Temecula Valley Astronomer

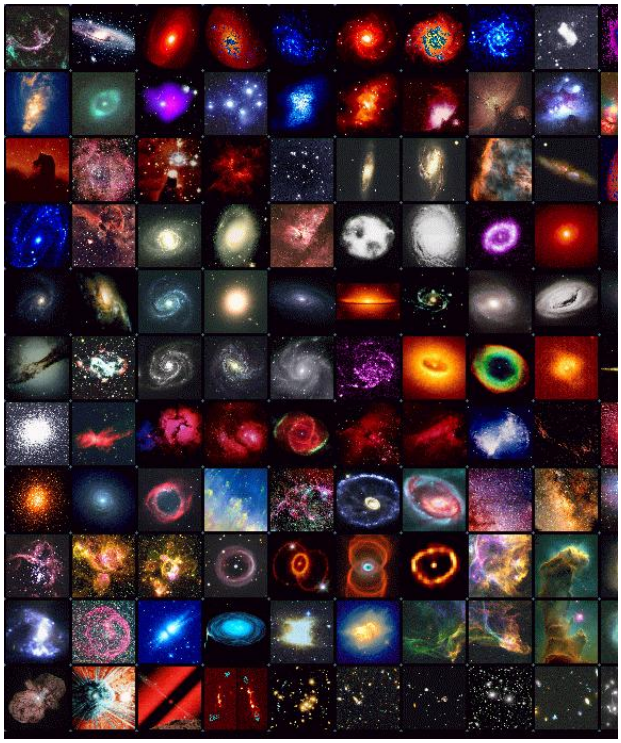
The monthly newsletter of the Temecula Valley Astronomers Mar 2018

Events:

General Meeting : Monday, Mar 5, 2018 at the Temecula Library, Room B, 30600 Pauba Rd, at 7 pm.

After the usual opening comments by President Mark Baker and "What's Up" by Skip Southwick, Mark will speak on "The Perth Observatory – an interesting history of accomplishment" .

Please consider helping out at one of the many Star Parties coming up over the next few months. For the latest schedule, check the Calendar on the web page.



Messier Objects - www.messier.seds.org - collage by Rohan Janos

WHAT'S INSIDE THIS MONTH:

Send newsletter submissions to Mark DiVecchio <markd@silogic.com> by the 20th of the month for the next month's issue.

Like us on Facebook

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
by President Mark Baker

I was asked a while back what exactly is it I do for NASA JPL. I explained, as always, that I am a Solar System Ambassador that voluntarily supports the mission of those organizations by promoting an awareness of What's Up and humanity's efforts to learn its place in the vast Universe. Sometimes people are surprised to learn the only compensation I receive is satisfaction from even minutely increasing awareness of our Cosmos…

But this is what some of us do as docents for CalTech Palomar too, and what we all do as members of the TVA…there is joy in being an integral part of an "AHA" moment for youth or adult alike. That is payment enough…

So I guess you could say I'm an Outreach junkie…I love this stuff!!! And I appreciate those that, maybe for different reasons, jump in and get involved as well…yes, it does involve a personal sacrifice on our part, but the first time you hear that WOW, it's really easy to getting hooked on wanting more such experiences!! And WOW's come across all demographics and diversities…

Providing a telescope or binoculars is not the only way to be involved at Star Parties. We can always use mentors to walk the lines, laser point out what is being viewed in that equipment, and provide what information you can on the objects…it's fun stuff!!!

Again, as always, thanks for what you all do to open up the heavens for those who maybe wouldn't otherwise even look up!!

Clear, Dark Skies my Friends…

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Looking Up Redux
by Clark Williams

