

Southwest Florida Astronomical Society SWFAS



The Eyepiece January 2019

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A MESSAGE FROM THE PRESIDENT

I hope everyone had a Happy and safe New Year. This year we have a full lunar eclipse this month! We are planning an event at Seahawk Park on the 20th.

With the government shutdown, it is likely that January’s Big Cypress event will not be happening. I do not know if they have closed down the road by the Visitor Center.

Mike McCauley is coordinating the Sky Watch Cruise event on Feb 8th at Babcock Ranch. We need people with telescopes and someone to do a presentation using a laser pointer out on the boat.

Tom Segur has a Dynamax 8 that needs some cleaning and has non working motors. It is free to any member interested.

Ron Madl donated a Celestron Nexstar 5 telescope that I will be checking out.

Dues were increased to \$25.00 per year as of the November meeting. We are now collecting the 2019 dues. If you had already paid the 2019 dues, you do not have to worry about the difference. If you have any issues, please privately contact an officer. Dues can be mailed to: SWFAS, Inc. P.O. Box 100127 Cape Coral, FL 33910

Brian

Program this Month

The South West Florida Astronomical Society is pleased to announce that Allyson Rae, Chief Meteorologist for NBC-2 News will be the guest speaker at our January meeting. Allyson will speak to the astronomy club about the weather conditions and weather patterns in South West Florida most conducive for astronomical observing. Afterwards she will open up the discussion with the audience to discuss all things meteorological. If you have any questions that you always wanted to ask a meteorologist about our Florida weather or would just like to meet the personality you see on television every evening now is your opportunity. Allyson's presentation will begin at 7:30pm on Thursday, January 3, 2019 at the Calusa Nature Center and Planetarium in Fort Myers. The regular monthly meeting of the SWFAS will be held immediately following Allyson's presentation. We hope to see you at the Calusa Nature Center and Planetarium on January 3rd.

Michael J. McCauley
VP/Program Coordinator SWFAS

Star Party Schedule 2019

Big Cypress - Jan 5th, Feb 2nd, Mar 2nd

SeaHawk Park - Jan 12th, Jan 20th, Feb 9th, April 13th, May 11th, June 1st, July 6th,
Aug 3rd, Aug 31st, Sept 28th, Nov 30th

Caloosahatchee Regional Park - Mar 9th, Apr 6th, May 4th, Oct 26th, Nov 2nd, Nov 30th

Rotary Park - Cape Coral - March 8th

We have scheduled some of the Seahawk Park nights to coincide with the moon being a crescent to 1st quarter stage to allow for lunar observing.

In the Sky this Month

Moon:

New – Jan 6; 1st Quarter – Jan 14; Full – Jan 21; Last Quarter – Jan 27. A total lunar eclipse will be visible during the evening of January 20 and before dawn on the 21st.

Mercury appears low in the southeast ½ hour before dawn early in the month. It forms a line with Jupiter and Venus from the lower left field of view to the upper right slightly below the Moon. Its brightness increases from -0.4 to -0.7 in the first part of January, but is “washed out” by twilight before the end of the first week.

Venus dims from -4.6 to -4.3 this month, but is still the brightest planet. It rises around 3:30 a.m. in early Jan. On 6 January, Venus’ western elongation from the Sun is 47°. During the last week of January, Venus and Jupiter (2nd brightest planet) rise together in the South-Southeastern sky and are clear around ½-1 hour before sunrise, to the left of Antares/Scorpius.

Mars sets more than four hours before Venus appears. It is about halfway up in the Southwest around 7 p.m. during the second week of the month while crossing Pisces. It becomes a little dimmer from +0.5 to +0.9 this month. Its apparent size decreases from 7.5” to about 6” in January. It sets about 11:20 p.m. to start the month and 11:00 p.m. at month’s end.

Jupiter follows Venus into the southeastern sky a little after 5 a.m. Its brightness increases slightly from -1.8 to -1.9 this month. Jupiter and Venus appear to move rapidly past each other, Jupiter ascending, while Venus descends from Libra through Scorpius. Jupiter and Venus are at their minimum separation of 2½° on 22 January. At this point, Venus is 60% lit and 21” wide; Jupiter is 100% lit and 33” wide. The two planets end the month at 9½° apart.

Saturn is in conjunction with the Sun on January 2 and not visible. It is within 2° of Mercury on the 13th. At +0.6 magnitude, it will rise before the Sun by about 1½ hours by the end of January.

