

New

Braunfels

Astronomy

Club

BECAUSE IT'S OUT THERE

## Larry's Celestial Calendar & Newsletter

by Eric Erickson

306<sup>th</sup> Edition

Volume 26, Number 1

January 19<sup>th</sup> to February 16<sup>th</sup>, 2023

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Caltech/R. Hurt (IPAC)

- Open meeting and introduce new members (get names, email)
- Interesting observations, experiences
- Show and tell – **was Santa good to you? Let us see it!**
- Current news and what's in our sky this month: *Member input, Newsletter*
- Events & Outreach
  - Astronomy Night at TPML – 01/21/2023
  - Astronomy Night 2023 fall/winter schedule
  - March 18<sup>th</sup> Messier Object Star Party at Dot's?
  - May 20<sup>th</sup> Land and Sky Celebration (benefit) at Dot's
- Main feature(s)
  - Bob Keyser – Extra-Extra! Highlights of latest astronomy news

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Coming up: **OUR 281<sup>st</sup> ASTRONOMY CLUB MEETING**  
**February 16<sup>th</sup>, 2023, from 6 - 8 pm**      **TJ's on Loop 337**

[astronomynbt.org](http://astronomynbt.org)   Email: [info@astronomynbt.org](mailto:info@astronomynbt.org)

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[comaldarksky.org](http://comaldarksky.org)   Email: [info@comaldarksky.org](mailto:info@comaldarksky.org)

# JANUARY/FEBRUARY 2023

SUN

MON

TUE

WED

THU

FRI

SAT

Cover Story – The Quest for Planet Nine.  
Planet X (9) where are you? It has been theorized since Pluto was discovered. Possibly a Neptune – sized object far in the Kuiper Belt.

19

20

21



**NBAC Meeting**  
6:00

**Astronomy Night**  
TPML, Canyon Lake, 7:00



22

23

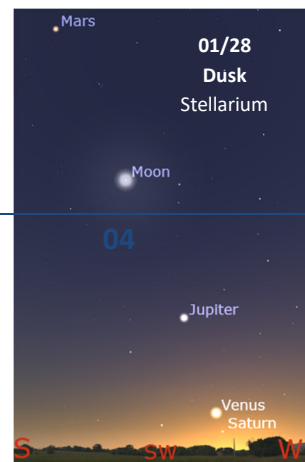
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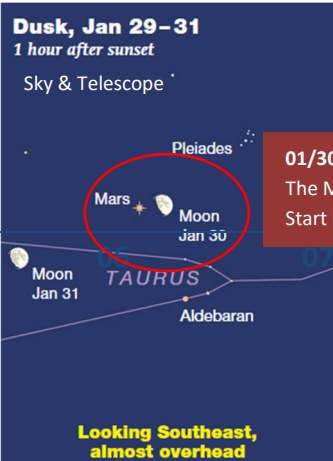
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FEB 01

02

03

04



**01/30**  
The Moon occults Mars – again!  
Start looking at 10:45pm

Comet C/2022 E3  
Closest approach to Earth. It might reach magnitude 5.  
See Solar System Happenings below.

05

11

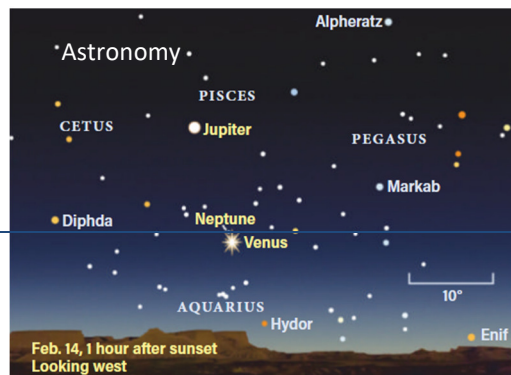
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16



