



# The Observer

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member of The Astronomical League

<http://sbvaa.org/>



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## Meeting:

June 2, 2018

Location:

**7:00 p.m.**

Pre-meeting Dinner,  
6:00 p.m.,

**Jenny's Family  
Restaurant  
7750 Palm Ave.  
Highland, CA**

After the meeting telescopes will be set up for viewing and members will be available to answer questions. Bring your telescope to observe with us.

***No telescope is too humble,  
and beginners are always  
made welcome!***

## Program Outreach In Lieu Of Meeting

We will gather at the East Valley Water District headquarters located at 31111 Greenspot Rd., Highland, CA. It's a very large building on the south side of the street.

We will have easy access to set up our scopes. Go through the big gate on the west side of the main building to set up along a wide (20 ft), curved sidewalk that's about a hundred feet long or so. However, we can't leave our cars parked there. After we unload, then we just go back through the west gate and park in the main parking lot.

We'll have an unrestricted view of the southern and western sky. There are some lights in the area (they will turn them off if they can), so we'll how that affects things, otherwise, it should be pretty good.

Since sunset is at 7:57 pm, we should probably get there around 7:30 to set up.

## SBVAA Officers

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## Calendar of Upcoming Events

May 25 - 28, RTMC

June 2, Outreach in lieu of meeting

**June 15-17, GRANDVIEW**

July 7, Summer Social at The Sizzler

July 14, Star Party, Oak Glen

Aug. 4, Annual Club Picnic

Aug. 11, Outreach, Pioneer Town

Sept. 1, Club Meeting

**Sept. 7-9, GRANDVIEW**

## Plumes on Europa

Scientists re-examining data from an old mission bring new insights to the tantalizing question of whether Jupiter's moon Europa has the ingredients to support life. The data provide independent evidence that the moon's subsurface liquid water reservoir may be venting plumes of water vapor above its icy shell.

Data collected by NASA's [Galileo](#) spacecraft in 1997 were put through new and advanced computer models to untangle a mystery -- a brief, localized bend in the magnetic field -- that had gone unexplained until now. Previous ultraviolet images from NASA's Hubble Space Telescope in 2012 suggested the presence of plumes, but this new analysis used data collected much closer to the source and is considered strong, corroborating support for plumes. The findings appear in the May issue of the journal *Nature Astronomy*. The research was led by Xianzhe Jia, author of the article, a space physicist at the University of Michigan in Ann Arbor.

The findings are good news for the Europa Clipper mission, which may launch as early as June 2022. From its orbit of Jupiter, Europa Clipper will sail close by the moon in rapid, low-altitude flybys. If plumes are indeed spewing vapor from Europa's ocean or subsurface lakes, Europa Clipper could sample the frozen liquid and dust particles. The samples could tell us if Europa has the ingredients for life.

*(For more details, go to [astronomy.com](http://astronomy.com))*

## Helicopter on Mars?!

The Mars Helicopter, a small, autonomous rotorcraft, will travel with NASA's [Mars 2020](#) rover mission, currently scheduled to launch in July 2020, to demonstrate the viability and potential of heavier-than-air vehicles on the Red Planet.

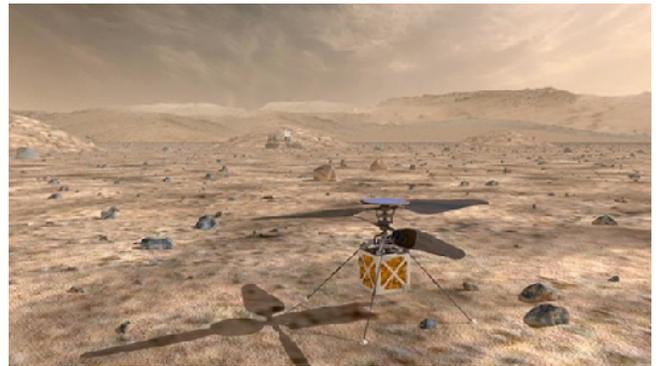
Started in August 2013 as a technology development project at NASA's Jet Propulsion Laboratory (JPL), the Mars Helicopter had to prove that big things could come in small packages. The result of the team's four years of design, testing and redesign weighs in at little under four pounds (1.8 kilograms). Its fuselage is about the size of a softball, and its twin, counter-rotating blades will bite into the thin Martian atmosphere at almost 3,000 rpm – about 10 times the rate of a helicopter on Earth.

The helicopter also contains built-in capabilities needed for operation at Mars, including solar cells to charge its lithium-ion batteries, and a heating mechanism to keep it warm through the cold Martian nights. But before the helicopter can fly at Mars it has to get there. It will do so attached to the belly pan of the Mars 2020 rover.

“The altitude record for a helicopter flying here on Earth is about 40,000 feet. The atmosphere of Mars is only one percent that of Earth, so when our helicopter is on the Martian surface, it's already at the Earth equivalent of 100,000 feet up,” said Mimi Aung, Mars Helicopter project manager at JPL. “To make it fly at that low atmospheric density, we had to scrutinize everything, make it as light as possible while being as strong and as powerful as it can possibly be.”

Once the rover is on the planet's surface, a suitable location will be found to deploy the helicopter down from the vehicle and place it onto the ground. The rover then will be driven away from the helicopter to a safe distance from which it will relay commands. After its batteries are charged and a myriad of tests are performed, controllers on Earth will command the Mars Helicopter to take its first autonomous flight into history.

As a technology demonstration, the Mars Helicopter is considered a high-risk, high-reward project. If it does not work, the Mars 2020 mission will not be impacted. If it does work, helicopters may have a real future as low-flying scouts and aerial vehicles to access locations not reachable by ground travel.



The rover will conduct geological assessments of its landing site on Mars, determine the habitability of the environment, search for signs of ancient Martian life, and assess natural resources and hazards for future human explorers.

*(For more details, go to [astronomy.com](http://astronomy.com))*

# The Time for Grandview is Almost Here

## Good Memories of Grandviews Past