Uranus follows Mars in the sky, positioned in the very eastern part of Pisces. See <https://is.gd/urnep> for a finder chart or pages 48-49 in September issue of *Sky & Telescope*.

Neptune moves just ahead of Mars in the sky, still in Aquarius. See *Sky & Telescope Weekly, December 6, 2018, Bob King, "Mars and Neptune Have a Close Shave"*. See <https://is.gd/urnep> for a finder chart or pages 48-49 in September issue of *Sky & Telescope*.

International Space Station: The ISS is visible in the early morning (dawn) skies over Ft Myers from January 12th through 23rd, and during early evening from the 17th to the 23rd. Brightness will vary from -0.5 to -3.4. See this link for specific times and routes for the ISS: <http://www.heavens-above.com/>

The **Hubble Space Telescope** will be visible during dawn to pre-dawn hours from 11-25 January. See this link for specific times and routes for the HST: <http://www.heavens-above.com/>

Southwest Florida Astronomical Society, Inc. Event Schedule for 2019

Date	Event	Location	Time/Note
Jan 3 rd , 2019	Monthly Meeting	Calusa Nature Center Planetarium	7:30pm
Jan 4 th , 2019	Public Observing	FSW Moore Observatory Punta Gorda Campus	Dusk
Jan 5 th , 2019	Big Cypress Observing Night	Big Cypress Welcome Center Ochopee	7:00pm
Jan 12 th , 2019	Monthly Star Party	Seahawk Park -Cape Coral	Dusk
Jan 19 th , 2019	Solar Observing	Gilchrist Park Punta Gorda	9:00 am - Noon
Jan 20 th , 2019	Lunar Eclipse	Seahawk Park -Cape Coral	10pm-2am
Feb 1 st , 2019	Public Observing	FSW Moore Observatory Punta Gorda Campus	Dusk
Feb 2 nd , 2019	Big Cypress Observing Night	Big Cypress Welcome Center Ochopee	7:00pm
Feb 7 th , 2019	Monthly Meeting	Calusa Nature Center Planetarium	7:30pm
Feb 8 th , 2019	Sky Watch Cruise	Babcock Ranch	Dusk
Feb 9 th , 2019	STEMtastic Day of Discovery	Lee County School Board Complex	10am – 3pm
Feb 9 th , 2019	Monthly Star Party	Caloosahatchee Regional Park	Dusk
Feb 16 th , 2019	Solar Observing	Bayshore Live Oak Park Port Charlotte	9:00 am - Noon
Feb 23 rd , 2019	Burrowing Owl Festival	Rotary Park Cape Coral	10:00 am – 4pm
March 1 st , 2019	Public Observing	FSW Moore Observatory Punta Gorda Campus	Dusk
March 2 nd , 2019	Big Cypress Observing Night	Big Cypress Welcome Center Ochopee	7:30pm
March 7 th , 2019	Monthly Meeting	Calusa Nature Center Planetarium	7:30pm
March 8 th , 2019	Rotary Park Star Party	Rotary Park Cape Coral	Dusk
March 9 th , 2019	Monthly Star Party	Caloosahatchee Regional Park	Dusk
Mar 16 th , 2019	Solar Observing	Ponce deLeon Park Punta Gorda	9:00 am - Noon
April 4 th , 2019	Monthly Meeting	Calusa Nature Center Planetarium	7:30pm
April 5 th , 2019	Public Observing	FSW Moore Observatory Punta Gorda Campus	Dusk
April 20 th , 2019	Solar Observing	Harbour Heights Park Port Charlotte	9:00 am - Noon

**All observing events are Weather Permitting.
If it is cloudy or a chance of rain, we may not setup at all.
There may be no way to provide advance notice of cancellation.**

Events may be cancelled several hours before scheduled time based on observed conditions and forecasts at that time and weather may change.

Monthly Star Parties: These are held at either Seahawk Park in Cape Coral or at Caloosahatchee Regional Park (CRP) off SR78 7 miles east of SR31. Other than park fees noted, these are free and open to the public. Those wanting to learn how to use equipment can bring it to the monthly star parties or the monthly meetings. We are always glad to help people learn how to use their telescopes. It is also a great way to learn about different telescopes and try some out before making a purchase.

