

New

Braunfels

Astronomy

Club BECAUSE IT'S OUT THERE

## Larry's Celestial Calendar & Newsletter

316<sup>th</sup> Edition

Volume 26, Number 11

November 15<sup>th</sup> to December 20<sup>th</sup>, 2023

*by Eric Erickson*

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# New Braunfels Astronomy Club

BECAUSE IT'S OUT THERE

November 15<sup>th</sup>, 2023

TPML at 6:00 pm

Meeting 290

## Agenda

- Open meeting and introduce new members (get names, email).
- Interesting observations, experiences.
- Show and tell.
- Current news and what's in our sky this month: *Member input, Newsletter.*
- Events, Outreach, Planning.
  - Report on the Annular Solar Eclipse Sun Party at TPML 10/14/23
  - Astronomy Night at TPML – November 18<sup>th</sup>.
    - Dedication of Bob Keyser's 9.25 Edge HD with iOptron CEM60 mount
  - Astronomy Night at TPML – December 9<sup>th</sup>.
  - April 8, 2024 total solar eclipse planning with TPML

Coming up: OUR 291<sup>st</sup> ASTRONOMY CLUB MEETING

December 20<sup>th</sup>, 2023, from 6 - 8 pm

Tye Preston Memorial Library, Canyon Lake



Library website [tpml.org](http://tpml.org)

NBAC website [astronomynbt.org](http://astronomynbt.org)

NBAC Email: [admin@astronomynbt.org](mailto:admin@astronomynbt.org)



Astronomy Friends New Braunfels.....

[facebook.com/groups/354953995432792/](https://facebook.com/groups/354953995432792/)



Comal County Friends of the Night Sky.....

[facebook.com/groups/166098014710276/](https://facebook.com/groups/166098014710276/)

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

# NEWS TO CHEW ON

## Rock from the impact that formed the moon may linger in Earth's mantle

From: Science News

About 4.5 billion years ago, a Mars-sized object smashed into the young Earth, spraying debris that coalesced to form the moon, many scientists think. Some remnants of [that object, called Theia, exist today](#) as large amounts of dense material sitting atop Earth's core, researchers propose November 1 in *Nature*.

In recent years, geophysicists have discovered continent-sized zones of rock at the base of Earth's mantle where seismic waves travel abnormally slowly, suggesting the rock there is denser than the rest of the mantle rock. One of these blobs, known as large low-velocity provinces, lies beneath Africa. The other lies half a world away beneath the Pacific Ocean, says Qian Yuan, a planetary geodynamicist at Caltech.

## A new system found with 7 Earth and Super-Earth Sized planets

From: Universe Today

A system of seven sweltering planets has been revealed by continued study of data from NASA's retired Kepler space telescope: Each one is bathed in more radiant heat from their host star per area than any planet in our solar system. Also unlike any of our immediate neighbors, all seven planets in this system, named Kepler-385, are larger than Earth but smaller than Neptune. It is one of only a few planetary systems known to contain more than six verified planets or planet candidates. The Kepler-385 system is among the highlights of a new Kepler catalog that contains almost 4,400 planet candidates, including more than 700 multi-planet systems.

"We've assembled the most accurate list of Kepler planet candidates and their properties to date," said Jack Lissauer, a research scientist at NASA's Ames Research Center in California's Silicon Valley and lead author on the paper presenting the new catalog. "NASA's Kepler mission has discovered the majority of known exoplanets, and this new catalog will enable astronomers to learn more about their characteristics."

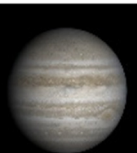
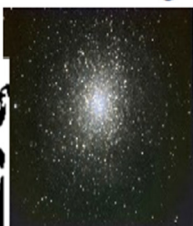
At the center of the Kepler-385 system is a Sun-like star about 10% larger and 5% hotter than the Sun. The two inner planets, both slightly larger than Earth, are probably rocky and may have thin atmospheres. The other five planets are larger – each with a radius about twice the size of Earth's – and expected to be enshrouded in thick atmospheres.

