

IAAS Monthly Astronomy Newsletter May 2018



The International Association for Astronomical Studies provides this newsletter as a service for interested persons worldwide.



This newsletter is published on the World Wide Web at

<http://www.ki0ar.com/astro.html>

- The Home of KI0AR - and is received nationally and internationally. A PDF formatted downloadable version of the newsletter is at http://www.ki0ar.com/current_nl.pdf.

An Open Invitation - For amateur radio operators and scanner enthusiasts, when in the Denver metro area, please join the Colorado Astronomy Net on the [Rocky Mountain Radio League](#)'s W0WYX **146.94 MHz** and **449.825 MHz** repeaters. The RMRL **146.94** repeater is also linked with the WB0WDF Cripple Creek **447.400 MHz** repeater and [Allstar](#) nodes **28298, 28299, 29436**. We are also linked via Echolink, links are **k0jsc-r** and **canoncty** courtesy of K0JSC and K0GUR. More information on the WB0WDF repeater links, Allstar nodes and Echolinks can be found at k0jsc.com. We are also linked with Allstar nodes in Florida as well, courtesy of KA4EPS. The net meets on Tuesday nights at 7 P.M. Mountain Time (US).

Obtain your Amateur Radio (Ham) License or your General Radio Operator's License (GROL)! Visit the [South Metro VE Team](#) website for more information. The South Metro VE Team provides test sessions on the 1st Saturday of each month at our new Eagle Street Facility, The City of Centennial, 7272 South Eagle Street, Centennial, Colorado 80112-4244 at 9am.

The [Colorado Astronomy Net](#) and the [IAAS](#) are on Facebook page. Be sure to "Like" us.



Excerpts from JPL mission updates are provided as a public service as part of the [JPL Solar System Ambassador / NASA Outreach](#) program.

Donate to the [IAAS](#)!

Shop Smile.Amazon.com, sign up or sign in to smile.amazon.com and select the **International Association for Astronomical Studies**. 0.5% of every purchase will be donated to the group.

Thank you!

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"Dark cloud belts alternate with brighter zones in Jupiter's atmosphere. Even small telescopes will reveal details within these bands, particularly when the gas giant looms large at its peak in May." Astronomy Magazine, May 2018, p.36.

NASA/ESA/A. Simon (GSFC)

The Month At-A-Glance

The current month's calendar displaying the daily astronomical events.

The Moon

Phases:

- Last Quarter Moon occurs on the 7th.
 - New Moon occurs on the 15th.
 - First Quarter Moon occurs on the 21st.
 - Full Moon occurs on the 29th.
-
- The Moon is at Apogee on the 5th, 251,318 miles from Earth.
 - The Moon is at Perigee on the 17th, 226,040 miles from Earth.



Moon/Planet Pairs:

- Venus passes 7° north of Aldebaran on the 3rd.
- The Moon passes 1.7° north of Saturn on the 4th.
- The Moon passes 3° north of Mars on the 6th.
- The Moon passes 2° south of Neptune on the 10th.
- Mercury passes 2° south of Uranus on the 12th.
- The Moon passes 5° south of Uranus on the 13th.
- The Moon passes 2° south of Mercury on the 13th.
- The Moon passes 1.2° north of Aldebaran on the 16th.
- The Moon passes 5° south of Venus on the 17th.
- The Moon passes 4° north of Jupiter on the 27th.
- The Moon passes 1.6° north of Saturn on the 31st.

For reference: The Full Moon subtends an angle of $\sim 0.5^\circ$.

The Planets & Dwarf Planets

[Planetary Reports](#) are generated by "TheSky" software. These reports provide predicted data for the planets on the first of each month for the current year. The rise and set times for the Sun and the Moon for each day of the month as well as meteor shower radiants are also included in the reports. These reports have been optimized for the Denver, Colorado location, however, the times will be approximate for other locations on Earth.

(All times are local unless otherwise noted.)

Planetary Highlights for May

Jupiter is the dominant planet for observers this month. Jupiter is visible all night as it reached opposition in early May. Jupiter is also joined by Venus in the early evening and Mars and Saturn in the early morning skies. The Eta Aquarid meteor shower peaks during the first week of the month. These meteors are part of the debris from Halley's Comet.

Mercury

Reached greatest western elongation late last month and still remains low above the eastern horizon before sunrise. Mercury rises at 5:07 a.m. on the 1st and about 5:16 a.m. by month's end. Mercury is best viewed during the first two weeks on May, then again disappears into the morning twilight glow. Mercury does not get any higher than about 4° above the eastern horizon, so a clear, unobstructed view to the east is required. Mercury moves from the constellation of Pisces into Taurus this month shining at magnitude 0.3 on the 1st.

Venus

Venus sets at 10:13 p.m. on the 1st and about 11:00 p.m. by month's end. Venus continues to move in an easterly direction all month. Venus moves from the constellation of Taurus into Gemini this month shining at magnitude -3.9.

Earth

N/A.

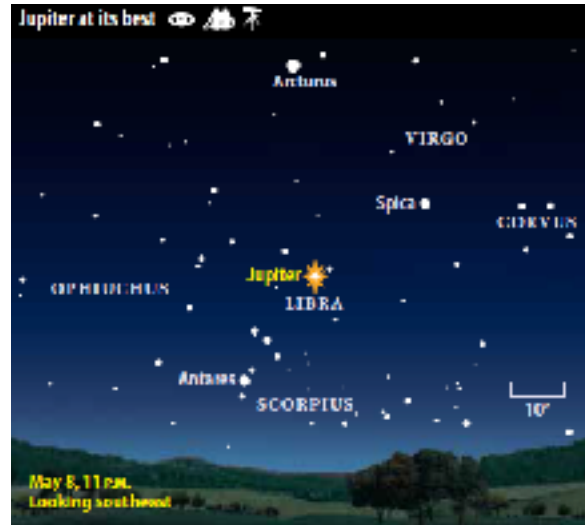
Mars

Rises at 1:23 a.m. on the 1st and about 12:09 a.m. by month's end. Mars continues to brighten, nearly doubling in brightness from the beginning of May to the end. Mars will reach its best appearance in 15 years sometime in July. Mars moves from the constellation of Sagittarius into Capricornus shining at magnitude -0.7 on the 15th.