Seahawk Park is in North Cape Coral off Wilmington Blvd. (Nelson Rd or Chiquita Blvd are the nearest cross streets.) There is a brown sign in the center median at the entrance to the park. (GPS may not get you to the park, as some of the local roads have been closed.) You will make a big J hook before getting to the parking area. Seahawk Park is managed by the *Cape Coral R/Seahawks Club* for Radio Controlled Planes and they have priority. They are usually done by sunset but may be there before sunrise. Park in the lot and transport your equipment to the concrete staging area before the runway. This park is handicap capable as there is level concrete leading from parking to the staging area.

CRP has a gate that closes at dusk, you can check the county's website for current gate closing times and the status of the park's Northside entrance as that is where we observe from. (They may close the area if there are issues with the trails.) There is a parking fee of \$1/hr or \$5/day at CRP. Park in the main Northside parking lot. We sometimes setup down the dirt road that goes to the east. That area is grassy and may not be level, so one should walk on the dirt road as much as possible and watch their step.

Big Cypress: The Big Cypress Visitor Center is located off US41 5 miles east of SR29 about 25 miles east of Naples. Big Cypress has earned a Dark Sky Park designation. They hold observing events down the road that extends south of the Welcome Center during the winter months. This is a real dark sky site. Their observing events are free.

Solar Events: We have daytime solar events where one can safely look at the Sun. Things such as sunspots and prominences may be visible. These are free unless tied to another event that may have an entrance fee. There are seasonal monthly events held at different parks around Charlotte County as well as at other major public events in SW FLA.

Rotary Park Star Party: This is a free public star party held at Rotary Park at the south end of Pelican Blvd in South Cape Coral. Park to the west of the main building and walk to where we are setup to the east of the main building.

Moore Observatory, FSW Punta Gorda Campus: The campus is located off Airport Rd just east of I-75. Go to the right around the lake and park. The observatory is located down the path along the lake. Besides the telescope in the observatory, additional scopes may be setup around the observatory. This is a free event.

Star Party Etiquette: Bright white flashlights are not welcome. We use red flashlights to preserve our night vision. At the parks, please use just your parking lights if possible. As there may be cords and tripod legs that are hard to see in the dark, we ask that all children be well behaved and cautious around the telescopes. If you need help in moving around in the dark, just ask. Someone will be happy to guide you with a red light. If you have a telescope and need help with it, just ask. Someone will be glad to show you how to use it.

Golden Rules to Telescope Observing: Move your eye to the telescope, don't try to move the telescope to your eye! Ladders/chairs are there for your support, the telescopes do not provide support and should not be touched.

Minutes of the Southwest Florida Astronomical Society – December 6, 2018

The regular monthly business meeting of the Southwest Florida Astronomical Society was called to order at 7:34 pm by president Brian Risley in the Calusa Nature Center Planetarium.

Forty-one people were present including two individual visitors and a Girl Scout group.

The program was a planetarium presentation entitled "The Sun, Our Living Star."

At 8:07pm the business meeting resumed.

The past events listed in the printed agenda were reviewed. Upcoming events listed in the printed agenda were discussed.

Election of officers for 2019 was held.

Tim Barrier made a motion, seconded by Tony Heiner, for Don Palmer to continue as secretary. The motion carried on a voice vote.

Maria Berni made a motion, seconded by John MacLean, for Tim Barrier to continue as treasurer. The motion carried on a voice vote.

Bruce Dissette made a motion nominating Mike McCauley for vice president, which was seconded by John MacLean. The motion carried on a voice vote.

Current vice president Bruce Dissette conducted the election of president and nominated Brian Risley. Mike McCauley seconded the motion. The motion carried on a voice vote.

A Nexstar 8i was donated to the Club by Karen Avery of Estero.

Mike McCauley reported on the previous request from Babcock Ranch for astronomy programming. He said they have for profit lake cruises and would like some astronomy people to do night sky tours and telescope viewing. Brian suggested a relationship with them could lead to donations to the Planetarium and/or a place for the Club to install the 12 inch Meade scope. Mike will discuss the possibilities with them.

Bruce Dissette made a motion, seconded by Bill Francis, to authorize paying the annual \$140 post office box fee. The motion carried on a voice vote.

Tony Heiner made a motion, seconded by Bill Francis, to authorize paying the annual \$500 facility use fee for 2019 to the Nature Center. The motion carried on a voice vote.

Phil Jansen gave away some equipment through a drawing.

Vice president Bruce Dissette reported that the Nature Center needs volunteers for evening events.