# Astronomy Night at Tye Preston Memorial Library

## Canyon Lake, TX



2023



Date	Doors Open	Note
1/21/2023	7:00 PM	
2/18/2023	7:30 PM	
3/25/2023	8:30 PM	
4/22/2023	8:30 PM	
5/20/2023	2:00 PM	<i>Sun Party</i> - wear sunscreen
June, July, August		No Scheduled Astronomy Nights
9/16/2023	8:00 PM	Kickoff for the fall-winter season
10/14/2023	10:00 AM	<i>Sun Party</i> - wear sunscreen Annular solar eclipse - it will not reach annularity in Canyon Lake but will come close
	Eclipse Start 10:23 AM Maximum Eclipse 11:54 AM Eclipse End 1:32 PM	
10/21/2023	7:30 PM	<i>International Observe the Moon Night</i>
11/18/2023	6:30 PM	Crescent Moon
12/9/2023	6:30 PM	



Tye Preston Memorial Library  
New Braunfels Astronomy Club

[tpml.org](http://tpml.org)

[astronomynbtx.org](http://astronomynbtx.org)



Astronomy Friends New Braunfels

There will be surprise giveaways at some evnts so join us!!

Comal County Friends of the Night Sky supports and encourages Astronomy Night

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



Comal County Friends of the Night Sky Group

# November/December 2023

SUN MON TUE WED THU FRI SAT

On the Cover: Salt comes in various forms. Where salt and water mix, life seems to pop up. Is this formation in the Dead Sea Earth's closest thing to extraterrestrial salt?

