



The Observer

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member of The Astronomical League

<http://sbvaa.org/>



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Since 1958

July, 2020

Meeting:

July 11 2020

Location:

Program

Summer Social Cancelled

Thanks to the recent spike in COVID19 cases, once again there will be no club meeting this month.

On Wednesday, July 1, in response to the above mentioned increase of reported cases, the governor ordered a 3-week shut down of bars & theaters and the internal operations of restaurants. Unfortunately, the Sizzler does not have an area for outdoor dining.

Prior to the so-called reopening, COVID cases were declining. When the “great re-opening” happened apparently many people forgot to take the two simple, proven preventative steps. So do your part & wear a mask when around others and keep up your “social distancing.” Remember, you can continue practicing a little “backyard astronomy” to get your photon fix.



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Calendar of Upcoming Events

July 18, Outreach, Oak Glen 

Aug. 8, Annual Club BBQ 

Aug. 12 - 16, Grandview 

Aug. 29, Outreach, S.B. Cty. Museum



Sept. 19, Star Party/Outreach,
Oak Glen 

Sept. 26, Club Meeting 

Oct. 17, Outreach, Oak Glen 

Oct. 24, Club Meeting 

Grandview in June and August Cancelled

Alas, Megan has received word from the Park Service that the campgrounds in and around Grandview remain closed. Since the last newsletter was published, she has been notified by the NPS that the park will remain closed in August.



LIGO Project On A Roll



First, one gravitational wave then a second, then...12

Now it seems that we (the Earth) is being pushed around by GWs. It's doubtful that you feel it since the displacement movement is smaller than a hydrogen atom. However, move we do.

The LIGO project is supported by two installations, one in Livingston, LA. and the other in Hanford, WA. Each detector is an L-shaped facility with legs 2.5 miles long. A laser at the crux of the "L" shines light down these legs, and 88-lb. mirrors at the end of each bounce the beams back. If the reflected beams arrive back at the crux at slightly different times, it's potential evidence of a gravitational wave distorting the fabric of space-time in the legs.

The LIGO team has used this strategy to great effect. The collaboration now has about a dozen confirmed gravitational-wave detections under its belt, including the first-ever such find, [made in September 2015](#). Most of these events involve merging black holes, but two were caused by the collision of superdense, city-size stellar corpses known as [neutron stars](#).

The LIGO detectors are incredibly sensitive and profoundly shielded from noise; they have to be, or else they'd be incapable of picking up gravitational waves. Making the groundbreaking 2015 detection, for example, required measuring a distance change [1,000 times smaller than the width of a proton](#).

(For information go to [space.com](#))

Things to See While in “Quarantine”



July will be a great time to see Jupiter, Saturn and even distant Pluto. Check your sky chart programs for the best times

On Sunday, July 5, the moon will reach its full phase at 4:44 GMT. The full moon will feature a shallow penumbral lunar eclipse, the first eclipse to be visible in the Western Hemisphere during 2020. The eclipse will begin when the moon contacts Earth's penumbral shadow at 03:07:23 GMT. The penumbral eclipse will end when the moon exits Earth's shadow at 05:52:27 GMT. The entire eclipse will be visible from all of Central and South America, the southeastern half of North America, and western Africa. The latter stages of the eclipse will be visible in the rest of the USA (except Alaska) and the western Canadian

Also on July 5, Jupiter, Saturn and the full Moon will form a rough triangle which should be visible for most of the night.

On July 14, Jupiter will be at opposition and the next night Pluto will be at opposition (near Jupiter).

Starting in late evening on Thursday, July 16, observers in the Americas can see Europa's shadow transiting Jupiter while accompanied by the Great Red spot. The shadow and spot will commence their traverse together at 02:45 GMT. Europa's shadow will move off of Jupiter at 5:30 GMT, leaving the GRS to complete its passage about 90 minutes later.

On the night of July 20, Saturn will be at opposition.

July 24, will give us a second Europa shadow transit with the GRS. The time will run from 0520 to 0800 GMT. (Check out [space.com](https://www.space.com) for more details)