



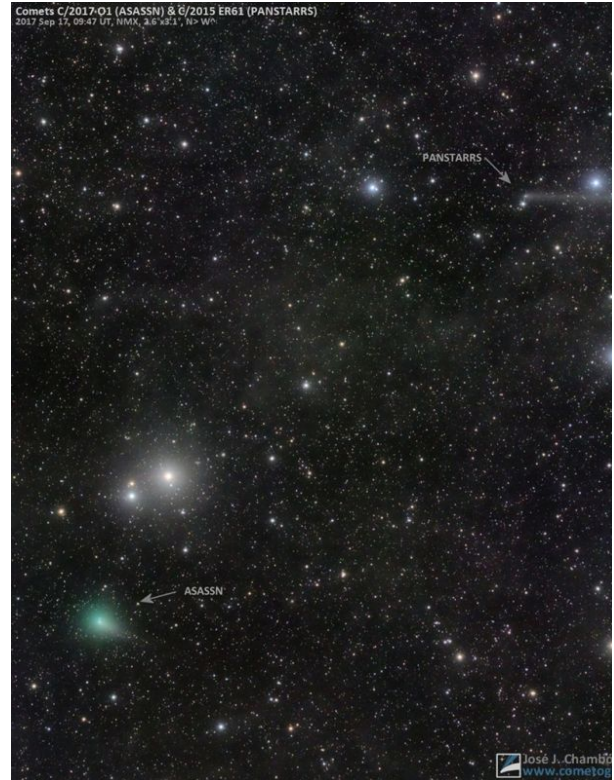
# Temecula Valley Astronomer

The monthly newsletter of the Temecula Valley Astronomers Oct 2017

## Events:

**General Meeting : Monday, Oct 2, 2017 at the Temecula Library, Room B, 30600 Pauba Rd, at 7 pm.** Vice President Skip Southwick will do the "What's Up". Chuck Dyson will talk about his eclipse experience. Paul Kreitz will do a eulogy on Cassini. President Mark Baker will do a presentation on the Perth Observatory. Chuck Dyson will supply refreshments.

For the latest on Star Parties, check the [web page](#).



*[NASA APOD: A Conjunction of Comets – 01 ASASSN & ER61 PanSTARRS –](#)*

*[Jose J. Chambo \(Cometografia\)](#)*

## WHAT'S INSIDE THIS MONTH:

### Cosmic Comments

by President Mark Baker

### Looking Up

by Curtis Croulet

### Random Thoughts

by Chuck Dyson

### Cassini Says Goodbye

By Teagan Wall

Send newsletter submissions to Mark DiVecchio <[markd@silogic.com](mailto:markd@silogic.com)> by the 20<sup>th</sup> of the month for the next month's issue.

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## General information:

Subscription to the TVA is included in the annual \$25 membership (regular members) donation (\$9 student; \$35 family).

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## Cosmic Comments – Oct/2017 by President Mark Baker

In our travels of late, we've made it a point to meet up with amateur astronomers wherever we go. This August, I had connected with an astrophotographer, William Tan, in Southern Malaysia but our schedules didn't match so talking was all we did. People like William do a phenomenal job of doing Astronomy because they only get maybe two dozen nights each year at best to ply their hobby, and they squeeze every moment in they can.

We again joined [TASOS](#) in Singapore for their regular Friday night event and I was so impressed with their desire to "put on a show" in spite of inclement weather... and boy, did it pour!!! But as the skies cleared, they were up and running within 20 minutes and put on a pretty good show despite HIGH humidity and the normal light polluted skies. The hundreds that hung in there, mostly foreign laborers, got a treat, and great dialogs were to be found all over the venue.

We then traveled to Perth in Western Australia and made a trip to the [observatories](#) in the hills above. Not only did we luck out with great skies – albeit everything was upside down!!! - but the volunteers that now run the facility stayed on after the regular tour / show to give us a detailed look and insight into their pride and joy until after midnight. So many stories to tell...

The bottom line again is that us "amateurs" are the same the world over...we LOVE the skies and to talk about them, all the while learning more and more.

I know I thank you at TVA every month, but it is heartfelt thanks and I'm unlikely to discontinue the practice...so Thank You for all you do in the name of things Celestial and Scientific. Enjoy!!

Clear, Dark Skies my Friends...



## Note from the Editor

After 22 years, Curtis Croulet has retired his "Looking Up" column. His guidance over those years helped me especially finding objects for Star Party viewing. I'm hopeful that he will still present us with occasional articles about what is "Up" there.