Send photos for the Newsletter to Mike Moses.

Bruce Dissette made a motion, seconded by Tony Heiner, to approve the minutes of the November 1, 2018 meeting as published in the December newsletter. The motion carried on a voice vote.

Treasurer Tim Barrier presented the November treasurer's report, with an ending balance of \$1302.11, including a \$100 donation to the community outreach fund. Bill Francis made a motion, seconded by John MacLean, to approve the report. The motion passed on a voice vote.

Mike McCauley will conduct an audit of the 2018 finances in January. Mike McCauley will coordinate the star parties.

Equipment Coordinator Brian Risley will check out the operation of the new telescope.

Anyone who has an idea for a program, or a topic of interest, should contact program coordinator Mike McCauley.

Astronomical League coordinator John MacLean will write an article for the Newsletter about programs the Astronomical League offers.

The business meeting was adjourned at 8:57 pm. Submitted by Don Palmer, secretary

Photo by Chuck Pavlick

<http://www.pbase.com/hobbynavigator/image/168599732>



Soul Nebula

Scope: Takahashi FSQ 106 F/5

Filters: Astrodon 5nm Ha, 5nm O3, 5nm S2

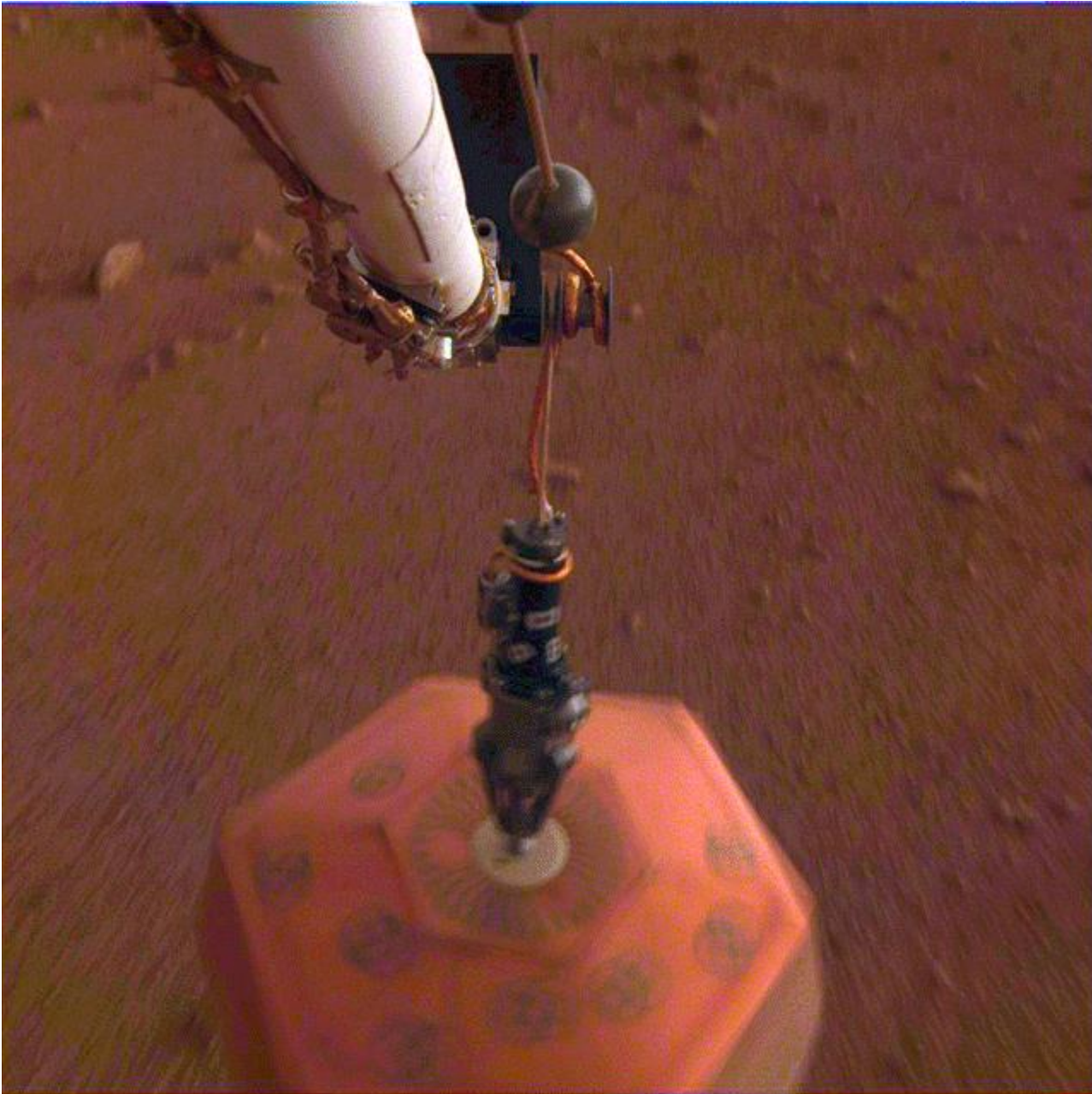
Subs, Ha 10@360 sec., O3 9@300, S2 10@300

