

New Braunfels Astronomy Club

Texas, USA

October 15th, 2020

254th Meeting (Zoom 6)

(Agenda Below)

Larry's Celestial Calendar & Newsletter

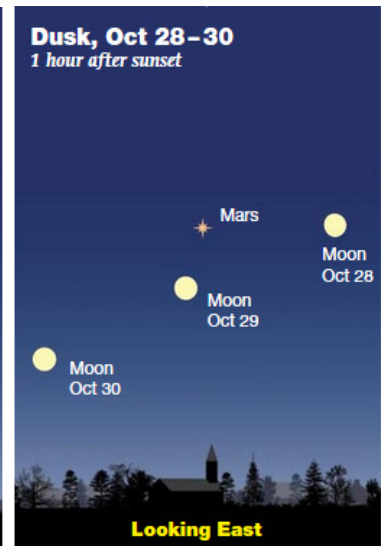
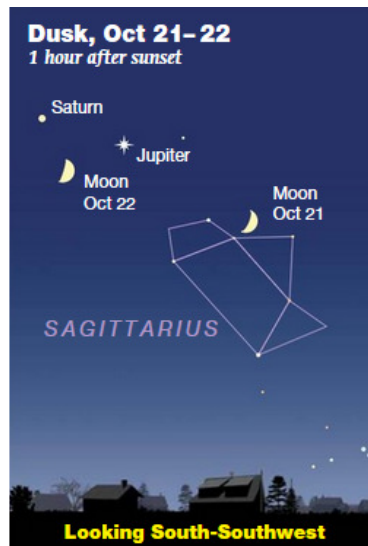
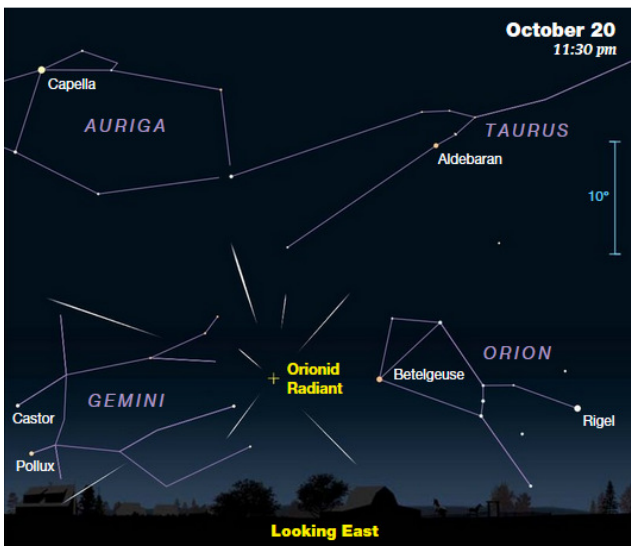
279th Edition