ALL TIMES ARE LOCAL PST WILDOMAR

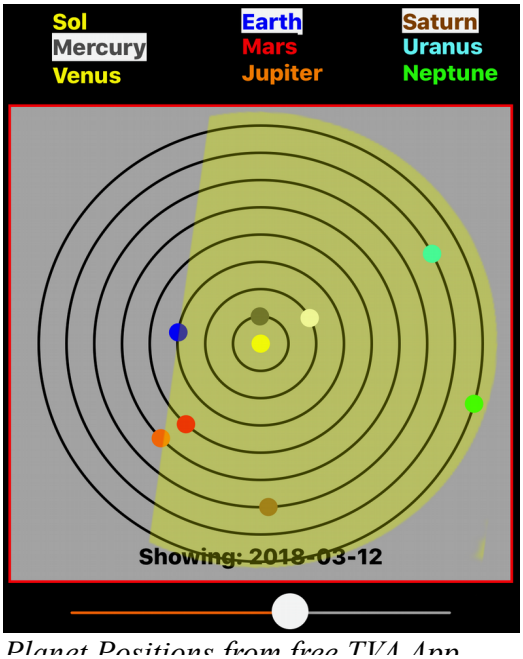
Times are given in 24-hour time either as hh:mm:ss or hhmmss. A time given as hhmm+ indicates that it is the hour of the next day. Similarly a time hhmm− indicates a time in a previous day.

Moon Phases for the month by date (all times local)**:**

2018-Mar-01 Thursday @ 16:52:26 FULL MOON
2018-Mar-09 Friday @ 03:21:03 LAST QTR
2018-Mar-17 Saturday @ 05:12:47 NEW MOON
2018-Mar-24 Saturday @ 07:36:17 FIRST QTR
2018-Mar-31 Saturday @ 04:38:01 FULL MOON – 2nd BLUE MOON this year
Perigee comes on 2018-03-26 @ 10:16 369,106 km (229,352 mi)
Apogee comes on 2018-03-11 @ 01:13 404,678 km (251,455 mi)

2018 has: (12) new moons, (12) 1st Qtr moons, (14) Full moons, (13) 3rd Qtr moons
(2) Blue moons and (1) Black moon

Luna: Luna can be found in Leo at the beginning of the month transitioning to Virgo by the end of the month. The “real stars” of the month are unencumbered by the Full moon in March giving us a perfect Messier Marathon on the 17th.



Planet Positions from free TVA App

Planets:
Planetary Positions March 2018:

- **Mercury:** Mercury will be pretty much lost in the sun's glare.
- **Venus:** Is right next to Mercury.
- **Mars:** Mars is buried in the sunrise but will be sneaking into darker skies. It starts the month rising at 0133 and has moved to 0052 by the end of the month.
- **Jupiter:** Jove is moving into darker skies rising near sunrise in the early part of the month and moving to about 2100 hrs by the 31st.
- **Saturn:** Saturn following Mars' lead. Rising around 0244 at the beginning of the month and following on the heels if Mars at 0052 by the 31st.
- **Uranus:** Uranus has slipped into Sol's glare.
- **Neptune:** (see Uranus)

- **Pluto:** Pluto still has a Visual Magnitude of +JU (just unobservable) and is spending most of its time in Sol's glare.

This planetary observing dearth will continue until April/May!

Meteors:

- March just doesn't have anything interesting for meteors in 2018 April will have the Lyrids but for now you will have to be content with your 5-meteors per hour average.

Comets:

- There are several comets coming in 2018 but for March they all have an apparent magnitude between 15 and 21. April will show an improvement (small) in comets.

Deep Sky:

In each case you should look for the following on or about the 17th Day of March 2018 at 2100 PST and you will have about 20 minutes of viewing time total.

The one thing March does bring is a chance to practice your Messier Marathon imaging and viewing skills.

Messier Objects:

- All of them! M1 through M110! Barring interference from the "El Nino Nebula" the 17th of March will be spectacular for the Marathon. Since the full moons bracket the month this year you have a beautifully dark sky to play in! The 17th is NEW MOON!

NGC Objects:

- Every Messier Object has an NGC number except for 4 objects (M24, M25 are IC 4715 & 4725, M40 [Winnecke 4] and M45 [Pleiades]) so you will be busy with those Messier/NGC objects all month. Wikipedia has a Messier and NGC list at:

  https://en.wikipedia.org/wiki/List_of_Messier_objects

Messier at 40 (Public Domain -- Cambridge University Press)

For now – Keep looking up.

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Random Thoughts
by Chuck Dyson

Little Observatories Big Projects

I am still, this is month three of my search, chasing down information on the Knotts Berry Farm observatory and although I am corresponding with several very nice and interesting astronomers I am getting very little information on the subject of the search.
However, in addition to the observatory that I discussed last month I found two others that I thought were interesting.