**NBAC Meeting**  
6:00  
Saturn is in conjunction with the Sun

# Solar System Happenings

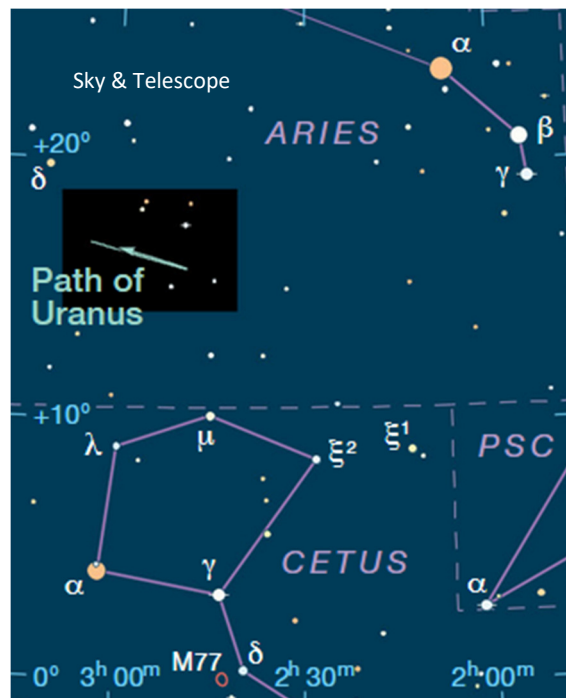
*Venus, Jupiter, and Mars form an evening line-up in the WSW sky this month*

- ✚ **Mercury** is a morning planet, getting brighter and higher. It reaches greatest western elongation on January 30<sup>th</sup>.
- ✚ **Venus** is an evening planet, low in the southwest. Look at around 6pm on January 22<sup>nd</sup> and see a nice conjunction with Saturn, they are only 1/2° apart. On February 14 it is in close conjunction with Neptune.
- ✚ **Earth** still spins, and we are still here to marvel at it all.

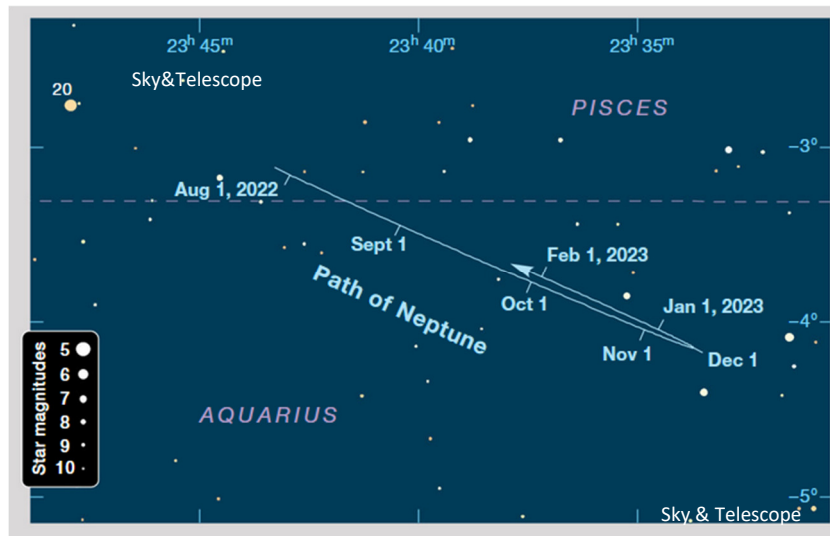
**Best ISS viewing for Canyon Lake/New Braunfels** - From [Heavens Above](#)

Date	Start Time	Start Loc	Max Alt °	End Loc	Note
02/04	19:07	NW	75	SE	Passes close to Betelgeuse and Sirius
02/05	19:57	WNW	13	S	Passes between Venus and Jupiter
02/06	19:10	WNW	25	SW	Passes between Venus and Jupiter
02/14	06:20	SSW	23	ENE	
02/15	05:33	S	12	ENE	Low along the horizon
02/16	06:22:26	SW	78	NE	Passes into the Virgo Cluster

- ✚ **The Moon** dances with planets and stars. Watch it occult Mars on January 30<sup>th</sup>.
- ✚ **Mars** is brilliant and big but past opposition and shrinking as we part ways in our orbits. It pairs up with and is occulted by a waxing gibbous Moon on January 30<sup>th</sup>.
- ✚ **Jupiter** is in the southwest by sunset and still a nice target.
- ✚ **Saturn** is setting earlier and into the Sun's glare as it heads for conjunction with the Sun on February 16.
- ✚ **Uranus** is in Aries, up most of the night – use binoculars or telescope and catch this gray-green dot.