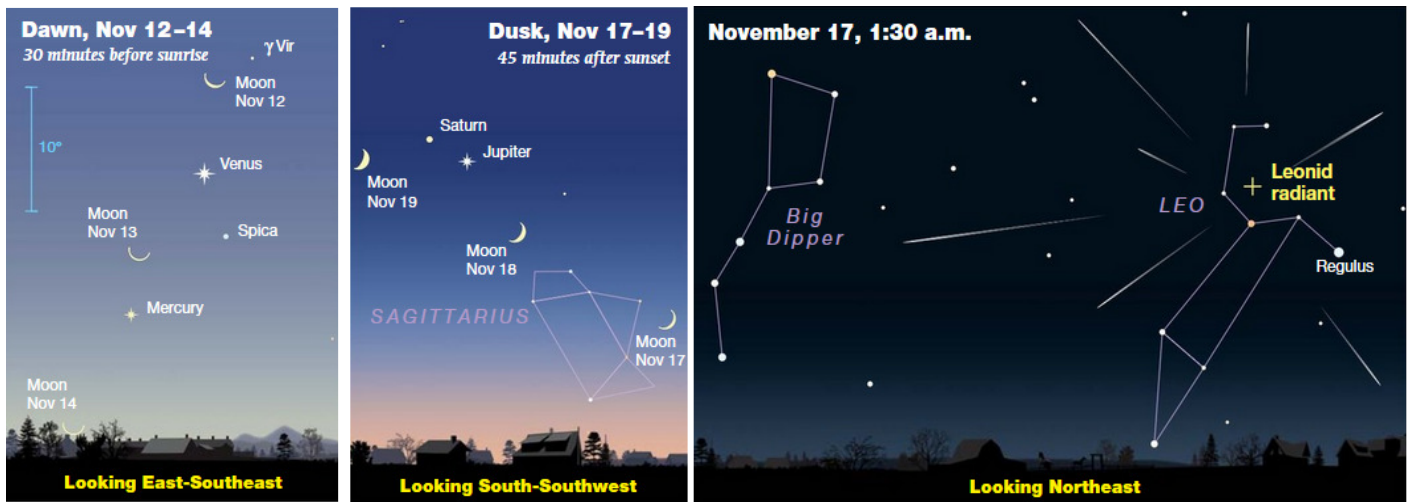
-by Eric Erickson

Venus Brilliant in the Morning
The Moon and Planets Dance
Comet 88P/Howell
MARS! It's still Special
Orionids Peak 10/21
Leonids Peak 11/17

