friday evening

Each Friday evening we offer two types of shows for the general public. *The Sky Tonight* is a live tour of our current night skies where the audience is taken on a visual journey exploring current constellations, visible planets, and the astronomical news & events of the week.

Our *Fulldome Feature* uses the full-dome capabilities of the Digistar 5 projection system to present a featured show that explores various astronomically themed topics that are both educational and entertaining for our audiences.

Additionally, we offer free public telescope viewing on our patio. Join us as we use our telescopes to view many of the objects discussed inside the theater. Typically the Sun, planets, and the Moon are visible in our urban skies (weather permitting).



*Two Great Shows -
One Memorable Evening of
Science and Fun!*

Every Friday Evening We Offer:

7pm The Sky Tonight

- Discover constellation patterns and their mythology as we tour our current night sky
- Prominent celestial objects currently in San Diego skies are highlighted
- Astronomy news and events are discussed

8:15pm Fulldome Feature*

Fulldome Digistar productions presenting various astronomical topics that are educational and entertaining

* Titles will vary. See website for current show information.

Plus: Telescope viewing on the patio (weather permitting)

All shows are suitable for all audiences 5 years old and older. Sorry, group sales are not available for our public nights.

Tickets are affordable and discounts are available!

(tickets can be purchased in advance—online)

www.palomar.edu/planetarium



www.palomar.edu



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PLANETARIUM

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