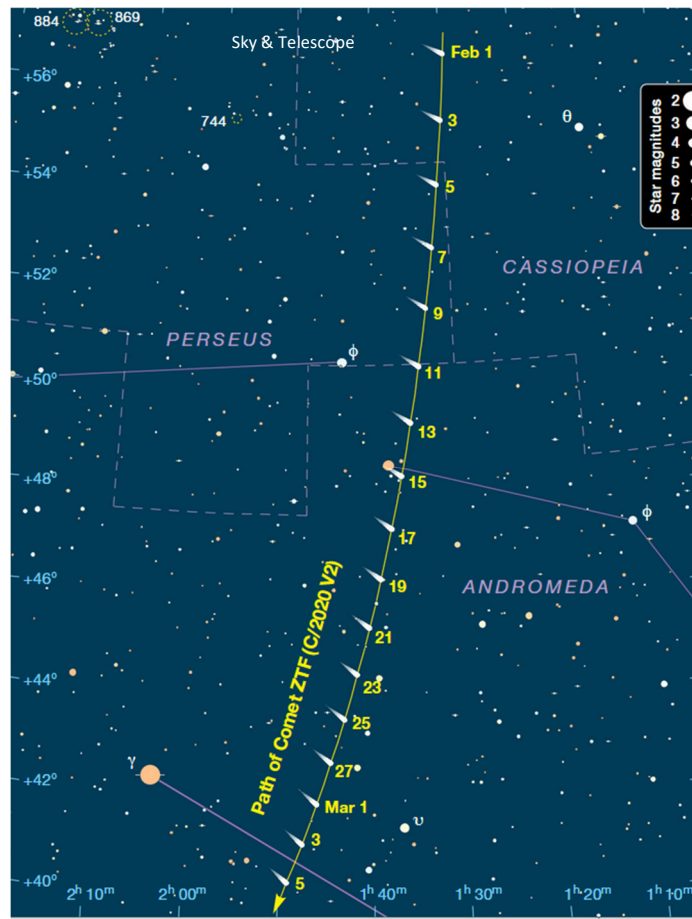


✚ **Neptune** is in eastern Aquarius and setting soon after sunset. It is in conjunction with Venus on February 14<sup>th</sup>. Use binoculars or telescope.



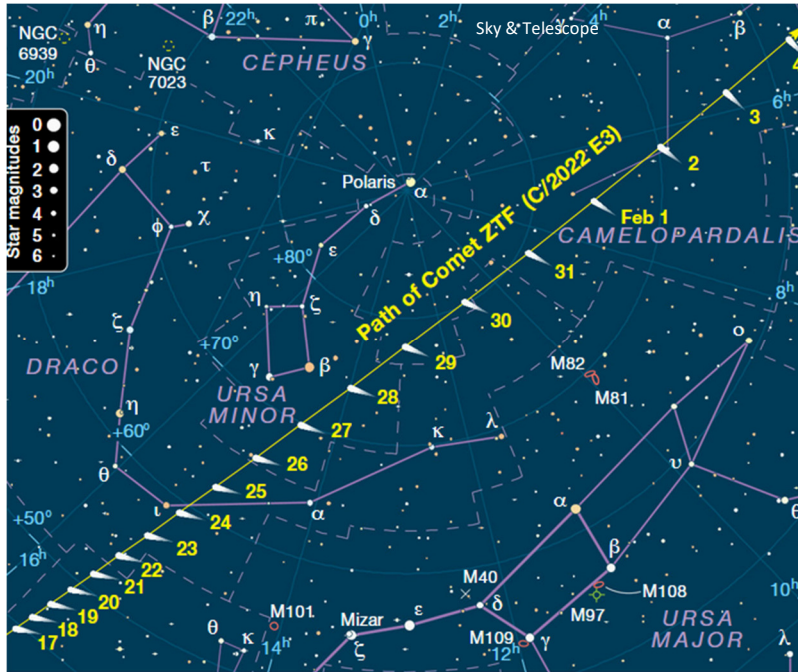
### ✚ Comets:

- Comet C/2020 V2 (ZTF) discovered in November 2020 by the Zwicky Transient Facility. Magnitude 10 – 9.5, so it's dim.