Highlight Calendar for Clear Skies

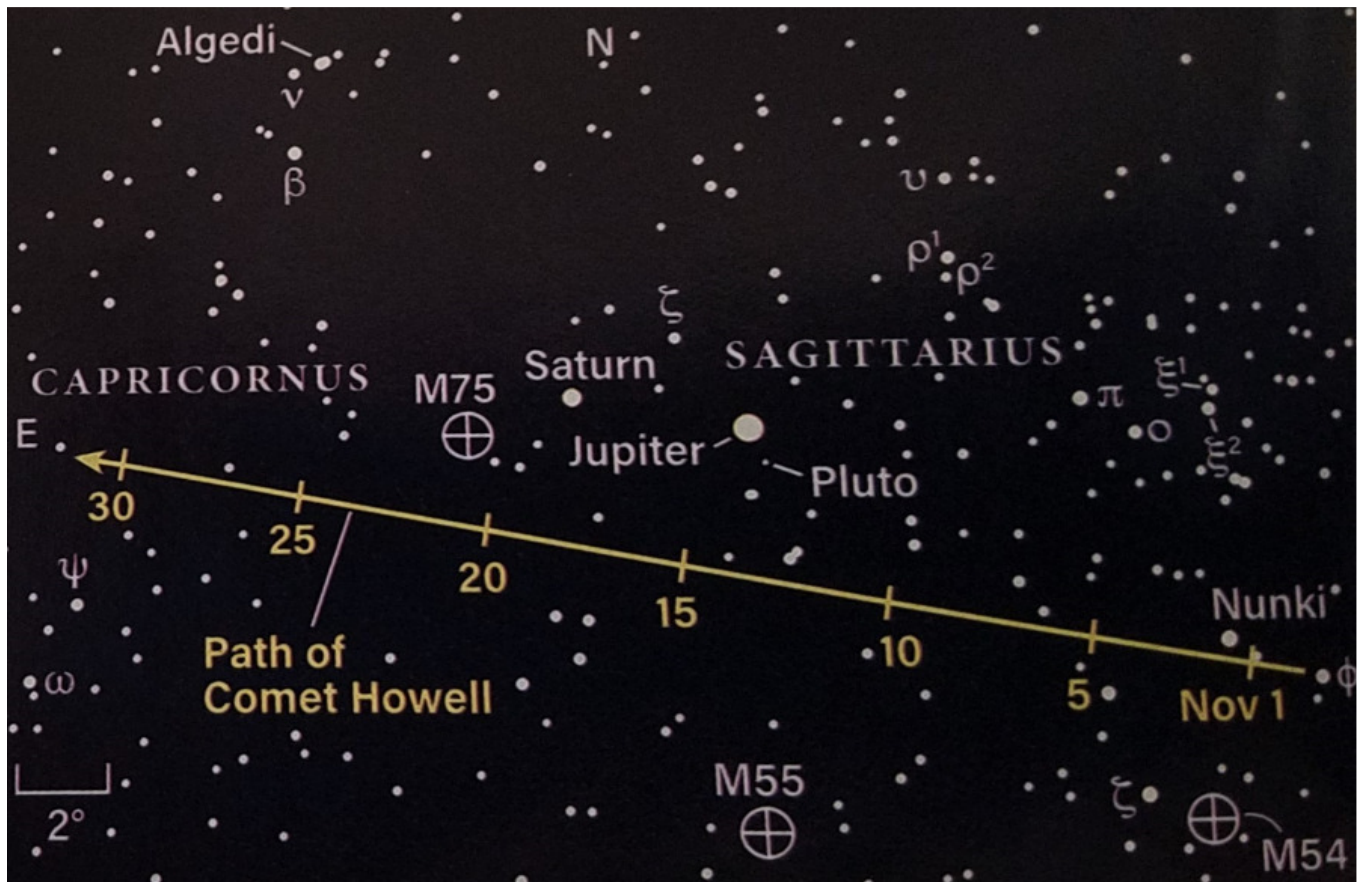
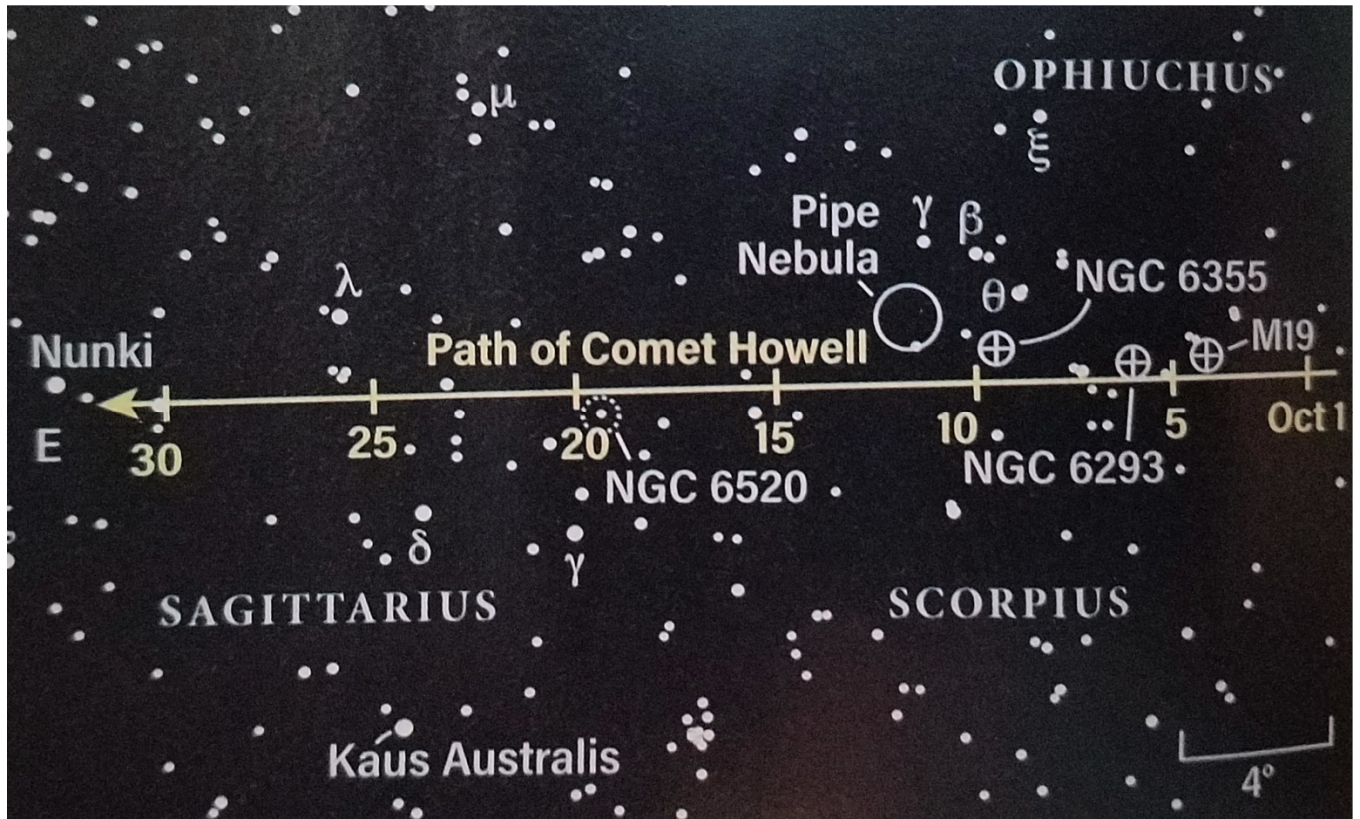
-From Sky and Telescope Magazine





