

# The Starry Messenger

The Official Newsletter of the  
Palomar College Planetarium

Fall 2016

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Do you have questions?  
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## Did you know?

- The original Palomar College Planetarium opened in 1965 and was the *first* planetarium in San Diego County?
- We have free telescope viewing on the patio each Friday? (weather permitting)
- It takes nine computers to create the display on the dome? The software that is used is called "Digistar 5" from Evans and Southerland.

## Fall is a Time for Change

by Mark Lane (Planetarium Director)

Fall is a time of year when the long days of summer wane and the long nights of winter approach. Most astronomers welcome the longer nights since it allows them a greater span of time to observe the universe. For the Planetarium, fall is a busy time for us as we begin the new school year and welcome newcomers to our shows. It is also a time when I reflect on the progress for the year.

We had another successful year at the planetarium with near-record attendance for both our public Friday evening shows and our school field trip visits. Over the past year we had several sold out shows as the New Horizons spacecraft encountered the dwarf-planet Pluto. Our Friday audiences at the planetarium were treated to weekly updates and images as they came in from the spacecraft. This historic mission has given us the best images ever of this enigmatic world and explained a few mysteries while discovering many more. New images continue to come in as the data trickles back to Earth over the next year so be sure to keep us in mind as a place to come for frequent updates. Think of the planetarium as a place where you can learn about the night sky AND learn about the latest astronomy and space news. Consider following us on Facebook for regular updates and announcements. As always we thank you for your patronage—we couldn't do it without you!

The biggest news from the Planetarium this year is that we upgraded our projection system from *Digistar 4* to *Digistar 5* this past June. On its surface the change may only seem like a bigger number but it involved both software and hardware and I encourage you to read about the details in Scott Kardel's article on page 2 of this newsletter. This upgrade has been in the works for about a year as we scraped together the funds needed to make it happen. What it does is make the planetarium once again a state-of-the-art

facility capable of creating the most realistic views of the universe possible using today's modern software. Audiences can journey to worlds that are more realistic looking than ever while being treated to the most up-to-date views of our solar system. If you haven't been to the planetarium in a while, I would encourage you to come on by and see what Digistar 5 has to offer!

The other bit of news is our newest Fulldome feature: "From Earth to the Universe". This new show was created by the European Southern Observatory (ESO) and it takes audiences on a journey to various observatories around the world as well as displaying some of the dazzling discoveries being made by the astronomers that work in these incredible places. Using the full dome allows us to immerse the audience in the scene making you feel like you are in the observatory dome along with the astronomers. Details of this new show are on page 2 of this newsletter. It is a terrific new show and is now in regular rotation with our other three features. I encourage you to come by and check it out. Remember that our website has all of the information you need about show dates, times, and ticket prices. You can even purchase your tickets ahead of time through our online ticket portal. It is easy and there is no fee to use it!

Finally, I want to remind our regular visitors that as the holidays approach, the Planetarium will be open on *most* Fridays this time of year. This year we will be closed on Veterans Day, and as usual we will be closed on Black Friday and the Fridays surrounding Christmas and New Years. But, if you are looking for something fun to do and you want to learn about the Autumn/Winter skies, I encourage you to come on by and learn about what is up in our current night sky.

I hope to see you at the Planetarium!

## Introducing Digistar 5!

by Scott Kardel (Assistant Planetarium Director)

If you've been to the planetarium lately you may have noticed that our sky has a new, more vivid look. That's because this past summer we upgraded our software to the Digistar 5 system that allows us to bring the universe to you in ways we've never been able to do before.

The new software has been optimized by the planetarium staff to show you a more vibrant Milky Way, with realistic twinkling of the stars and far more color than we were previously able to present in the planetarium's sky. The next time you are in the theater see if you can spot the color of the Red Planet Mars, the orange of the star Antares or the blue of Lyra's Vega. We think that our new sky looks more like the real one (minus the light pollution) than ever before. The Digistar 5 also renders the surfaces of planets and other astronomical objects with an amazing attention to detail. We can now show the surface of dwarf planet Pluto just as it looked when the New Horizons space probe flew past it in 2015. It's heart-shaped frozen plains and icy mountains look like you're right there. Planets with atmospheres are rendered with greater accuracy, revealing a beautiful thin ring of atmospheric glow that can be seen as we orbit around a planet's night side. Our audience now gets a view that's almost as good as what the astronauts see, but without having to go through all the training.