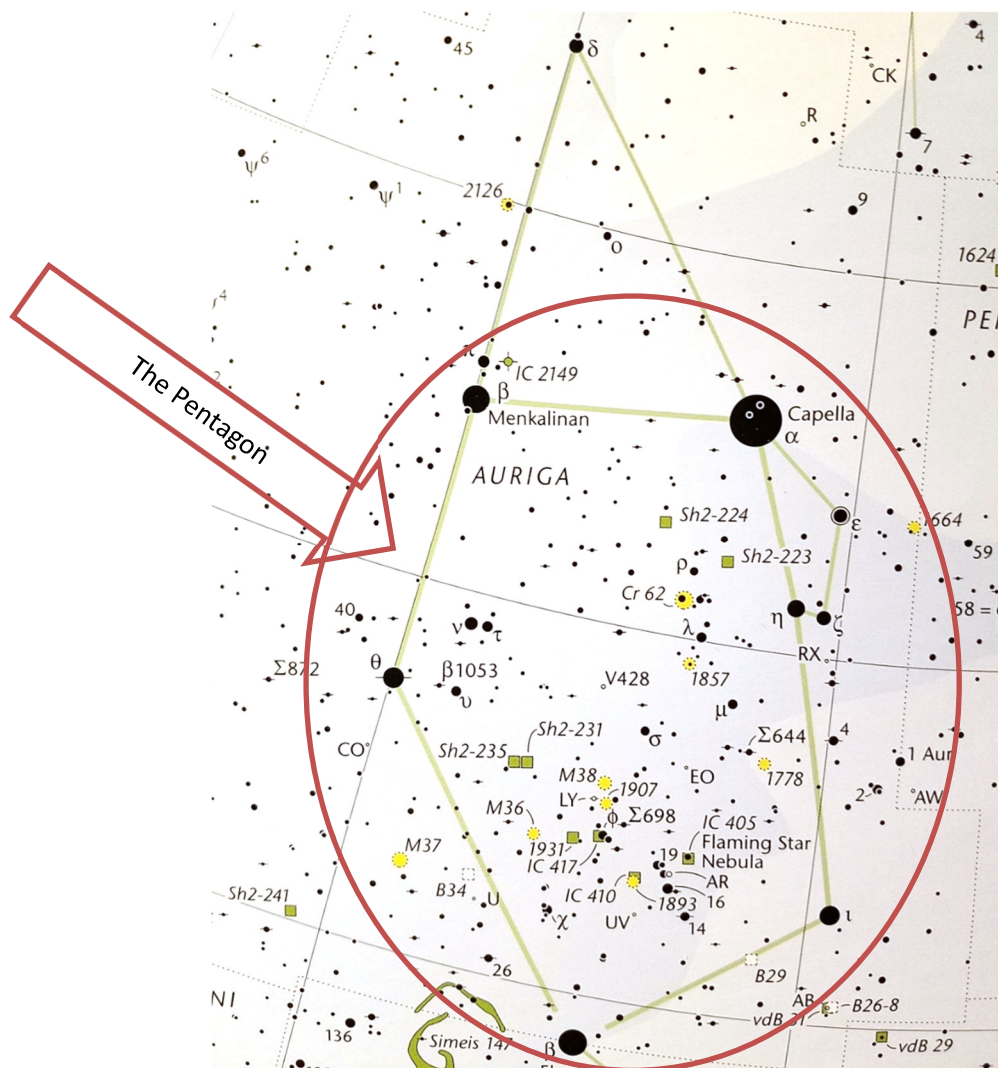
- Comet C/2022 E3 (ZTF) was discovered in March 2022 by the Zwicky Transient Facility. It's Expected to reach magnitude 6 – 5 by late January or early February. It reaches closest approach to Earth on February 2<sup>nd</sup>, close to Capella (Auriga) on February 6<sup>th</sup>. Close to Mars on February 10-11.



