

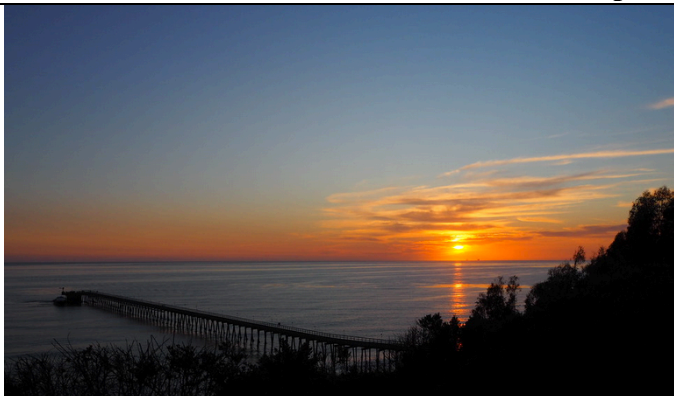


# AU AstroNews

## The Newsletter of the Astronomical Unit

December 2020

Sponsored by the Santa Barbara Museum of Natural History



Sunset at the Ritz-Carlton Bacara moments before a club outreach. Photo credit: Tom Totton.

### OUTREACH SUMMARY

Because of the ongoing pandemic, there was no public telescope outreach in November. Please stay safe and healthy by wearing masks, washing your hands frequently, and practicing physical distancing. Don't forget the curfew! That means mostly observing from home.

### OUTREACH EVENTS

The SBAU radio hour on KZSB 1290 AM at 9 AM on the second and fourth Monday of each month will continue as a phone-in show, thanks to the dedication of Baron Ron Herron. Otherwise, there will be no SBAU meetings, public telescope outreach, or school events.

Although the Museum is open with reservations for a limited set of outdoor activities with limited attendance, star parties and club meetings are still too contact-intensive for this stage of the pandemic.

Javier is retiring from the Museum starting in January. We are all grateful for his support of the club over the years, and wish him the best for the future. He will still be with us as a club member. We look forward to resuming our historic relationship with the Museum once the pandemic is under control and life returns to normal.

### THE SKY FOR DECEMBER

If the skies are clear, December nights are dark and crisp. The Andromeda Galaxy is overhead, the Summer Triangle is sinking in the west, and Taurus and Orion dominate the east. Globular clusters are few, but showy open clusters like the Pleiades and the Double Cluster are well placed.

On Saturday, December 12, watch in binoculars or a telescope as the Moon occults Venus. For us, a bright gibbous Venus slips behind the slim sunlit crescent of the Moon at about 1:15 PM PST, and pops out again on the shadowed side at around 2:30 PM. At the start, they will be about 21 degrees up in the southwest, at an azimuth of 228 degrees.

The Geminid meteor shower will peak on the evening of December 13/14, with no Moon to interfere. The predicted peak starts at 5 PM, so it should be good all night. 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. As you might suspect, the radiant point is in Gemini, near the head stars Castor and Pollux, and will be nearly overhead at midnight. Hope for clear skies!

At sunset on December 16, the crescent Moon will be near the close pair of planets Jupiter and Saturn low in the southwest.

On Monday, December 21, the northern hemisphere's Winter Solstice will occur at 2:01 AM PST. Welcome to Winter! Then, low in the southwest at sunset, Jupiter and Saturn will have a magnificent close conjunction at less than a tenth of a degree separation. Both gas giants and their brighter moons will be visible in a typical telescopic field of view, although Ganymede will be transiting the face of Jupiter. This is the closest they've been since 1623, but the last time they were easily visible in such a close conjunction was in 1226.

## FROM THE PRESIDENT

Jerry Wilson

Saturday morning on the back patio of our home in Goleta, Pat and I, and our dog Honey, are having breakfast and coffee waiting for the 9:15 launch of the SpaceX Falcon9 carrying a joint NASA ESA ocean monitoring satellite. It's a pleasant fall morning with a clear view of the horizon in the direction of Vandenberg AFB's launch facility about 30 miles away. Right on time an orange-red plume rises over the hilltop to the north west.

It's not as easy to follow the booster plume in the daytime sky as it is at night. We lose sight of the plume at MECO (main engine cut off). About five minutes later we begin to hear and feel the rumble of the booster's liftoff. A minute later we can see the high altitude burn of the returning booster. It's a short burn but we catch sight of its re-ignition closer back near the horizon. It'll burn this time until it touches down on the landing pad. Shortly, the sonic boom plays the finale to this morning's event.