Captured in Nebulosity and Processed in Pixinsight and Photoshop

NASA's InSight Places First Instrument on Mars

From NASA-JPL Week in Review, December 21, 2018,

NASA's InSight lander has deployed its first instrument onto the surface of Mars, completing a major mission milestone. New images from the lander show the seismometer on the ground, its copper-colored covering faintly illuminated in the Martian dusk. It looks as if all is calm and all is bright for InSight, heading into the end of the year.



This set of images from the Instrument Deployment Camera shows NASA's InSight lander placing its first instrument onto the surface of Mars, completing a major mission milestone. Credit: NASA/JPL-Caltech

"InSight's timetable of activities on Mars has gone better than we hoped," said InSight Project Manager Tom Hoffman, who is based at NASA's Jet Propulsion Laboratory in Pasadena, California. "Getting the seismometer safely on the ground is an awesome Christmas present."



A fish-eye view of NASA's InSight lander deploying its first instrument onto the surface of Mars, taken by the spacecraft's Instrument Context Camera (ICC) on Dec. 19, 2018. Image Credit: NASA/JPL-Caltech

The InSight team has been working carefully toward deploying its two dedicated science instruments onto Martian soil since landing on Mars on Nov. 26. Meanwhile, the Rotation and Interior Structure Experiment ([RISE](#)), which does not have its own separate instrument, has already begun using InSight's radio connection with Earth to collect preliminary data on the planet's core. Not enough time has elapsed for scientists to deduce what they want to know - scientists estimate they might have some results starting in about a year.

To deploy the seismometer (also known as the Seismic Experiment for Interior Structure, or [SEIS](#)) and the heat probe (also known as the Heat Flow and Physical Properties Probe, or [HP³](#)), engineers first had to verify the robotic arm that picks up and places InSight's instruments onto the Martian surface was working properly. Engineers tested the commands for the lander, making sure a model in [the test bed at JPL](#) deployed the instruments exactly as intended. Scientists also had to analyze images of the Martian terrain around the lander to figure out the best places to deploy the instruments.

On Tuesday, Dec. 18, InSight engineers sent up the commands to the spacecraft. On Wednesday, Dec. 19, the seismometer was gently placed onto the ground directly in front of the lander, about as far away as the arm can reach - 5.367 feet, or 1.636 meters, away).

"Seismometer deployment is as important as landing InSight on Mars," said InSight Principal Investigator Bruce Banerdt, also based at JPL. "The seismometer is the highest-priority instrument on InSight: We need it in order to complete about three-quarters of our science objectives."

The seismometer allows scientists to peer into the Martian interior by studying ground motion - also known as marsquakes. Each marsquake acts as a kind of flashbulb that illuminates the structure of the planet's interior. By analyzing how seismic waves pass through the layers of the planet, scientists can deduce the depth and composition of these layers.

"Having the seismometer on the ground is like holding a phone up to your ear," said Philippe Lognonné, principal investigator of SEIS from Institut de Physique du Globe de Paris (IPGP) and Paris Diderot University. "We're thrilled that we're now in the best position to listen to all the seismic waves from below Mars' surface and from its deep interior."

In the coming days, the InSight team will work on leveling the seismometer, which is sitting on ground that is tilted 2 to 3 degrees. The first seismometer science data should begin to flow back to Earth after the seismometer is in the right position.

But engineers and scientists at JPL, the French national space agency Centre National d'Études Spatiales (CNES) and other institutions affiliated with the SEIS team will need several additional weeks to make sure the returned data are as clear as possible. For one thing, they will check and possibly adjust the seismometer's long, wire-lined tether to minimize noise that could travel along it to the seismometer. Then, in early January, engineers expect to command the robotic arm to place the Wind and Thermal Shield over the seismometer to stabilize the environment around the sensors.