NOV 15

**NBAC Meeting**  
**6:00**

TYE PRESTON  
MEMORIAL  
LIBRARY, CANYON  
LAKE

16

17

18

**Astronomy Night at TPML**  
**Doors open at 6:30pm**

19

20 

21

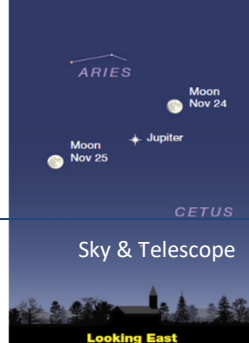
22

23



24

**Dusk, Nov 24 and 25**  
45 minutes after sunset



26

27 

**Beaver Moon**  
(3:16 am CST)  
-Digging/scratching  
-Rutting  
-Whitefish

28

29

30

**DEC 01**

Sky & Telescope

03



04

05 

06

07

08



09

**Astronomy Night at TPML**  
**Doors open at 6:30pm**

Astronomy

12 

13

14

16

**Dusk, Dec 16 and 17**  
1 hour after sunset



17

18

19

20

**NBAC Meeting**  
**6:00**

TYE PRESTON  
MEMORIAL  
LIBRARY, CANYON  
LAKE

Sky & Telescope



# Solar System Happenings

## WHEN TO VIEW THE PLANETS

Astronomy

**EVENING SKY**  
Mercury (southwest)  
Jupiter (east)  
Saturn (south)  
Uranus (east)  
Neptune (south)

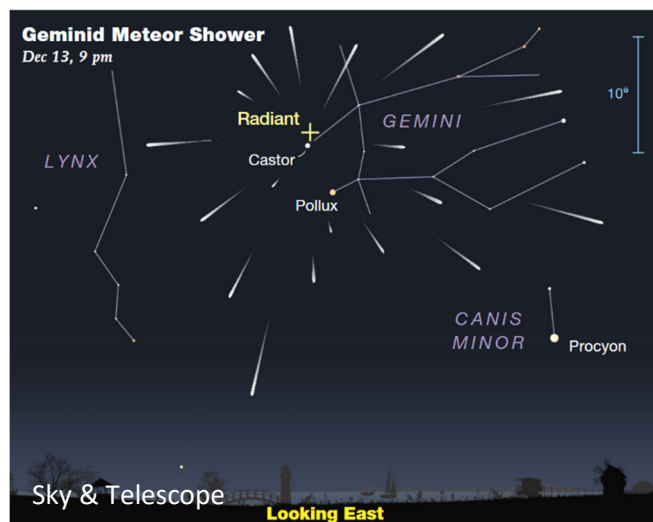
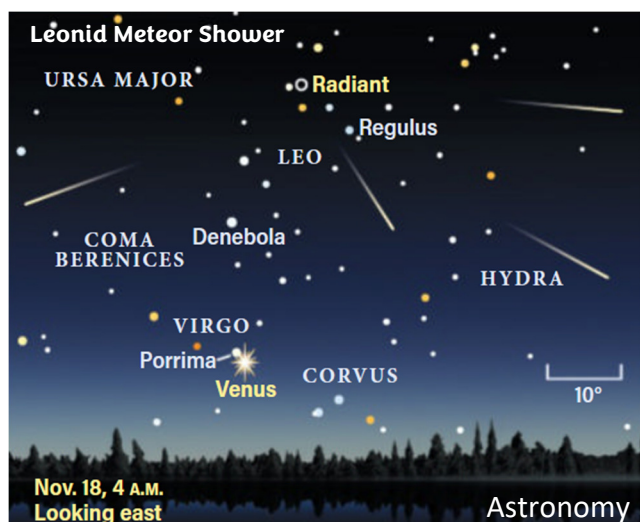
**MIDNIGHT**  
Jupiter (west)  
Uranus (west)  
Neptune (west)

**MORNING SKY**  
Venus (southeast)

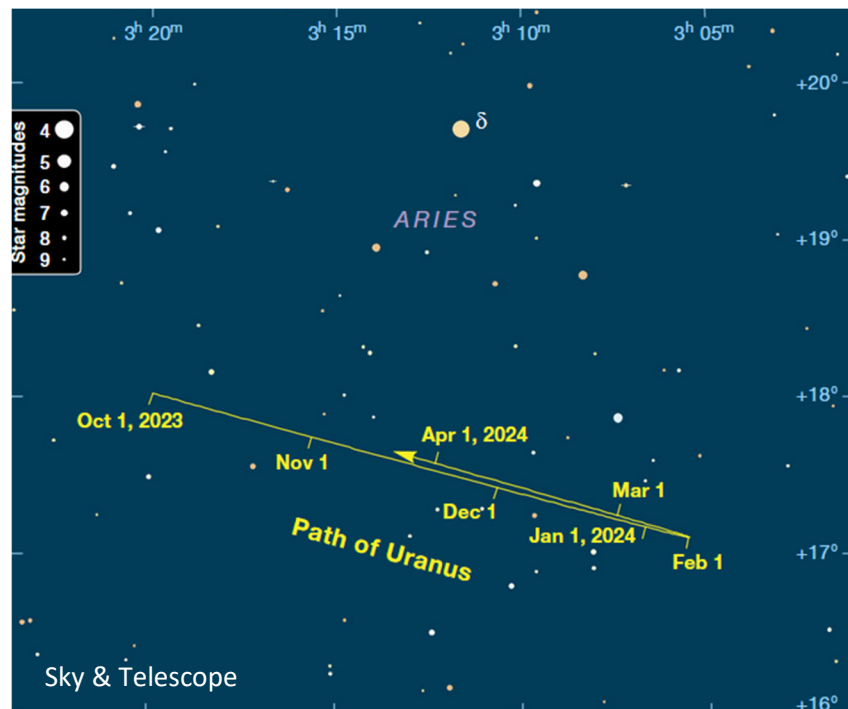
- ✚ **The Sun** is ramping activity as solar maximum approaches. New estimates predict a 2024 peak.
- ✚ **Mercury** is emerging from conjunction with the Sun, but remains difficult until early December.
- ✚ **Venus** is brilliant in the morning but receding from us.
- ✚ **Earth** still spins, and we are still here to marvel at it all.
  - The Leonid Meteor Shower peaks on November 17/18
  - The Geminid Meteor Shower peaks on December 13/14

