



# AU AstroNews

## The Newsletter of the Astronomical Unit

December 2021

Sponsored by the Santa Barbara Museum of Natural History



Setting up for an outreach at the Ritz-Carlton Bacara Resort. Photo credit: Tom Totton.

### OUTREACH SUMMARY

There was minimal outreach in November. Please get vaccinated and boosted, then stay safe and healthy by wearing masks when necessary, washing your hands frequently, and practicing physical distancing.

### OUTREACH EVENTS

For December, there will be no indoor, in-person SBAU meetings.

#### \*\*\* SBMNH STAR PARTY RETURNS! \*\*\*

Weather permitting, we are planning to restart the monthly second Saturday public star parties at SBMNH, starting with January 8, 2022 at 7 PM. **All participants and visitors must be masked at all times.** SBAU volunteers must have a Museum name tag indicating that they have gone through the Museum's background check procedure, and in addition provide proof of vaccination to Rebecca Coulter <[rcoulter@SBNATURE2.ORG](mailto:rcoulter@SBNATURE2.ORG)> at the Museum, and let Chuck know, also.

Featured targets will be the Moon, the Orion Nebula, the Pleiades, and the Andromeda Galaxy.

The SBAU radio hour has been replaced by a weekly Zoom/YouTube Live event every Monday

at 11 AM. If you watch, the live video should be able to take comments and questions in its Chat area: <<https://tinyurl.com/2vss2yam>>

Don't forget the weekly Telescope Workshop Zoom, every Tuesday from 7:30 PM to 9 PM. Check [sbau.org](http://sbau.org) for the link.

### THE SKY FOR DECEMBER

Jupiter, Saturn, and Venus dominate the early evening skies to the southwest, showing the line of the ecliptic, the plane of the solar system. At sunset on Monday, December 6, look for a beautiful slim crescent Moon, bathed in earthshine, just below bright Venus. Venus is racing toward its passage between us and the Sun, becoming a slender crescent as it is increasingly backlit from our point of view.

Comet C/2021 A1 Leonard will be visible in binoculars in our predawn sky up until about December 10, rising between 1 and 4 AM PST. It will be passing through the springtime constellations Canes Venatici, Boötes, and Serpens Caput. It will reach perihelion on January 3, and then become a good southern hemisphere object. They seem to get all the comet luck these days. Unless outgassing from the comet causes a radical change in its orbit, Comet Leonard is on a trajectory that will take it out of our solar system, never to return. You can keep tabs on the comet at the following sites:

<<http://astro.vanbuitenen.nl/comet/2021A1>>  
<<https://skyandtelescope.org/>>

The Geminid meteor shower will peak on the evening of December 13/14. The predicted peak is at 11 PM, but a bright waxing gibbous Moon will interfere until it sets around 3 AM. The Geminids rival the summer Perseids in their hourly rate, and have a high proportion of fireballs because they are rocky fragments of asteroid 3200 Phaethon. The radiant point is in Gemini, near the head stars

Castor and Pollux, and will be nearly overhead at midnight. Let's hope for clear skies!

On Tuesday, December 21, the northern hemisphere's Winter Solstice will occur at 7:59 AM PST.

As Venus departs our evening sky, it will appear as a very thin but bright crescent in binoculars at sunset on Thursday, December 30, with much dimmer Mercury just over 5 degrees off to the left.

The International Space Station will be making some nice visible evening passes between December 4 and December 11. Its orbit may change from time to time, especially now that they have to dodge more space debris, so to get the latest and most complete predictions, visit Heavens Above <<https://tinyurl.com/y5yt22ch>>

### FROM THE PRESIDENT

Jerry Wilson

After many years of setting up a portable telescope at remote dark sites I have now settled on the following steps for imaging.

1. Set up tripod and mount before dusk and roughly align with North using a compass. Be sure to compensate for the difference between true and magnetic north.
2. Using a polar scope in the polar axis of the mount, complete alignment to true north by aligning the image of Polaris with its location on the scope's reticle for the correct latitude and time.
3. Mount the telescope and counterweights, and balance the scope in both axes.
4. Begin tracking.
5. Align the finder scope with the main scope using a bright star and securely lock the finder scope in place.
6. Using the finder, visually center a bright star.
7. Put the camera in the focuser and focus using a Bahtinov mask.
8. REMOVE THE BAHTINOV MASK!
9. Inform the planetarium program (e.g. The Sky X) the name of the target star.
10. Slew to the first target of the evening.
11. Take a few quick images to frame the object in the FOV.
12. Set the camera control on the desired number and duration of subframes. Usually 12 exposures at 6 minutes each suffice.
12. In PHD Guiding, identify a guide star that will track with a 1-second exposure.