I'm always very impressed by modern technology. SpaceX is an impressive leader in US space technology, and being able to watch a launch and return from my backyard is very sweet. Of course, Elon's not the only game in town. NASA's next rover, Perseverance, is less than a hundred days from its touchdown on Mars in February 2021. Perseverance will arrive about the time the China and United Arab Emirates probes also arrive. NASA and China are sending rovers to the surface, while the UAE aims to place a spacecraft in orbit.

China also just launched a lunar sample return mission, Chang'e-5, due to arrive at the moon this week. While the US has samples of asteroid Bennu on a return flight to earth and Japan is taking the long path home with its bite of asteroid Ryugu. It's an exciting time as we watch each of humanity's first steps into the solar system.

## THE NIGHT SKY IS AS CLOSE AS YOUR

### BACKYARD

Michael Hardwick

I've always had an interest in looking at the night sky. With a little self-education, you can identify planets and stars from your back yard with little or no equipment. Free applications like "Sky Safari" or "Pocket Universe" can be downloaded to your cell phone to identify celestial objects. With these apps, simply point the cell phone to a star or planet to get its name. The night sky is full of wonders and objects that come and go with the seasons and move through the sky as the Earth turns. Currently, three planets are visible in the night sky, Jupiter, Saturn, and Mars. In the early morning, Venus makes an appearance. With a telescope, you can see Jupiter with its 4 moons and Saturn with its rings.

The Santa Barbara Astronomical Unit at the Natural History Museum led me to start purchasing telescopes. My son has a great interest in the technical side of astronomy. As a cinematographer, lenses and telescopes come naturally to him. Between us we acquired several different types of telescopes. It quickly became obvious that our best investment was quality, wide field-of-view lenses, and a telescope mount that keeps the scope pointed to an object as the earth turns. A motorized mount moves to keep a target stationary.

Finding faint objects in the sky can be difficult. "Sky Safari Pro" can link to a telescope mount configured for "Wi-Fi". Simply select a celestial object in "Sky Safari" and the application drives the scope mount to that location. If properly aligned, the scope will stay fixed on the object so you can swap lenses to get better views of the object.

The next step is to find a way to record what you see. Astrophotography is the answer. The heart of the project is a computer attached to the scope that completely automates taking pictures of celestial objects. Using the computer, select your target and how many camera shots to take. The computer takes multiple shots over time and stacks the results to give better resolution of the object. We are beginning to get some interesting results, but there is always a new gadget that we need to add!



“I dunno, guys. Do you really think that the moon is made of Wensleydale cheese?” Photo credit: Tom Totton.

## ARTS CORNER

### Red Stilts

Seventy years ago I made a pair of stilts  
from six-foot two-by-twos, with blocks  
to stand on nailed a foot from the bottom

If I was to learn to walk on stilts I wanted  
them red and I had to wait almost forever  
for the paint to dry, laid over the arms

of a saggy, ancient Adirondack chair  
no longer good for much by holding hoes  
and rakes and rolled up in twine,

and at last I couldn't wait a minute longer  
and took the stilts into my hands and stepped  
between them, stepped up and stepped out,

tilted far forward, clopping fast and away  
down the walk, a foot above my neighborhood,  
the summer in my hair, my new red stilts

stuck to my fingers, not knowing how far  
I'd be able to get, and now, in what seems  
just a few yards down the block, I'm there.

Ted Kooser

### **AU Information Box**

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

Javier Rivera 682-4711x173  
[jrivera@sbnature2.org](mailto:jrivera@sbnature2.org)

**AU AstroNews**, the monthly publication of the  
**Astronomical Unit (AU)**, is mailed to the AU  
membership. For publishing consideration for the  
next month, submit astronomical items by the 20th  
of the current month!

### **AU annual membership rates:**

**Single = \$20 Family = \$25**

### **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 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12 MOON OCCULTS VENUS
13 GEMINID METEORS TONIGHT	14 TECH TALK KZSB (AM1290) 9-10 AM	15	16	17	18	19
20	21 WINTER SOLSTICE JUPITER AND SATURN CONJUNCTION	22	23	24	25	26
27	28 TECH TALK KZSB (AM1290) 9-10 AM	29	30	31		