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

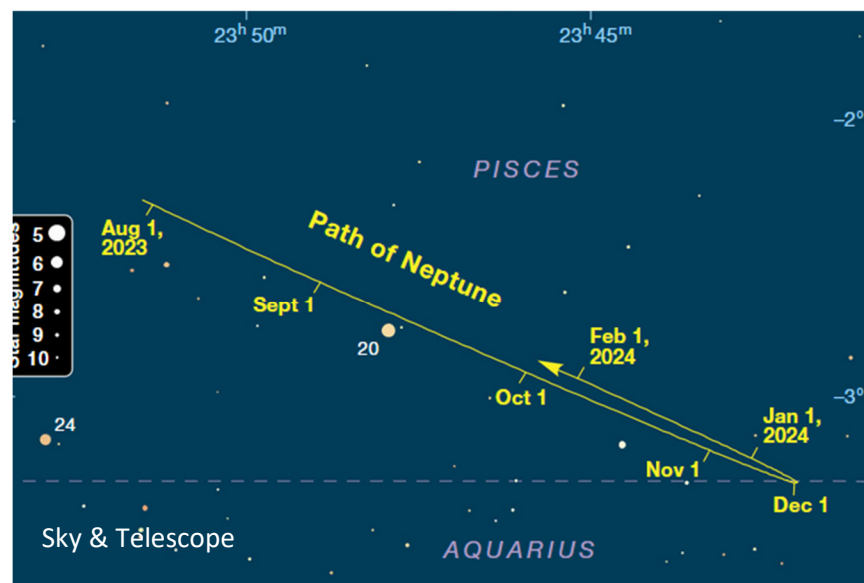
Date	Start Time	Start Loc	Max Alt °	End Loc	Note
11/15	18:45	SW	45	NNE	Enters Earth's shadow
11/16	17:56	SW	82	NE	Slides past the Double Cluster. Enters Earth shadow.
12/05	18:09	NNW	28	ESE	Enters Earth's shadow
12/06	18:54	NW	37	SSE	Slips just west of Altair (Aquila). Enters Earth's shadow near the SSE horizon
12/07	18:02	NW	89	SE	Gets just east of Deneb (Cygnus)
12/09	17:56	WNW	26	SSE	
12/15	06:10	SSW	36	NE	Passes west of Venus
12/16	06:55	WSW	28	NNE	Passes west of Fomalhaut (Canis Minor)
12/17	06:05	WSW	64	NE	Exits Earth's shadow south of Fomalhaut
12/18	06:48:53	WNW	12	NNE	Exits Earth's shadow entering Auriga. Passes near M36 and M38. Passes just west & north of Capella.



- ✚ The Moon dances with planets and stars.
- ✚ Mars is lost in the Sun's glare.
- ✚ Jupiter is past opposition and well placed and looking good.
- ✚ Saturn is a beautiful target in the west but catch it before it's gone!
- ✚ Uranus is in Aries, just past opposition, and in a retrograde path. It is magnitude 5.7 and lies about midway between Jupiter and the Pleiades (M45).

