



# AU AstroNews

## The Newsletter of the Astronomical Unit

December 2018

Sponsored by the Santa Barbara Museum of Natural History



Guests dine under a canopy of lights at a special event at the Ritz-Carlton Bacara. Photo credit: Bruce Murdock.

### DECEMBER GENERAL MEETING

For our annual election and members' night we have three members providing interesting astrophysics oriented science talks at our December 7th general meeting: Chuck McPartlin will discuss and show slides of different asteroid/star occultations he's compiled; Tessa Flanagan and Duff Kennedy will do a presentation on composer Gustav Holst's "The Planets", and SBAU President, Jerry Wilson, will fill his twenty minutes with an intriguing mystery subject. At press time Jerry would not divulge the subject of his talk.

### OUTREACH SUMMARY

Since the last newsletter, AU outreaches Winslow Barnwell, Jason Barrios, Mike Chibnik, Tim Crawford, Joe Doyle, John Edkins, Tessa Flanagan & Duff Kennedy, Ruben Gutierrez, Art Harris, Sean Kelly, Ken Kihlstrom, Pat & Chuck McPartlin, Janet & Martin Meza, Bruce Murdock, Edgar Ocampo, Peggy O'Rork, Javier Rivera, Dianne & Russell Ruiz, David Salvia, Tom Totton, Matthew Walton, Tom Whittemore, Jerry Wilson, and Andre Yew showed the night sky to 960 happy viewers.

### DECEMBER AU OUTREACH

Here are the outreach events scheduled so far for October. Events are subject to change and cancellation, so contact Chuck at

[macpuzl@west.net](mailto:macpuzl@west.net) or 964-8201 for the latest information.

The Telescope Workshop meets on Tuesday evenings (except the third Tuesday) at 7:30 PM at the Broder Building at SBMNH. Contact Tim Crawford at [tcrawf3@cox.net](mailto:tcrawf3@cox.net) for information. Listen to the AU on the radio at KZSB 1290 AM at 9 AM on the second and fourth Monday of each month.

### MONDAY, DECEMBER 3, SETUP 6 PM

Telescopes for an Astronomy Night at Santa Barbara Junior High School, 721 East Cota Street. We set up behind the Marjorie Luke Theater, with access through the gate where East Ortega Street dead-ends into North Quarantina Street.

### WEDNESDAY, DECEMBER 5, GATHER AT 6 PM

Annual AU Holiday Party at the Flightline Restaurant, 521 Firestone Road, at the airport.

### FRIDAY, DECEMBER 7, 7 PM

Monthly AU meeting in Farrand Hall at SBMNH. Elections and Members Night.

### SATURDAY, DECEMBER 8, 5 PM

AU planning meeting, in the classroom next to Javier's office.

### SATURDAY, DECEMBER 8, 7 PM

Monthly Public Star Party at SBMNH. Bring a scope and have fun showing goodies in the sky outside Palmer Observatory, or just show up and enjoy looking at them.

### THURSDAY, DECEMBER 13, SETUP 5:30 PM

Telescopes for Cleveland Elementary School, at 123 Alameda Padre Serra. We'll set up on their playground, accessed through a gate at the W edge of the entry parking lot.

### TUESDAY, DECEMBER 18, SETUP 7 PM

Telescope Tuesday at Camino Real Marketplace in Goleta. We set up in the plaza next to the theater, under the Christmas tree. For 2019 we move to the second Tuesday of the month.

### FRIDAY, DECEMBER 21, 2:23 PM

Summer Solstice in the Southern Hemisphere!

### FRIDAY, DECEMBER 21, 7 PM

Monthly Public Telescope Night at Westmont College, at the observatory, next to the baseball field.

