

# New Braunfels Astronomy Club

January 21<sup>st</sup>, 2021

257<sup>th</sup> Meeting (Zoom 10)  
(Agenda Below)

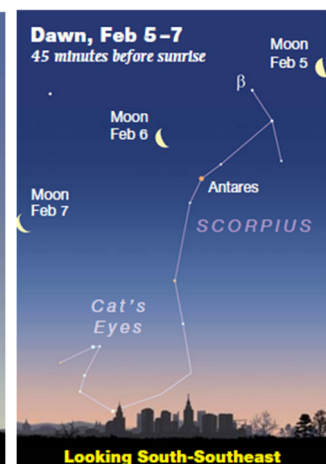
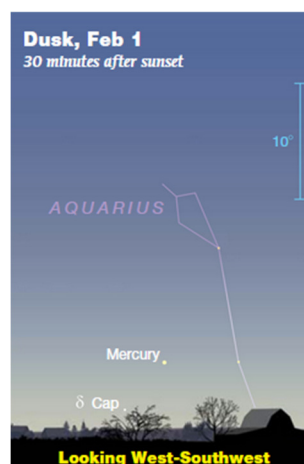
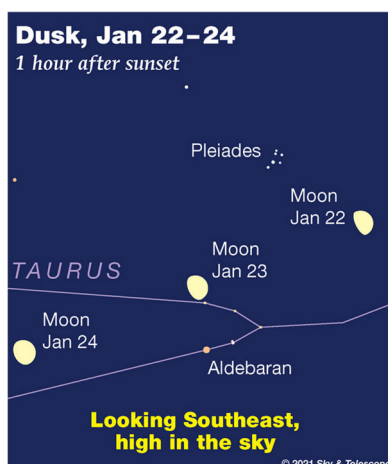
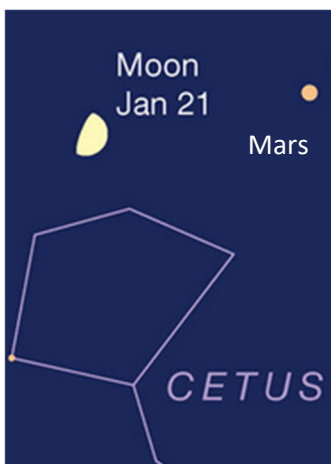
## Larry's Celestial Calendar & Newsletter by Eric Erickson

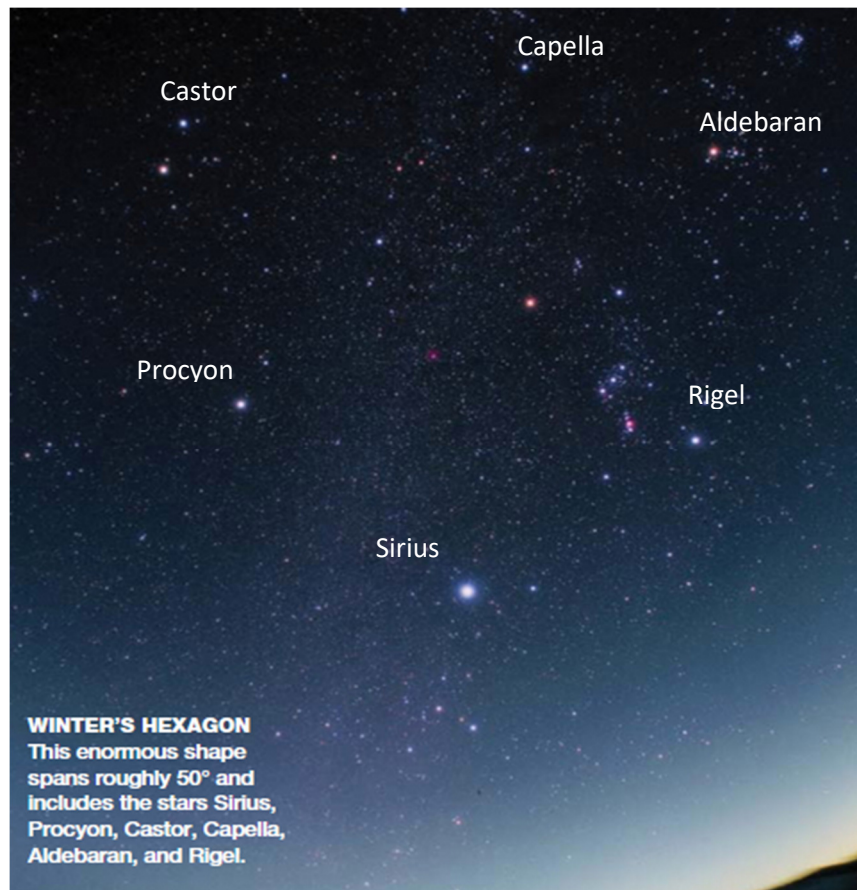
282<sup>nd</sup> Edition

**The Moon Dances with Mars and Stars**  
**Venus Getting Low and Lower**  
**Jupiter and Saturn Dance with the Sun**  
**Mars and Uranus Close on 01/21**  
**ISS Meets Jupiter, Saturn, Mercury, Venus on 02/15**