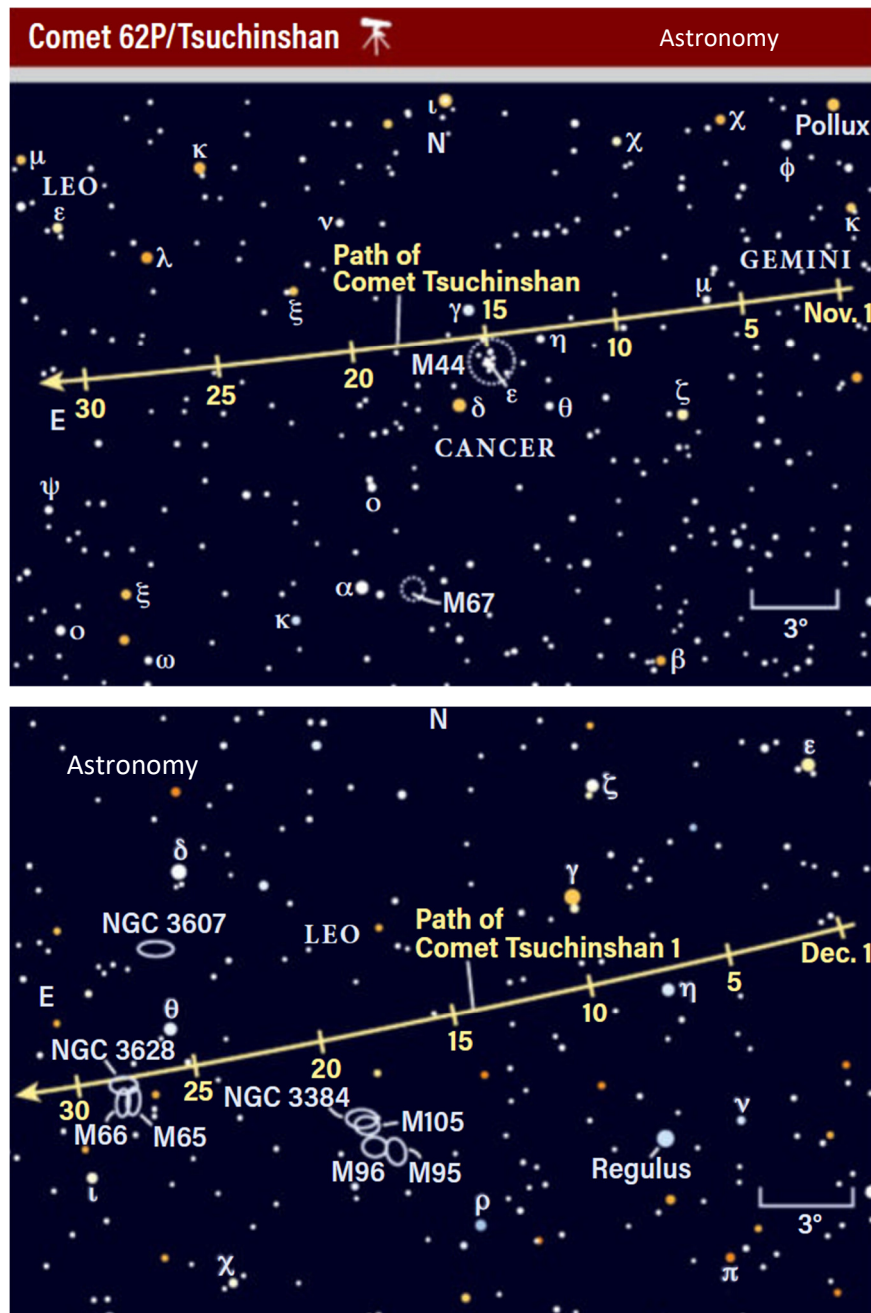


- ✚ Neptune is at its best, magnitude 7.7, residing in Pisces.



## Comets:

- Comet 62P/Tsuchinshan (say that fast 5 times) will grace the early AM sky (stay up past 1am), with its 10<sup>th</sup> magnitude charm.