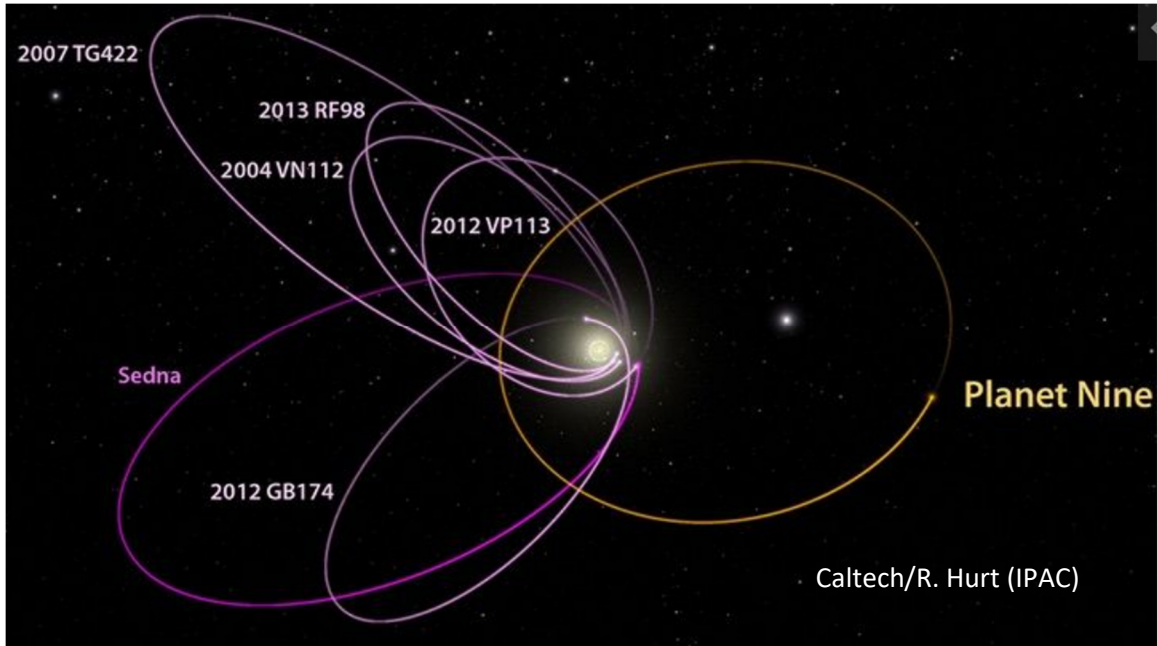
# My Celestial Pick: Auriga's Open Clusters

Embedded in the Milky Way and high in winter's night sky, Auriga (The Charioteer) is easy to spot. It looks like an elongated and misshapen pentagon with bright Capella anchoring one corner. When I think of Auriga, I can't help thinking of M36, M37, and M38, its prominent open clusters. Hidden in plain sight are a bunch of other open clusters. See the illustration below.

Open clusters are groups of young stars that recently (relatively) shed the remnants of their molecular hydrogen cloud nursery. They are siblings, born in the same litter. Many of the stars are big, massive, bright, and hot, fusing hydrogen like no tomorrow! Even so, there are some stars like our Sun living among the rabble rousers, patiently waiting for the wild bunch to move off and blow themselves into black holes or neutron stars. Our Sun had a family like that maybe 5 billion years ago, but no one knows which stars out there might be siblings. We do know the wildest of them are gone, now black holes or neutron stars, or simply widespread stellar debris (stardust). Think about that when checking out the open clusters in Auriga.



## Cover Story> The Quest for Planet Nine



Before Clyde Tombaugh discovered Pluto in 1930 there was speculation about an object beyond Neptune causing a wobble in Neptune's orbit. Tombaugh discovered Pluto but astronomers found it's not massive enough to affect Neptune's orbit as observed. And something was causing Pluto's orbit to wobble too. The search was on!

The discovery of Dwarf Planet Sedna in 2003, with a highly elliptical orbit, bringing it near Neptune's orbit added to the mystery. Since then, other objects with highly elliptical orbits have been found. All their orbits seem affected the same way however, as if influenced by a massive body deep in the Kuyper belt or perhaps, beyond.

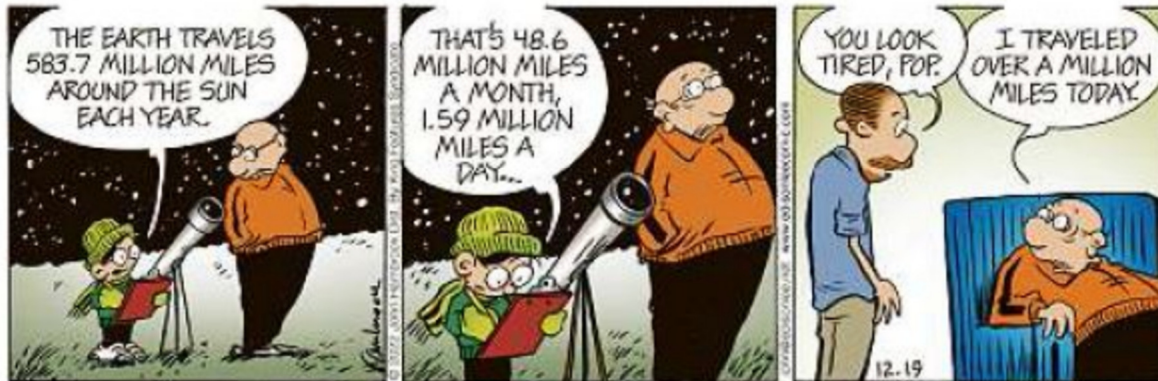
In 2013 and 2014 groups of astronomers published observational research for additional objects and called them Trans Neptunian Objects (TNO), or Extreme Trans-Neptunian Objects (ETNO). Their orbits brought them close to the orbit of Neptune and back into the deep Kuyper Belt or possibly the Oort cloud.