13. Calibrate each axis; engage dithering with the camera control software (Nebulosity).

14. Start the capture sequence.

15. Listen to my iPod, and try not to doze off.

I use three deep cycle batteries: one each for the mount, the focusers and camera, and the controlling laptop. Recharge the batteries the next day using electrical outlets, if available, or solar panels.



"I'm sorry, Farshad, but it says here that the next transit of Venus will occur when you are 252 years old." Photo credit: Tom Totton.

### ARTS CORNER

Recital

Ted Kooser

The garbage truck's tires had left two keyboards impressed in the snow, with the shadows of treads for the sharps and flats, at least a hundred octaves reaching far into a silence, and a tattered leaf appeared as if out of thin air, sat down, and started playing, first picking out a few simple scales, then in a gust of breeze and confidence launched into a complicated study composed for one hand, too difficult, I would have thought, to be played in front of songbirds, for there were cardinals, finches, and juncos perched in the nearby bushes, but on it played, and after a while as the wind came up and swelled around us, the leaves above burst into spontaneous applause, some of them standing, and the birds nodded, one to another, and the leaf that had played got up and stiffly turned toward me and bowed, then bowed again, and I began to clap along with all the others.



“That’s right, Janet. I worked really hard with Fluffy. He can now identify all 88 constellations.” Photo credit: Tom Totton.



“Wow. That’s got to be one of the coolest thatched-roof observatories I have ever seen.” Photo credit: Tom Totton.



“This is the last time I volunteer to guard the goodies before the general meeting.” Photo credit: Tom Totton.

### AU Information Box

**President:** Jerry Wilson 968-4056  
[jerrywilsonphd@gmail.com](mailto:jerrywilsonphd@gmail.com)

**Vice President:** Ron Herron  
[vicepresident@sbau.org](mailto:vicepresident@sbau.org)

**Secretary:** Carol Moore  
[secretary@sbau.org](mailto:secretary@sbau.org)

**Treasurer:** Colin Taylor 967-8140  
[dancingmagpie@cox.net](mailto:dancingmagpie@cox.net)

**Equipment:** Art Harris 968-4017  
[n6is@cox.net](mailto:n6is@cox.net)

**Outreach:** Chuck McPartlin 964-8201  
[outreach@sbau.org](mailto:outreach@sbau.org)

**Newsletter:** Tom Whittemore 687-2025  
[kometes@aol.com](mailto:kometes@aol.com)

**Webmaster:** Tom Totton 562-8795  
[webmaster@sbau.org](mailto:webmaster@sbau.org)

**Merch Manager:** Pat McPartlin 964-8201  
[parsnip7@yahoo.com](mailto:parsnip7@yahoo.com)

**SBMNH Astronomy Programs Manager**  
VACANT

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**AU mailing address:**  
Astronomical Unit  
c/o Santa Barbara Museum of Natural History  
2559 Puesta Del Sol Road  
Santa Barbara, CA 93105-2998

**On the Web:** <http://www.sbau.org>

# The Astronomical Unit

c/o Santa Barbara Museum of Natural History

2559 Puesta Del Sol Road

Santa Barbara, CA 93105-2998

## December 2021

| Sunday             | Monday                        | Tuesday                   | Wednesday | Thursday | Friday              | Saturday        |
|--------------------|-------------------------------|---------------------------|-----------|----------|---------------------|-----------------|
|                    |                               |                           | 1         | 2        | 3<br>NEW MOON       | 4               |
| 5                  | 6<br>SUNSET MOON<br>AND VENUS | 7                         | 8         | 9        | 10<br>FIRST QUARTER | 11              |
| 12                 | 13                            | 14<br>MORNING<br>GEMINIDS | 15        | 16       | 17                  | 18<br>FULL MOON |
| 19                 | 20                            | 21<br>WINTER<br>SOLSTICE  | 22        | 23       | 24                  | 25              |
| 26<br>LAST QUARTER | 27                            | 28                        | 29        | 30       | 31                  |                 |