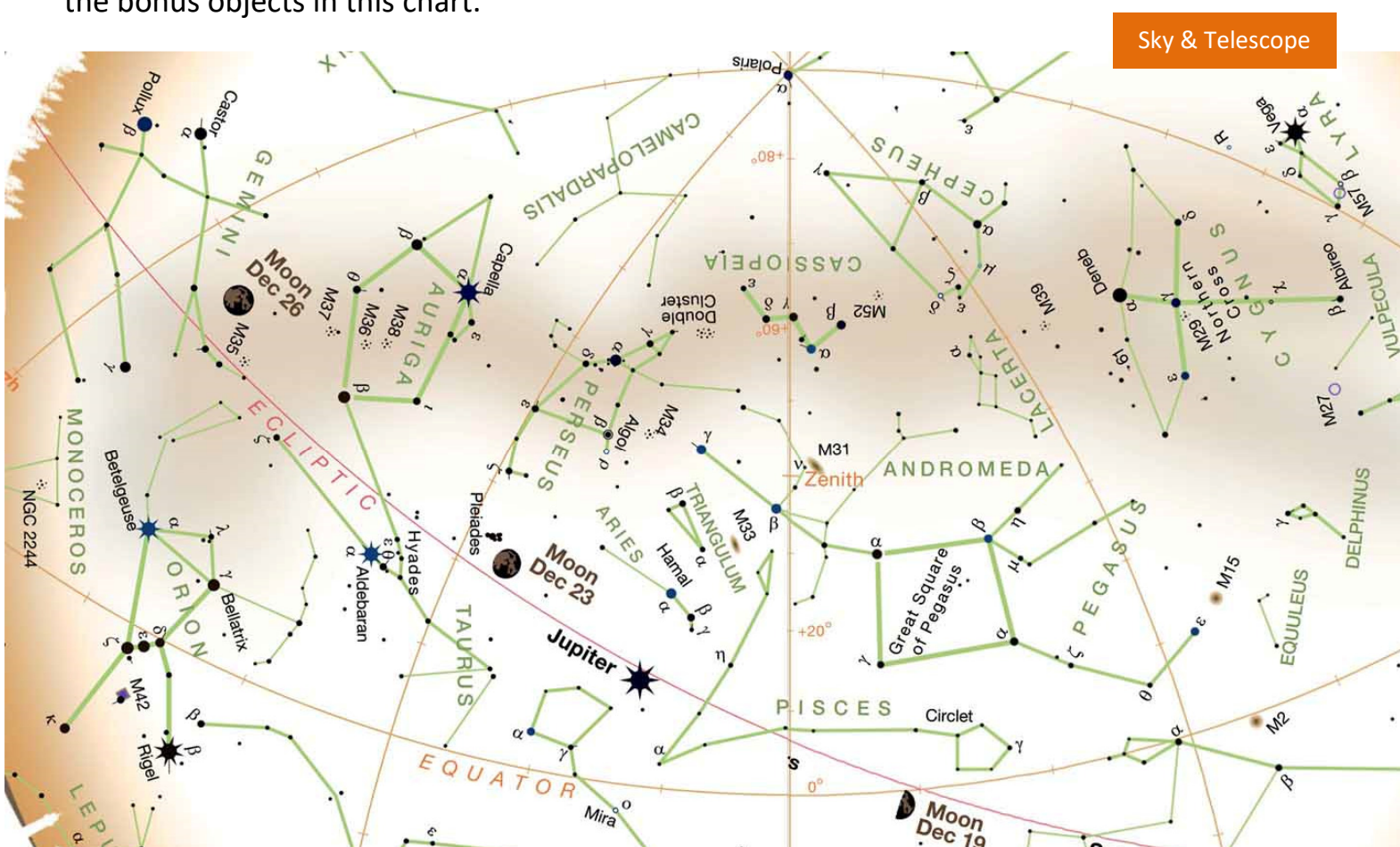


# My Celestial Pick: The Open Clusters of Winter

The season of lights and the winter solstice long night of December 21 is coming. Turkey, ham, lamb, smoked salmon, Boudin, Gumbo...no matter your taste it's time to feast! So, fire up and make the season memorable.

While you're at it, pull out your binoculars, spotting scope, telescope, and get ready to enter the open star cluster arena. There are plenty of winter open star clusters to check out while you recover from or continue to enjoy savory, sweet and salty delights. Grab a beverage and let the sky take you away.

Using the star chart work your way around and enjoy your favs! If you're so inclined, check out the bonus objects in this chart.



*Imagining Imaging:* Imaging Articles Needed!

# Cover Story> Where There's Salt

On the cover: Salt deposits in The Dead Sea. Or is it the Undead Sea? Don't look for zombies except with a microscope.

While the Dead Sea does not harbor higher life forms such as seaweed and fish, it is host to a variety of bacterial and fungal species – those able to adapt to an extremely high (34.2%) salinity. I've been in the Dead Sea and tasted it, not recommended!

The Dead Sea is but one example of life living in extreme environments, but a good one as we examine the environments of other worlds for possible life promoting conditions.