Then, in 2016 scientists described a mathematical model for how the objects' orbits can be influenced by a massive object (planet?) and proposed an orbit for it (see illustration). Candidate objects are a *super-Earth* (3-5x Earth's mass), a *Neptune mass object*, even a small *black hole*. Planet 9 hasn't been seen...yet. As more powerful instruments come online that might change. *Eric Erickson*

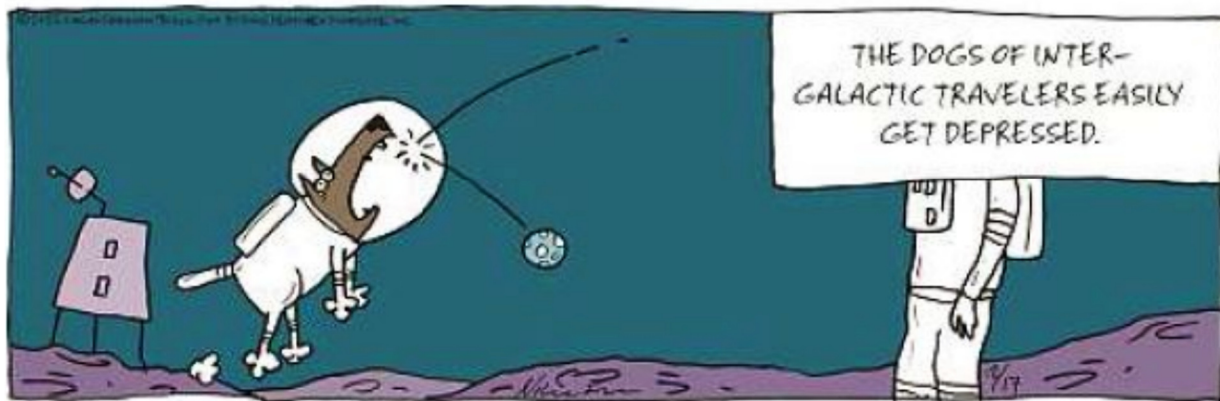


# Lagniappe

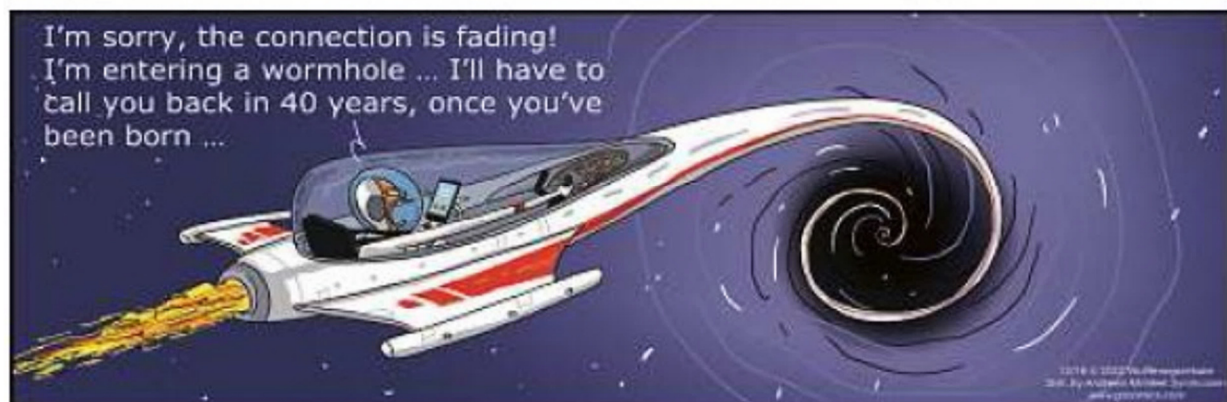
## THE BRILLIANT MIND OF EDISON LEE



## CARPE DIEM



## WUMO



## CARPE DIEM



Two from Stewart Wirebaugh – thank you Stewart!



My daughter was doing her history homework and asked me what I knew about Galileo. I said, "He was a poor boy, from a poor family."