## Highlight Calendar for Clear Skies

-From Sky and Telescope Magazine





## Solar System Observing

- ✚ **Mercury** is about 2 degrees above the SW horizon and brightening. It is visible about 30 minutes after sunset, but heading for inferior conjunction with the Sun on February 8
- ✚ **Venus** is brilliant but slowly heading for the horizon. It will be in the Sun's glare by February 7 as it heads for a late March superior conjunction with the Sun
- ✚ **Earth** still spins, and we are still here to marvel at the wonders of our universe
- ✚ **The Moon** dances with Mars, Aldebaran, and Antares.
- ✚ **Mars** is getting smaller and smaller, but still a nice naked eye object. It's close to the Moon on January 21<sup>st</sup>.
- ✚ **Jupiter** sets early as it heads for a January 28<sup>th</sup> conjunction with the Sun.
- ✚ **Saturn** sets early as it heads for a January 23<sup>rd</sup> conjunction with the Sun.
- ✚ **Uranus** is in Aries. On January 21<sup>st</sup> it will be 1.7 degrees due S of Mars so check it out!
- ✚ **Neptune** is in eastern Aquarius and getting more difficult to spot as it's only about 20 degrees above the WSW horizon
- ✚ **Comet(s)**
  - ✚ 88P/Howell is still with us but at magnitude 12+ it tough to get a glimpse. On January 26-27 it's just S of Neptune. Say good bye.