In the meantime, please consider writing an article. My father always told me that an expert is someone who knows 5% more than the general public. By that measure everyone of us is an expert on something. Show the world – write an article.





## Random Thoughts by Chuck Dyson

### Scattered Thoughts and Scattered Shots

Photos by the Author

Your first thought is probably something like this “look here bub I am over 70 years old and if I have learned anything it is that if I am lucky hyped events are 50% hype and 50% event and if I am unlucky the event is 80% hype and 20% event with overcharging for everything by everybody”. So, why would anyone drive for three days to see a two and a half minute event?

Now as Barb will tell you I could be the last person that you should pose that question to as I write a monthly column for my astronomy club newsletter in addition to working with a group of astronomy club members to put on star parties at schools and giving astronomy science talks to local science clubs, yes I am a bit obsessed and Barb is forced to live with my extensive telescope collection. Taking my prejudices into consideration I have to say that in my opinion an eclipse is no more than 1% hype and 99% event which is to say it was a spectacular thing to see and experience; I also have to say that Barb, watching replays of the eclipse on television later that night, commented that watching it on television was absolutely not the same as experiencing it in real time. I think that our group’s eclipse experience was enhanced

because I had brought a pair of large binoculars with solar filters and a 4 1/2 inch refractor telescope with solar filter and viewing the progression of the eclipse magnified 20x to 30x lets you see details on the sun and see the moon’s edge slowly creep up on sun spots, there were two sun spot groups on the day of the eclipse. Without magnification the sun in the eclipse glasses is a small bright circle and the moon is a small black circle. With magnification the sun and moon become real celestial bodies that are interacting and the visible features that are on



the sun and are slowly gobbled up by the moon prove that these two bodies are on the move relative to one another. Another thing that you must know is as Mark Twain said “when writing a novel the difference between exactly the right word and almost the right word, is the



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difference between lightning and a lightning bug” and the same can be said for the difference between a partial eclipse and a total eclipse as the partial eclipse is cool to look at but the total eclipse has an overwhelming effect on your sensibilities and psyche.

The decision to go to Nebraska to see the eclipse was an easy one as my son-in-law’s mother, Linda, lives there and she insisted that we stay with her, no problem, and it did not hurt that she was a very good cook. The biggest advantages of staying with people that know the area are only eating in good restaurants, the best of local tour guides to show you the best of the local sights, and having people who really know the local weather patterns advise you as



to where to go to view the eclipse. On the advice of Linda and her brother Jack early on the morning of the eclipse, 6:30AM, we headed west while NASA and Bill Nye stayed in the far eastern part of the state. When we reached our target area we turned off the interstate on to a country highway to see if we could find a decent observing spot near the center line of the eclipse. About 13 miles off the interstate we found a turnout with a flat area less than one-half mile from the centerline of the eclipse and only about third of a mile from a very small town with potties, perfect. We had just started setting up at 8:30 AM when another car pulled up and asked if it was OK for them to use the area for observing too and as it was state land we said sure. Now you may want to ask yourself “how many people will wander 13 miles off the interstate to look for an observing site” and the answer is that by the time the eclipse started there were over fifty cars in our little area with people from as far away as Denmark but representatives from Texas were also present and Barb and I were not the only ones from California, this was our first experience with a [flash mob](#). As for the eclipse itself the sun played peak-a-boo with the clouds all morning to the point that we could barely see the sun in the binoculars and the telescope when the moon made first contact with the sun, oh dear I thought this is going to be a bust. When the moon was half way across the sun the clouds headed off to the East and we had perfect skies for the entire rest of the show including the two minutes and thirty-five seconds of totality and as for the clouds, well it appears that they went over Beatrice where NASA, Bill Nye, and 13,000 people had gone to watch the eclipse. The people in Beatrice did get to see a little less than thirty seconds of the total eclipse and they were happy but only the members of the West Nebraska Flash Mob knew what they had missed by not being able to see the whole event under clear skies.





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As for the eclipse itself it a very strange phenomenon because as the moon covers more and more of the sun your eyes adjust to the increasing darkness by permitting more and more light to fall onto your retina with the result that you don't perceive that there is a decrease in sunlight until your eye reaches the end of its adaptive capacity and then with the sun about 80% covered by the moon it starts to get dark.

Darkness increases at a steady stately pace until the last little bit and then it seem as though there is an absolutely frantic rush to totality. Totality catches you completely by surprise and you say AWE because, well, it is an awe inspiring moment. I have experienced darkness in the middle of the day before, step into a dark room and it's dark but the outside world is light, have a thick cloud cover come in and it's dark

and there is no sun; however, with an eclipse, no room, no clouds, the sun has just stopped producing light. For the first time in your life you look at the sun and instead of turning away because of the intense light you see only the blackest of circles where the sun should be and only a faint halo of light around it. My brain literally screamed at me the sun is dead! DEAD!! DEAD!!! And we are in big trouble!