### SATURDAY, DECEMBER 22, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the bluff by the Angel Oak Restaurant.

### SATURDAY, DECEMBER 29, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the bluff by the Angel Oak Restaurant.

### From the President

Jerry Wilson

Today the Insight mission successfully touched down on Mars. I watched the event on the NASA web site. Among the discussions and interviews shown was an explanation of how the mission can pinpoint seismic sources on the planet with only one receiving station instead of three. It's a clever approach. Once down, the Insight lander deploys its solar arrays and places the seismic instruments on the ground. A shield to prevent picking up wind-generated signals covers the sensor. Once deployed the sensor will detect the usual P and S waves traveling through the volume of the planet and bouncing off interfaces and channeling along layers.

P waves travel through solids and liquids, and are refracted by a solid-liquid interface such as the mantle-core interface. The S wave travels through solid layers but a liquid core will appear opaque. These give information on interior structure. But there is also a true surface wave. This is the one that causes all the destruction near the epicenter and gives earthquakes a bad name. However, clever interpretation of this wave allows single source triangulation. The surface wave spreads along the planet surface as ripples spread on a pond. But on a spherical planet they travel from the epicenter to the sensor by all possible paths. Wave amplitude does decrease as distance increases, but Mars being a

smaller planet helps with detection. Time difference of these waves between the first and last to arrive contributes information on surface distance of the epicenter.



"Now I see why your mount wouldn't track! There's peanut butter in the gears!" Photo credit: T. Totton

### Stars Above

Tom Whitemore

I am sure that many of us can remember that first inspiration which formed our passion for astronomy. Maybe an individual. A specific moment that was forever imprinted on our minds. For me, certainly, my good friend, Tom Mudd stands out since he was the one who introduced me to grinding mirrors and building telescopes to house them.

When I go much further back I think about my brother, Paul, a gifted mathematician and topologist who showed me the stars during a summer when I was in grade school. Using a borrowed homemade six-inch telescope that had a washing machine agitator as a counter weight, Paul pointed the scope to the top of the sky where the Keystone of Hercules and M13 dominated. As he focused on the Ring Nebula, Paul told me how this spooky object came to be. He knew the sky well as he had a copy of the "Field Book of the Stars" since he was young. Mom told me that he would even wash his hands before he would open this book. A number of years later, I was to take this book to Tucson, Arizona, where I pursued my interest in the stars as a graduate student at the university. Paul taught me a poem to clock the night sky over the course of the year:

"First Regulus gleams on the view. Arcturus, Spica, Vega, blue. Antares, Altair, the Goat's Head, the Square. Fomalhaut, Aldebaran, the Belt aglow and Sirius, most fair."



Some of the regulars at the mirror-making workshop. Mike Chibnik joined us on a recent visit. Photo credit: Tom Totton.



“You mean to tell me an asteroid that small could cancel my Monday show?” Photo credit: Tom Totton.



“Actually, I’ve received some pretty sound advice from these fellas.” Photo credit: Tom Totton.

### AU Information Box

- President:** Jerry Wilson 968-4056  
[jerryawilsonphd@gmail.com](mailto:jerryawilsonphd@gmail.com)
- Vice President:** Baron Ron Herron  
[vicepresident@sbau.org](mailto:vicepresident@sbau.org)
- Secretary:** Jason Barrios  
[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)
- Refreshments:** Tom Totton  
[tomcez@cox.net](mailto:tomcez@cox.net)
- Webmaster:** Paul Winn 886-2319  
[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 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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2	3 SB JUNIOR HIGH 6PM	4	5 ANNUAL AU HOLIDAY PARTY 6PM	6	7 GENERAL MEETING 7PM	8 PLANNING MEETING 5PM STAR PARTY 7PM SBMNH
9	10 TECH TALK KZSB (AM 1290) 9-10 AM	11	12	13 CLEVELAND ELEMENTARY 5:30PM	14	15
16	17	18 CAMINO REAL MARKETPLACE 7PM	19	20	21 WESTMONT COLLEGE 7PM	22 RITZ-CARLTON BACARA 6PM
23	24 TECH TALK KZSB (AM 1290) 9-10 AM	25	26	27	28	29 RITZ-CARLTON BACARA 6PM
30	31					