Assuming that there are no unexpected issues, the InSight team plans to deploy the heat probe onto the Martian surface by late January. HP³ will be on the east side of the lander's work space, roughly the same distance away from the lander as the seismometer.

For now, though, the team is focusing on getting those first bits of seismic data (however noisy) back from the Martian surface.

"We look forward to popping some Champagne when we start to get data from InSight's seismometer on the ground," Banerdt added. "I have a bottle ready for the occasion."

JPL manages InSight for NASA's Science Mission Directorate in Washington. InSight is part of NASA's Discovery Program, which is managed by NASA's Marshall Space Flight Center in Huntsville, Alabama. Lockheed Martin Space in Denver built the InSight spacecraft, including its cruise stage and lander, and supports spacecraft operations for the mission.

A number of European partners, including CNES and the German Aerospace Center (DLR), support the InSight mission. CNES provided SEIS to NASA, with the principal investigator at IPGP. Significant contributions for SEIS came from IPGP, the Max Planck Institute for Solar System Research in Germany, the Swiss Institute of Technology in Switzerland, Imperial College and Oxford University in the United Kingdom, and JPL. DLR provided the Heat Flow and Physical Properties Package (HP³) instrument, with significant contributions from the Space Research Center of the Polish Academy of Sciences and Astronika in Poland. Spain's Centro de Astrobiología supplied the wind sensors.

For more information about InSight, visit:

<https://mars.nasa.gov/insight>

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The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more!

January's Evening Eclipse and Morning Conjunctions

By David Prosper

Observers in the Americas are treated to an evening **total lunar eclipse** this month. Early risers can spot some striking morning conjunctions between **Venus, Jupiter,** and the **Moon** late in January.

A **total lunar eclipse** will occur on **January 20th** and be visible from start to finish for observers located in North and South America. This eclipse might be a treat for folks with early bedtimes; western observers can even watch the whole event before midnight. Lunar eclipses takes several hours to complete and are at their most impressive during total eclipse, or totality, when the Moon is completely enveloped by the umbra, the darkest part of Earth's shadow. During totality the color of the Moon can change to a bright orange or red thanks to the sunlight bending through the Earth's atmosphere - the same reason we see pink sunsets. The eclipse begins at 10:34 pm Eastern Standard Time, with totality beginning at 11:41 pm. The total eclipse lasts for slightly over an hour, ending at 12:43 am. The eclipse finishes when the Moon fully emerges from Earth's shadow by 1:51 am. Convert these times to your own time zone to plan your own eclipse watching; for example, observers under Pacific Standard Time will see the eclipse start at 7:34 pm and end by 10:51 pm.