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

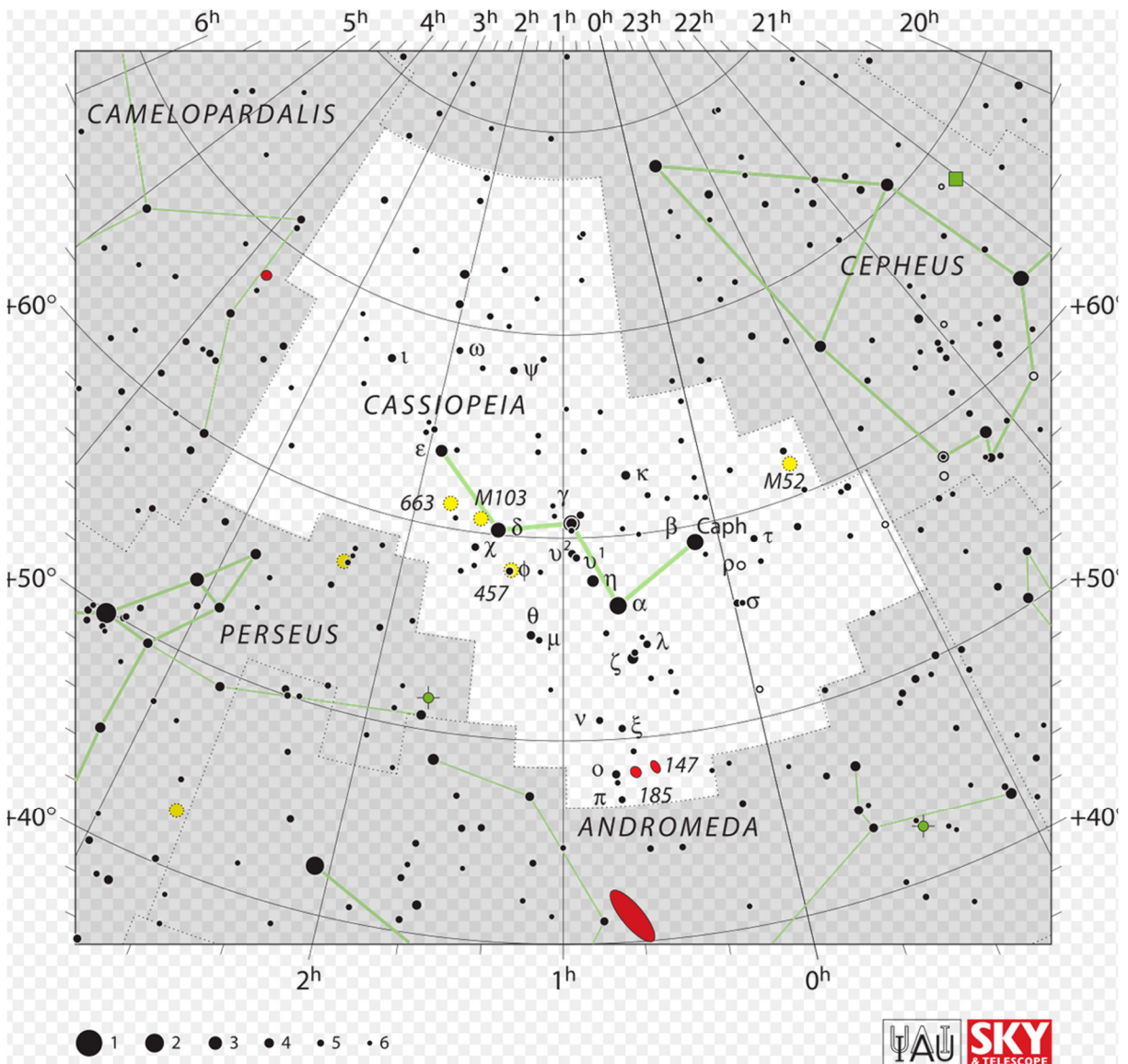
○ From Heavens Above

Date	Start Time	Start Loc	Max Alt °	End Loc	Note
01/21	18:37	W	12	NNE	Low over the horizon and passes above Vega
02/06	18:51	NW	41	SE	Passes close to Polaris, Pollux, Sirius
02/07	19:40	NW	22	S	Close to horizon
02/08	18:52	NW	45	SE	
02/15	06:43	SSW	22	NE	Passes above of Jupiter, Saturn, Mercury, Venus on the horizon
02/17	06:43	SW	87	NE	Nearly overhead
02/18	05:56	SSW	43	NE	Passes through head of Scorpius

## My Observing Pick: Cassiopeia

Why shouldn't a queen be vain? I guess because she could end up stuck in the celestial sphere if she upsets a god. As wife of King Cepheus, maybe Cassiopeia felt untouchable. She boasted of being more beautiful than the sea nymphs. Then she claims her daughter Andromeda was also more beautiful than these favorites of Poseidon, god of the sea. Not one to let things like this go, Poseidon stakes Andromeda to rocks on a rough seashore, and sends Cassiopeia and Cepheus to forever circle Polaris. Andromeda got lucky, as Perseus heroically saves her from sea monster Cetus.

Cassiopeia is easy to spot in the night sky, looking alternately like a misshapen M or W. Look up in the northwestern sky. There are some objects viewable with binoculars or a telescope and numerous showing up in time exposure photos.



## Got a Minute?

That question means different things to the asker and the asked. The asker has what they think is a quick question, discussion, or topic. The asked on the other hand is immediately concerned about how his/her already slipping schedule will be impacted. Another hour behind?

According to relativity theory time is dependent on the observer's spatial reference frame.

Time is existential. Last week's article about sound brought up the concept of whether sound exists if no one or nothing hears it. Sound does exist in the physical nature of air (or other substrate) being compressed to form waves. Asking this question, does time have to be experienced to exist is trickier. Unlike sound, time is not a physical thing. But in context with space (a physical thing), time is affected (distorted) by something



physical, mass and its associated gravity. Our friend Albert Einstein predicted the marriage of space and time, calling it spacetime. The distortion of spacetime by mass/gravity has been measured countless times.

Getting back to the question; when you sleep time appears not to exist to you even though it passes for those who remain awake. Spacetime however still exists as a physical property. So, time, since it apparently cannot be separated from space, must exist in the absence of experience. Existence itself is married to spacetime, no?

You will notice I haven't mentioned dark matter/energy. That's because they are unknowns currently but appear to play a dominant role. We just don't know how.

The branch of astronomy/physics called cosmology is deeply involved in studying spacetime. Questions such as... was there time before the beginning (the big bang?) and was there anything before the beginning are not trivial and a lot of energy is spent on answering them. We have no idea, really, what's beyond the wall, the beginning "big bang" remnant called the Cosmic Microwave Background. This is the farthest back in time we can "see" so far, but new generation telescopes might take us a little beyond, to new discoveries.

Cosmologists for the most part consider time beginning with the Big Bang and the creation of space. There are many hypotheses placing the Big Bang among other beginnings of other universes, which of course doesn't answer the questions. Even the "mother of thousands" had a beginning and there were beginnings before that.

We measure time, and have measured the shortest interval, around 12 attoseconds ( $1.2 \times 10^{-17}$  seconds) and that's not even close to the theoretical shortest time interval of  $5.39 \times 10^{-44}$  seconds, called Planck time. In theory, as time intervals approach Planck time, it becomes too weird to understand. Current physics cannot explain it.

We know time moves in one direction and appears to stop at the speed of light. Photons live at the speed of light, so are they timeless? Eric Erickson

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

Coming up: OUR 258<sup>th</sup> ASTRONOMY CLUB MEETING

**February 18<sup>th</sup>** 2021, from 7 – 9:00 p.m.

**ZOOM meeting**

New Braunfels Astronomy Club

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

Website [comalcountyfriendsofthenightsky.org/](http://comalcountyfriendsofthenightsky.org/)

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# New Braunfels Astronomy Club Meeting

Date: 01/21/2021

## 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)
  - **Theory of Cheaper Eyepieces** – yes, the rip-offs are exposed! Mark Goll will present details.
  
- Open for discussion
  
- Feedback and close the meeting