The first observatory is the F. B. Brackett observatory at Pomona College. Professor Brackett came to Pomona in 1892 and this was at the very founding of the college as the first degree was awarded to a student in 1894. Early records indicate the Professor Brackett taught observational astronomy from an open air platform using a 6 inch Clark refractor and started to solicit funds for an observatory as early as 1900. By 1907 he had enough funds to start having architects design the building. In 1908 the astronomy building complex with the Clark refractor installed and an adjacent horizontal solar telescope was ready for students and the public to use. At the same time, a young astronomer by the name of George E. Hale was completing his second and third telescopes on Mt Wilson - these were the 60 foot solar tower and the 60 inch mirrored reflector. The first telescope installed at the Mt. Wilson site was the horizontal Snowe solar telescope in 1904. This was the world's first solar telescope to be permanently mounted to its base; so, with the Pomona college dedicating its horizontal solar scope in 1908 it was at the fore front of solar astronomy for the time. As with all horizontal solar telescopes the scope had two main issues that needed to be dealt with. The first is the length of the instrument - 40 to 50 feet between the coelostat and the objective lens/viewing table and the second is the effect of atmospheric heat waves distorting the image of the image of the sun as the day heats up. Professor Brackett and his architects solved the problems in two very ingenious ways. First a small building was built at the focus end of the telescope away from the main observatory building; this gets your observing table away from the heat produced by the main building. However, the main light gathering mirror was placed next to the main building and to get from one part of the telescope to another a cement walkway was poured between the two buildings and an arched trellis was built to cover the entire walkway. When the vines that were planted at the base of the trellis matured the astronomers had a pleasant walkway between the two buildings and a cooled pathway for the telescopes light beam that kept the image destroying thermal atmospheric waves to a minimum. The original single dome and 6 inch refractor was replaced

with a 22 inch Schmidt-Cassegrain and a second dome housing a second Cassegrain and these scopes, in turn, have been replaced by two Celestron 14 inch Schmidt-Cassegrains with CCD cameras and a 10 inch Schmidt-Cassegrain that is remotely controlled. Despite the improvements in equipment capability, the light pollution produced by the encroaching urban sprawl has rendered the observatory ineffective as a research platform and so that job has been taken over by a new Pomona observatory, constructed in conjunction with JPL, that is equipped with a telescope in the one meter class on Table Mountain just outside of Wrightwood at 7200 feet of elevation.

Just down the road from the Caltech/Pomona facility is a private road that leads to the remains of a small observatory. The observatory was named for Clinton B. Ford a college teacher, musician, astronomer, and successful investor. A local group of amateurs formed the Mount Peltier Association. The name of the mountain was informal as it was named after one of the group members a Mr. Leslie C. Peltier, author of a popular astronomy book. The group had a common astronomy interest and that was variable star observing. They wished to build an observatory designed and dedicated to that purpose. The members of the group pooled their resources and found that they were a little short to accomplish their goals. Enter Mr. Ford, the overriding passion in Mr. Ford's life was to do variable star observing and support AAVSO activities. Through his investment success, Mr. Ford was more than financially capable to pursue his passion and had already established an observatory in New York State and was eager to establish another on the west coast. He funded the observatory and, in 1965, the observatory was dedicated and open for business. This observatory was not for the public. Aside from there being parking for only four or five cars, it was really a working observatory dedicated to generating useful variable star information for the professional astronomers to use. The people of the Ford Observatory performed tens of thousands of observations in the years that it was active. The main reason that I became interested in the observatory is that the gentleman who operated the observatory in Knotts Berry Farm and started me on this history search advertised in his gift shop that he was an active member of the AAVSO and searching the AAVSO web site for information on him lead me to this little observatory in our own backyard. The other thing that I found interesting about the Ford Observatory was that one of the founding members, and remember that all of the founding members were accomplished and very active AAVSO members with local reputations for excellence, was a Mr. Claude Carpenter who had moved his family from Michigan to California to get access to clearer skies and better seeing. Mr. Carpenter was the founding member who donated his 18 inch f/7 Newtonian to the project as the primary observing instrument because he felt that at the time, the1960's, the skies around his house, are you ready for it, in Menifee Valley had degraded so much in clarity and seeing that he no longer could do useful observing from there. I, on the other hand, when coming to here from Los Angeles in 2014 was thrilled to death with the fantastic improvement in the seeing conditions over what I had in Sherman Oaks. As Mr. Einstein said "everything is relative" but it does make you wonder just how dark and clear our sky was before civilization showed up.