Then of course reality takes over and you realize that you have only two minutes and thirty-five seconds to observe and capture the eclipse; and you rush to the binoculars and remove the solar filters and center the black sun disk in the center of the field of view and take note of the streamers and the length of the streamers in the corona, rush to the telescope, remove the solar filter, jump to the back of the telescope and switch from the disc viewing eyepiece to the corona viewing eyepiece, center the sun, focus the scope and take just a few seconds to view the corona in all of its glory.

Quickly now over to the camera and remove the solar filter get the sun into the view finder, zoom out to 50X magnification, rats, lost the image, back off on the zoom, reacquire the image and zoom out again, hit the wrong calibration buttons and crash the camera's program, panic, turn off the camera, turn on the camera and start the process over again and remember you have only two minutes thirty-five seconds to see and record this event. Get two shots at 50X, one shot at 30X tell the people on the telescope that I need to adjust it (just an excuse to get another look at the corona), go back to the camera and get two more shots at 30X to try and



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capture as much of the corona as possible, step back to take a breath look up and I see the diamond ring appear on the edge of the sun, the eclipse is over. The first thing that I hear is Linda saying "it cannot be over" and when I say "yes it is" she responds "Oh my God, that was the fastest two and a half minutes in my life". The second thing I hear is Barbara saying "it's so bright, why is it so bright?" because our eyes have become dark adapted the returning sun light crashes upon us like a giant tsunami of photons and we are all blinking and blinking in the bright sunlight and it does seem as though the sun is throwing extra light onto the earth to make up for the time lost during the eclipse.

Gradually our eyes readjust to daylight and our world returns to normal. I put the solar filters back on the binoculars, telescope, and camera and some people come over to see the retreating moon and I take two shots of the emerging sun but really the show is over and we are emotionally drained. Because we knew that the eclipse would be an all day event we had brought a picnic lunch to eat after the eclipse, as we ate our lunch, every one enthusiastically recounts their personal experiences of the eclipse, several times. When the lunch was over, I look up and faster than it had come the flash mob has dispersed, once again we were alone in a field of prairie grass in the middle of Nebraska. A friend of mine went to Wyoming to view the event and when it was over he said the most common question that he heard was "[when is the next eclipse?](#)" and that is the way that I feel, when is the next eclipse indeed as I just have to do this again.

Cheers  
Chuck





## NASA SpacePlace

### Cassini Says Goodbye

By Teagan Wall

On September 15th, the Cassini spacecraft will have had its final mission. It dove into the planet Saturn, gathering information and sending it back to Earth for as long as possible. As it dove, it burned up in the atmosphere, much like a meteor. Cassini's original mission was supposed to last four years, but it orbited Saturn for more than 13 years!

The spacecraft has seen and discovered so many things in that time. In 2010, Cassini saw a massive storm in Saturn's northern hemisphere. During this storm, scientists learned that Saturn's atmosphere has water vapor, which rose to the surface. Cassini also looked at the giant storm at Saturn's north pole. This storm is shaped like a hexagon. NASA used pictures and other data from Cassini to learn how the storm got its six-sided shape.

Cassini also looked at some of Saturn's moons, such as Titan and Enceladus. Titan is Saturn's largest moon. Cassini carried a lander to Titan. The lander, called Huygens, parachuted from Cassini down to the surface of the moon. It turns out, Titan is quite an exciting place! It has seas, rivers, lakes and rain. This means that in some ways, Titan's landscape looks a bit like Earth. However, its seas and rivers aren't made of water—they're made of a chemical called methane.

Cassini also helped us learn that Saturn's moon Enceladus is covered in ice. Underneath the ice is a giant liquid ocean that covers the whole moon. Tall geysers from this ocean spray out of cracks in the ice and into space, like a giant sneeze. Cassini flew through one of these geysers. We learned that the ocean is made of very salty water, along with some of the chemicals that living things need.

If there is life on Enceladus, NASA scientists don't want life from Earth getting mixed in. Tiny living things may have hitched a ride on Cassini when it left Earth. If these germs are still alive, and they land on Enceladus, they could grow and spread. We want to protect Enceladus, so that if we find life, we can be sure it didn't come from Earth. This idea is called planetary protection.