We have but one experience of life. It fortunately has the ability to exist in harsh environments. Nevertheless, we only know the life that exists here, on Earth.

What conditions on Earth produce the opportunity for life to take hold? Well, wherever we find a little moisture, seemingly no matter how horrible the immediate environment is. The other common denominator is salts. Water provides the substrate and salts supply minerals and nutrients. Where else in the solar system can this combination be found?

NASA and ESA are focusing on Europa and Ganymede – two icy moons of Jupiter and thought to have subsurface liquid or slushy oceans of ... saltwater! So, the Europa Clipper (NASA) and JUICE (ESA) missions will be surveying the surface and subsurface environments of Europa and Ganymede. They will not be looking for life directly, rather the conditions we know work for life on Earth.

Europa and Ganymede are not alone. Castillo might have a subsurface layer of liquid or slush. Saturn's Enceladus shoots geysers of saltwater so it is another candidate.

We have looked at other extreme environments – Titan, with its hydrocarbon rain and lakes, and Pluto with its gummy tholins, precursors of amino acids. Very interesting but I think all bets are on the saline environments of Europa and Ganymede, with Castillo and Enceladus in the queue.

The chemistry of life seems to be out there.

# Lagníappe

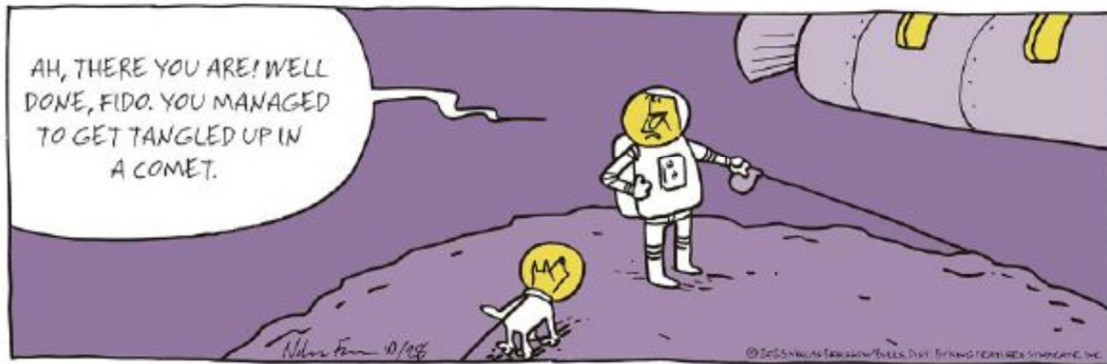
## CARPE DIEM



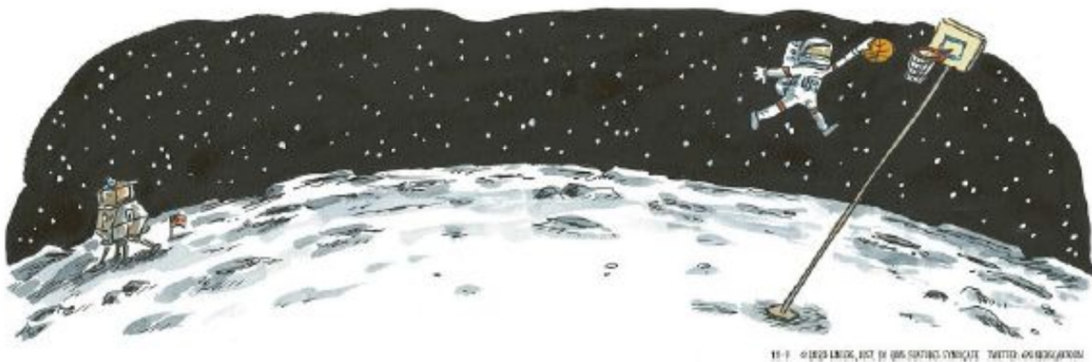
## PEARLS BEFORE SWINE



## CARPE DIEM



## MACANUDO





## SPEED BUMP



## CARPE DIEM



## CARPE DIEM