Solar System Observing

- ✚ **Mercury** is very low in the western sky after sunset, heading for inferior conjunction on October 25. Starting in early November it will be a morning planet and rises in the east well before the Sun. Look for it to pair up with Venus, the Moon, and Spica November 12-14.
- ✚ **Venus** is brilliant, a morning planet, rising about 3 hours before the Sun. It partners with the Moon, Spica, and Mercury November 12-14.
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** dances with Jupiter, Saturn, Venus, Mercury, and Spica. See above.
- ✚ **Mars** made it past opposition and it was a wonderful sight in my 4" refractor. No planet wide dust obscuring the view. It still is a beauty! Catch it in the sky trailing Jupiter and Saturn.
- ✚ **Jupiter** rises in early evening and looks great
- ✚ **Saturn** rises an hour after Jupiter. They are getting closer now, toward their closest conjunction in centuries, in December.
- ✚ **Uranus** is in Aries and heading for opposition on October 31st. October will be a good month to observe Uranus.
- ✚ **Neptune** is in Aquarius, transiting the meridian as Venus is rising
- ✚ **Comet(s)**
 - 88P/Howell is still with us. You will need a 4" aperture or greater. Maybe big binoculars will work. See below



ISS viewing for New Braunfels (works for Canyon Lake too).

- From [Heavens Above](#)

Date	Start Time	Start Loc	Max Alt °	End Loc	Note
10/20	06:42	SSW	38	NE	Swings by Venus
10/21	05:57	S	19	ENE	Along horizon – conjunction with Venus
11/09	06:03	NNW	29	ESE	Conjunction with Mercury
11/19	17:56	SW	66	NE	Swings by Jupiter, Saturn, and Mars

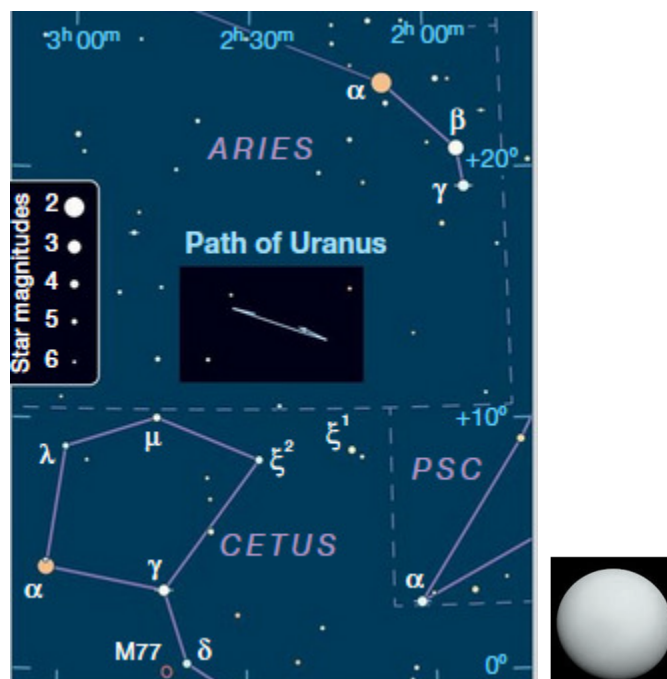
My Observing Pick: Uranus

Uranus is good to spot, reaching opposition on October 31. It's up all night. Located in Aries, southeast of α (Hamal) it should be easy to spot in binoculars. Hamal is the only bright star in the area. It looks gray with a little green. While it does not have much as far as cloud features, OK, it's bland, just think about how far it is. It's 1.75 billion miles from us and takes 84 years to orbit the Sun.