Cheers
Chuck

NASA SpacePlace

What Is the Ionosphere?

By Linda Hermans-Killiam

High above Earth is a very active part of our upper atmosphere called the ionosphere. The ionosphere gets its name from ions—tiny charged particles that blow around in this layer of the atmosphere.

How did all those ions get there? They were made by energy from the Sun!

Everything in the universe that takes up space is made up of matter, and matter is made of tiny particles called atoms. At the ionosphere, atoms from the Earth's atmosphere meet up with energy from the Sun. This energy, called radiation, strips away parts of the atom. What's left is a positively or negatively charged atom, called an ion.

The ionosphere is filled with ions. These particles move about in a giant wind. However, conditions in the ionosphere change all the time. Earth's seasons and weather can cause changes in the ionosphere, as well as radiation and particles from the Sun—called space weather.

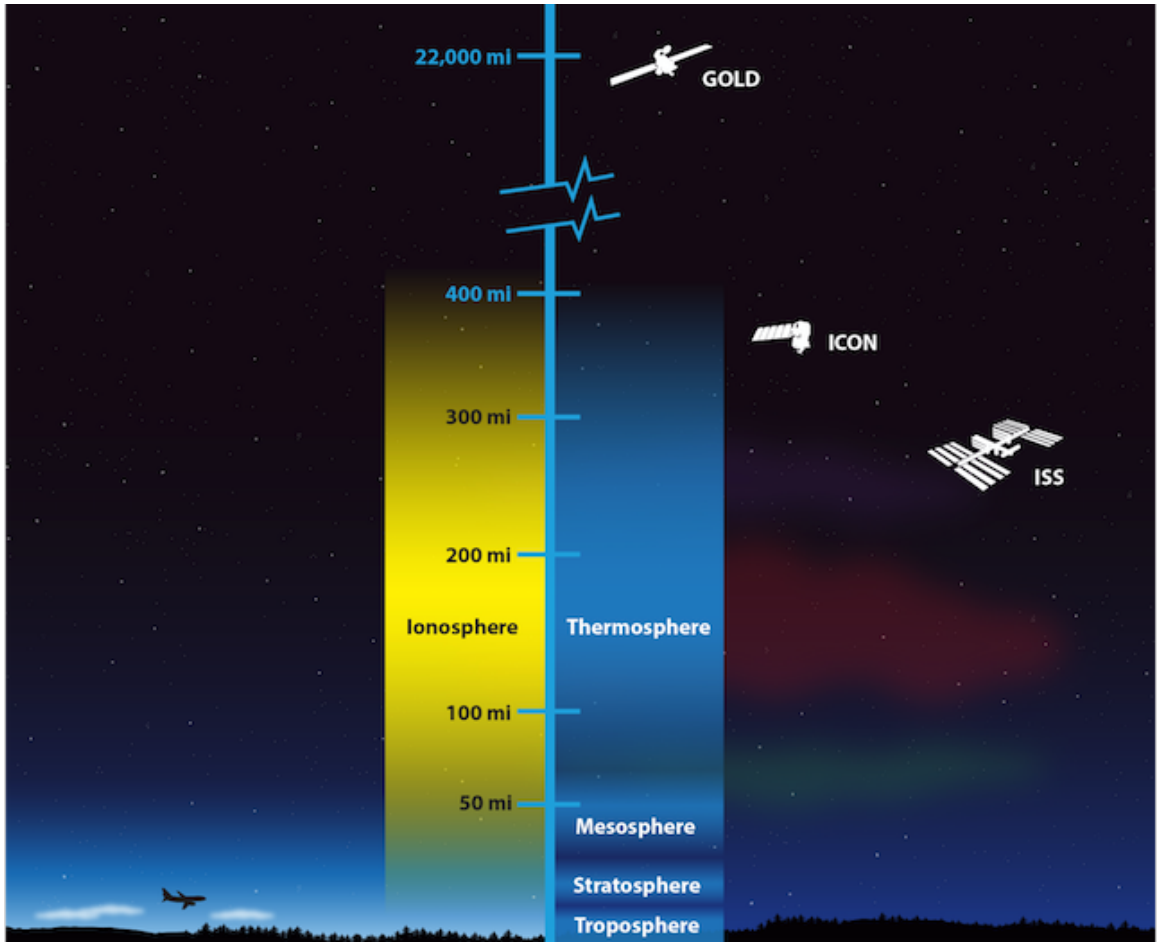
These changes in the ionosphere can cause problems for humans. For example, they can interfere with radio signals between Earth and satellites. This could make it difficult to use many of the tools we take for granted here on Earth, such as GPS. Radio signals also allow us to communicate with astronauts on board the International Space Station, which orbits Earth within the ionosphere. Learning more about this region of our atmosphere may help us improve forecasts about when these radio signals could be distorted and help keep humans safe.