Another nice feature is our new ability to take a Google Earth type view of the college and planetarium. From that spot, just above the campus, we can then zoom outward and into the cosmos at velocities far in excess of the speed of light. With one continuous zoom outward we can pull back from San Marcos and head upward to reveal our entire Earth and then continue right out of our solar system and across and even out of our Milky Way galaxy. From there we can head outward still farther into the realm of the galaxies or reverse course and head right back home, ending where we started at the planetarium. We are still working on the best way to incorporate this into our regular Friday *The Sky Tonight* shows, but you should be flying across the universe with us soon.

The planetarium's upgrade also gives our staff new and powerful soft-



ware that not only displays objects in the night sky, but also allows us to control time and space. The Digistar 5 is the engine behind our presentations that makes it all possible. So, for instance, when a presenter wants to bring the audience out into space to view our Earth, sometime before the show they wrote a set of instructions that tell the computers just how to create the visuals for that part of the show. Scripting, as it is called, can be pretty involved when the presenter wants to show off a very specific thing. Thankfully, the Digistar 5 system comes with something called Show Builder, which makes the job much easier. We think that will allow us to take you to places in the cosmos that you've never seen before.

That's not all. Your planetarium is now connected with other planetaria around the world in a way that allow them to freely share their content with us. So as other production teams (with larger staffs) create new visualizations, we can now find them and bring them to you through something known as the Digistar Cloud. We're still exploring the content, but have already found some gems that we'll share soon.

Our upgrade was more than just the installation of new software though. Inside the theater we now have a pair of new alignment cameras that allow our operators to effortlessly align the projectors that put the stars on the dome. Having the projectors precisely in sync keeps our view of the stars and other celestial objects seamless as they move from one part of the sky to another. Upon seeing the new system in operation, Planetarium Director Mark Lane said that the alignment now is better than it has ever been. The push-button system works by projecting a grid on to the dome, which is then photographed and brought into perfect harmony by the Digistar software. But don't worry. We aren't opening our shows with a giant test pattern. All this happens well before the audience enters the theater, so that we can bring you a flawless night sky.

It will still take a little time for our staff to fully utilize the full power of our new Digistar 5 system, but we are excited to have all these new features available for you to enjoy and we look forward to rolling them out in our shows this fall. Stay tuned!

## Now Playing at the Planetarium:

*"From Earth to the Universe" (ESO)*

We have a new Fulldome show that has been added to our regular rotation—"From Earth to the Universe". The night sky, both beautiful and mysterious, has been the subject of campfire stories, ancient myths and awe for as long as there have been people. A desire to comprehend the Universe may well be humanity's oldest shared intellectual experience. Yet only recently have we truly begun to grasp our place in the vast cosmos. To learn about this journey of celestial discovery, from the theories of the ancient Greek astronomers to today's grandest telescopes, we invite you to experience *From Earth to the Universe*. Revel in the splendor of the various worlds in the Solar System and the ferocity of the scorching Sun. *From Earth to the Universe* then leaves our home to take the audience out to the colorful birthplaces and burial grounds of stars, and still further out, beyond the Milky Way, to the unimaginable immensity of a myriad galaxies. Along the way, the audience will learn about the history of astronomy, the invention of the telescope, and today's giant telescopes that allow us continue to probe ever deeper into the Universe. Visit our website for information about show dates. We hope to see you there!



## 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.



Just by attending any of our planetarium shows you are supporting the

## How To Make A Donation

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](http://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*

**E**ach 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.

**O**ur *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.

**A**dditionally, 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.

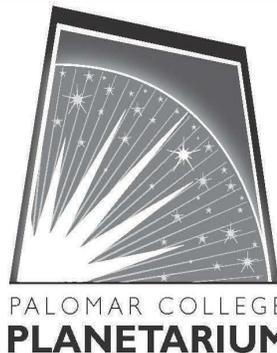
**Plus:** Telescope viewing on the patio (weather permitting)

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](http://www.palomar.edu/planetarium)**



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