The name Uranus is from Greek mythology, of course. Uranus was god of the sky, grandfather of Zeus (Jupiter), and father of Cronus (Saturn). Even though at magnitude 5.4 it is within naked eye reach in dark sites, it wasn't discovered until 1781, by William Herschel. Its distance, slow motion in the sky, and dimness let it go unrecognized as a planet until then.

Go out and take a look at Uranus

-From Sky and Telescope



Imagining Imaging: Platform for club imagers...images and imagers needed!

All That Glitters...

...is not gold. From the Merchant of Venice, William Shakespeare gave us a vision that Led Zeppelin later crafted into song. Not all that glitters is gold, but what makes gold special? Part of gold's appeal is its longevity; it stays brilliant seemingly forever. Gold does not tarnish. Gold sits in the periodic table of elements between platinum and mercury, neither of which tarnish. But platinum looks like silver, mercury too, and try to make a ring from mercury! Tarnish is a kinder term for rust, resulting from oxygen's greed for electrons. Many metals have an electron or two to share and oxygen from the air snaps them up, the reaction forming a surface oxide on the metal, of that metal. Rust for iron, tarnish for silver. Copper, bronze, and brass get a patina. Gold simply does not have an electron to spare, therefore, no oxidation. It stays shiny for years, decades, eons.

Why does gold look, well, gold? Its atomic arrangement favors electron relativistic quantum effects with light. In other words, due to the electron's speed relative to light it tends to absorb short wavelength light...blues. The light reflected from gold then is predominantly longer wavelength light...yellow and orange. That's why it looks golden.

Oh, yes, gold is also pretty rare. That helps with its popularity. Where does gold come from and why is it rare? Gold comes from stardust, but not just any stardust. The current generation of stars contain a small percentage of gold and that gold came from first generation stars that mostly went supernova. Even our Sun, which will not go supernova or even nova has some of that gold. Our universe is littered with neutron stars and black holes, the remnants of massive stars that went supernova. It takes a supernova to make elements heavier than iron. Inside a massive star's core, hydrogen fuses into helium, then helium into carbon...cascading until iron is produced by fusion. Iron fusion is not sustainable, and the star's core collapses as fusion peters out. Gravity takes over but hits a wall when neutrons become packed. If the core is massive enough gravity wins and boom-woosh, a black hole. If the core is not massive enough gravity loses and boom, a neutron star. In both cases a supernova occurs and within the extreme pressures and heat we get heavy elements...including gold. Supernovae are and have been spewing heavy elements throughout the universe.

Why is gold so rare on Earth? Well, it might not be. It's just rare in Earth's crust. In theory a couple of thousand miles down there is quite a cache. Seems it sank toward the core during Earth's early days. Now, how to get it?

Eric Erickson

Coming up: OUR 255th ASTRONOMY CLUB MEETING

November 19th 2020, from 7 – 9:00 p.m.

ZOOM meeting

New Braunfels Astronomy Club

astronomynbtx.org

 [Astronomy Friends New Braunfels](https://www.facebook.com/groups/354953995432792/)

<https://www.facebook.com/groups/354953995432792/>

 [Comal County Friends of the Night Sky](https://www.facebook.com/groups/166098014710276/)

<https://www.facebook.com/groups/166098014710276/>

Mick Homer-First Contact

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New Braunfels Astronomy Club Meeting

Date: _____

Agenda

- Open meeting and introduce new members

- Interesting observations, experiences

- Show and tell

- What's in our sky this month?
 - Newsletter – Eric Erickson

- What's going on – events, outreach

- Main feature(s)
 - Bob Keyser - Mysterious lights near Marfa! The Marfa Lights.

- Open for discussion
- Feedback and close the meeting