In 2018, NASA has plans to launch two missions that will work together to study the ionosphere. NASA's GOLD (Global-scale Observations of the Limb and Disk) mission launched in January 2018. GOLD will orbit 22,000 miles above Earth. From way up there, it will be able to create a map of the ionosphere over the Americas every half hour. It will measure the temperature and makeup of gases in the ionosphere. GOLD will also study bubbles of charged gas that are known to cause communication problems.

A second NASA mission, called ICON, short for Ionospheric Connection Explorer, will launch later in 2018. It will be placed in an orbit just 350 miles above Earth—through the ionosphere. This means it will have a close-up view of the upper atmosphere to pair with GOLD's wider view. ICON will study the forces that shape this part of the upper atmosphere.

Both missions will study how the ionosphere is affected by Earth and space weather. Together, they will give us better observations of this part of our atmosphere than we have ever had before.

To learn more about the ionosphere, check out NASA Space Place:
https://spaceplace.nasa.gov/ionosphere



This illustration shows the layers of Earth's atmosphere. NASA's GOLD and ICON missions will work together to study the ionosphere, a region of charged particles in Earth's upper atmosphere. Changes in the ionosphere can interfere with the radio waves used to communicate with satellites and astronauts in the International Space Station (ISS). Credit: NASA's Goddard Space Flight Center/Duberstein (modified)

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MIM! A New Messier Challenge

by Clark Williams

Charles Messier – born in Badonviller, in the Lorraine region of France, being the tenth of twelve children of Françoise B. Grandblaise and Nicolas Messier, a Court usher, on 26 June 1730. He died in Paris, France on 12 April 1817.

He is well known in amateur astronomy for his catalog: Catalogue des Nébuleuses & des amas d'Étoiles. Connoissance des Temps Pour l'Année 1784 (Catalog of Nebulae & Star Clusters. With Times For the Year 1784).

Messier did his observing with a 100 mm (four inch) refracting telescope from Hôtel de Cluny (now the Musée national du Moyen Âge), in downtown Paris, France. He could only observe objects found in the area of the sky from the north celestial pole to a declination of about −35.7°. This is where he practiced his occupation as comet hunter. He discovered 13 comets :

C/1760 B1 (Messier)c/2760
C/1763 S1 (Messier)
C/1764 A1 (Messier)
C/1766 E1 (Messier)
C/1769 P1 (Messier)
D/1770 L1 (Lexell)
C/1771 G1 (Messier)
C/1773 T1 (Messier)
C/1780 U2 (Messier)
C/1788 W1 (Messier)
C/1793 S2 (Messier)
C/1798 G1 (Messier)
C/1785 A1 (Messier-Méchain)

His Catalog was a list of objects that weren't comets but looked similar (a smudge in the sky). If you were at the RA and declination listed in Messier's Catalog you were not looking at a comet.

Since his observations were done within the narrow portion of the sky you can locate all 110 of the objects in Messier's Catalog during the month of March. The best days are between March 15 though March 19 with March 17 being somewhat optimal.

The Messier Marathon is an all-nighter where you locate all 110 objects in one night. It is very cool and a lot of fun for deep sky observers. Especially if share the Marathon in a friendly competition with your astronomy friends.

There is a more recent take on the Messier Marathon born in the wake of digital photography – the MIM – the Messier Imaging Marathon. Can you find and **image** all 110 objects in a single night?

Thats the game! Are you up for it? It takes some careful planning. You should have a pretty good chance coming up this March 17th.

What do you get if you succeed? Bragging rights – and the ability to prove it with something more than a log entry!

The TVA is a member club of The Astronomical League.