Scientists worry that when Cassini ran out of fuel, it could crash into Titan or Enceladus. So years ago, they came up with a plan to prevent that from happening. Cassini completed its exploration by diving into Saturn—on purpose. The spacecraft burned up and became part of the planet it explored. During its final plunge, Cassini told us more about Saturn's atmosphere, and protected the moons at the same time. What an exciting way to say goodbye!

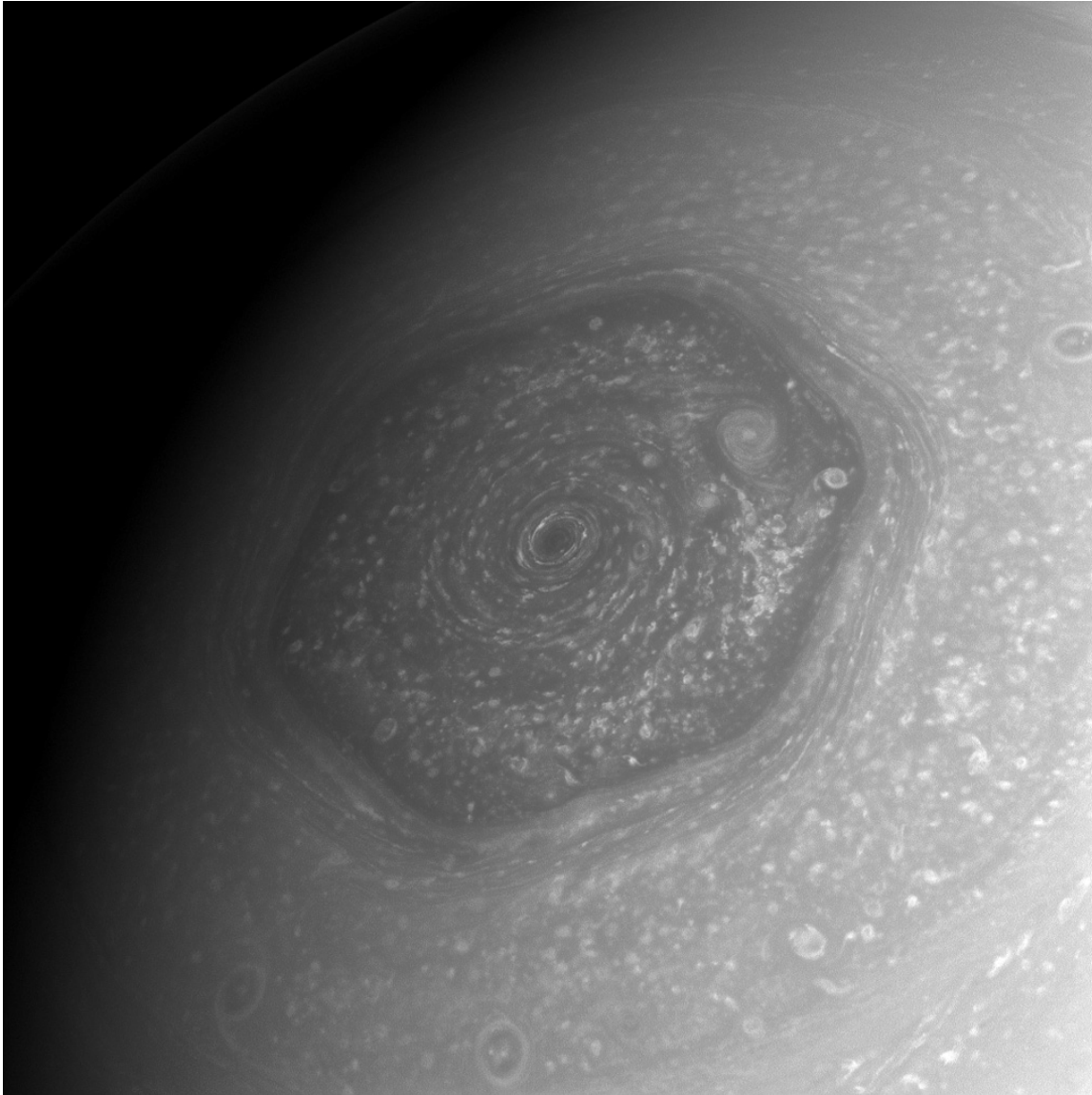
To learn more about Saturn, check out NASA Space Place: <https://spaceplace.nasa.gov/all-about-saturn>



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*Caption: This image of the hexagonal storm on Saturn's north pole was taken by Cassini in 2013.  
Image credit: NASA/JPL-Caltech/Space Science Institute*

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The TVA is a member club of [The Astronomical League](#).