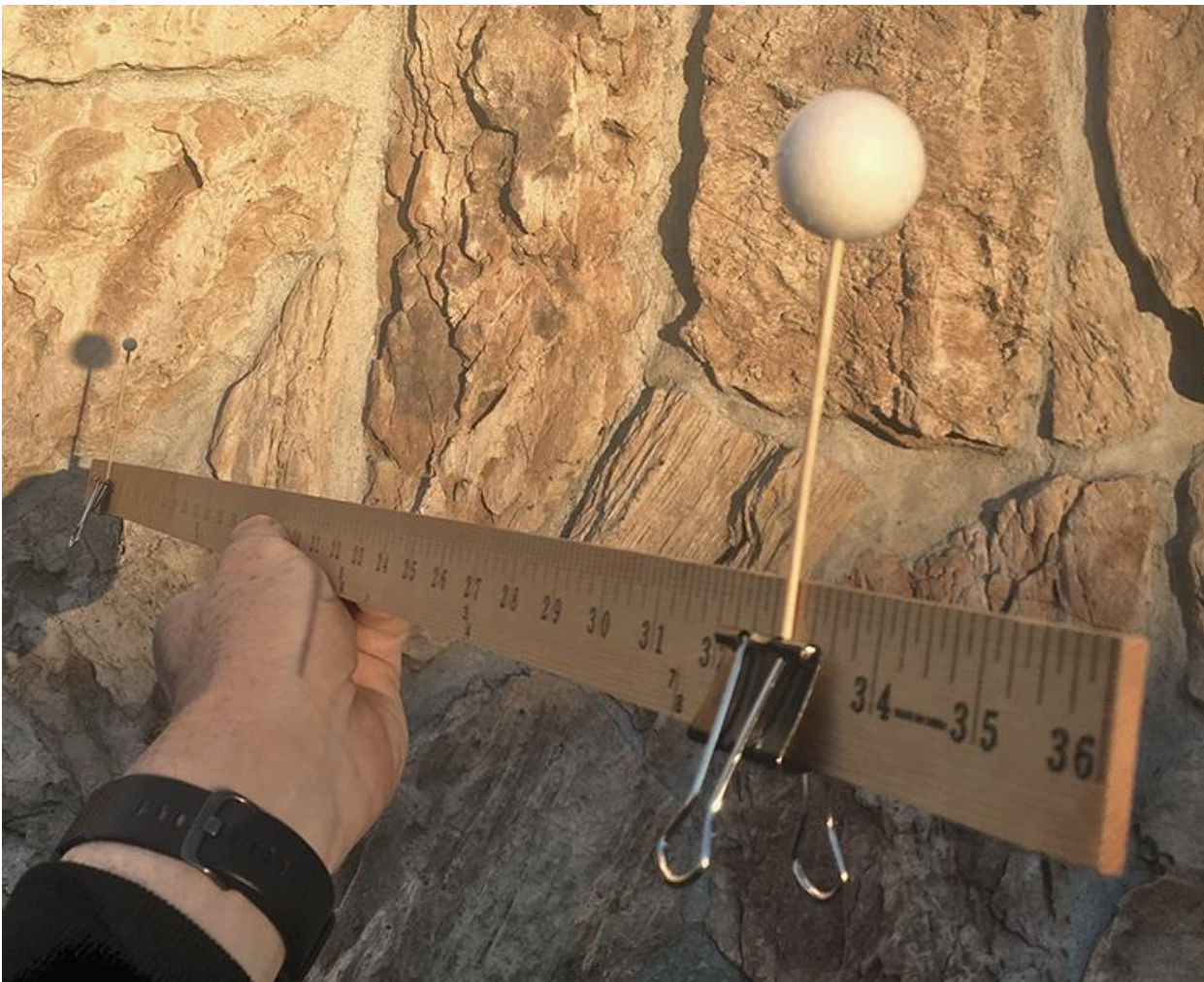
Lunar eclipses offer observers a unique opportunity to judge how much the Moon's glare can interfere with stargazing. On eclipse night the Moon will be in **Cancer**, a constellation made up of dim stars. How many stars you can see near the full Moon before or after the eclipse? How many stars can you see during the total eclipse? The difference may surprise you. During these observations, you may spot a fuzzy cloud of stars relatively close to the Moon; this is known as the "**Beehive Cluster,**" **M44,** or **Praesepe**. It's an open cluster of stars thought to be about 600 million year old and a little under 600 light years distant. Praesepe looks fantastic through binoculars.

Mars is visible in the evening and sets before midnight. It is still bright but has faded considerably since its closest approach to Earth last summer. Watch the red planet travel through the constellation Pisces throughout January.

Venus makes notable early morning appearances beside both **Jupiter** and the **Moon** later this month; make sure to get up about an hour before sunrise for the best views of these events. First, Venus and Jupiter approach each other during the third full week of January. Watch their conjunction on the 22nd, when the planets appear to pass just under 2 ½ degrees of each other. The next week, observe Venus in a close conjunction with a crescent Moon the morning of the 31st. For many observers their closest pass - just over half a degree apart, or less than a thumb's width held at arm's length - will occur after sunrise. Since Venus and the Moon are so bright you may still be able to spot them, even after sunrise. Have you ever seen Venus in the daytime?

If you have missed **Saturn** this winter, watch for the ringed planet's return by the end of the month, when it rises right before sunrise in Sagittarius. See if you can spot it after observing Venus' conjunctions!

You can catch up on all of NASA's current and future missions at nasa.gov



Have you ever wondered how eclipses occur? You can model the Earth-Moon system using just a couple of small balls and a measuring stick to find out! The "yardstick eclipse" model shown here is set up to demonstrate a lunar eclipse. The "Earth" ball (front, right) casts its shadow on the smaller "Moon" ball (rear, left). You can also simulate a solar eclipse just by flipping this model around. You can even use the Sun as your light source! Find more details on this simple eclipse model at bit.ly/yardstickeclipse

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