Jupiter

Is at opposition on the 8th, rising as the Sun sets. Jupiter rises at 8:22 p.m. on the 1st and about 6:01 p.m. by month's end. At opposition, Jupiter will be the closest and brightest to Earth and will appear its largest in a telescope. Jupiter is in the constellation of Libra shining at magnitude -2.5.



Saturn

Rises at 12:18 a.m. on the 1st and about 10:07 p.m. by month's end. Even though Saturn is rising earlier in the evening, the best time to observe the ringed planet will still be several hours before dawn. Saturn is in the constellation of Sagittarius, shining at magnitude 0.3.

Uranus

Has returned to the morning sky this month, but will best be viewed during the last half of the month just above the eastern horizon. Uranus rises at 5:33 a.m. on the 1st and about 3:35 a.m. by month's end. Uranus is in the constellation of Pisces shining at magnitude 5.9.

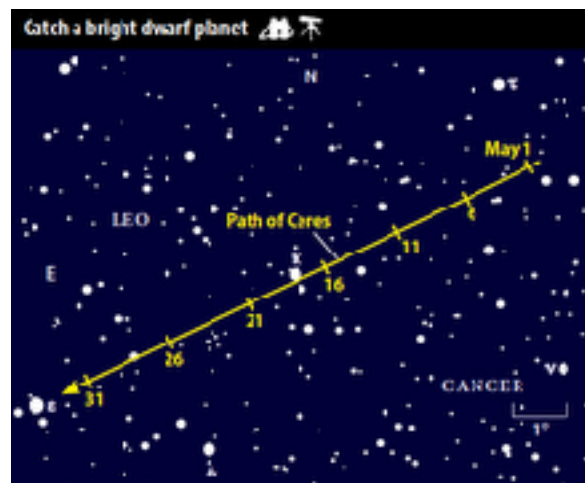
Neptune

Rises 3:51 a.m. on the 1st and about 1:50 a.m. by month's end. Neptune can be spotted to the east-southeast before dawn. Neptune is in the constellation of Aquarius shining at magnitude 7.9.

Dwarf Planets

Ceres

Sets at 3:17 a.m. on the 1st and about 1:34 a.m. by month's end. Once the skies darken, Ceres may be spotted to the southwest several hours after sunset. Ceres moves from the constellation of Cancer into Sagittarius this month shining at magnitude 8.5.



Pluto

Rises at 1:07 a.m. on the 1st and about 11:00 p.m. by months end. Pluto is in the constellation of Sagittarius shining at magnitude 14.3.

As always, good luck at spotting Neptune, Ceres and Pluto, a large telescope and dark skies will be needed.

Astronomical Events

Meteor Showers

The Eta Aquarids Meteor Shower - This shower is visible during the period of April 21 to May 12. It reaches maximum on May 5. During the period of greatest activity hourly rates usually reach 20 for observers in the northern hemisphere and 50 for observers in the southern hemisphere.

For more information about Meteor Showers, visit Gary Kronk's Meteor Showers Online web page at <http://meteorshowersonline.com/>.

[Meteor Shower Radiant Report](#)

Meteor Scatter (or Meteor burst communications) - http://en.wikipedia.org/wiki/Meteor_burst_communications - "is a radio propagation mode that exploits the ionized trails of meteors during atmospheric entry to establish brief communications paths between radio stations up to 2,250 kilometres (1,400 mi) apart." Tune your shortwave or your HF amateur radio to 54.310 MHz USB CW and see if you can hear any pings.

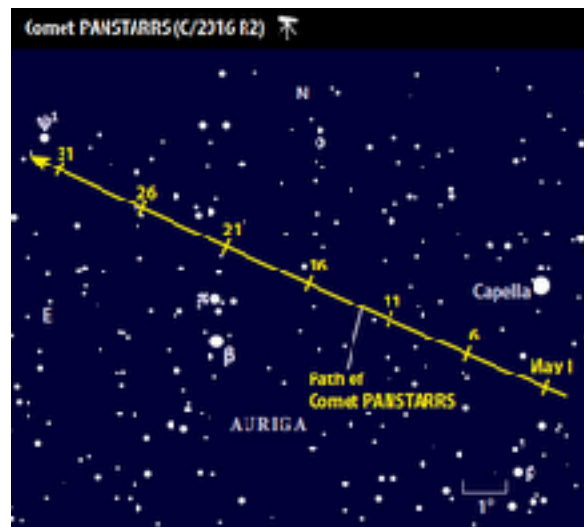
Comets

Comet PANSTARRS (C/2016 R2) reaches perihelion on the 9th Comet PANSTARRS shines around 10th or 11th magnitude this month, but may be brighter as it passes near the Sun. A 10-12 inch telescope will still be required to spot the comet. Look to the northwest during the early evening to spot Comet PANSTARRS passing through the constellation of Auriga.

For information, orbital elements and ephemerides on observable comets visit the Observable Comets page from the Harvard-Smithsonian Center for Astrophysics.

<http://cfa-www.harvard.edu/iau/Ephemerides/Comets/index.html>

For more information about Comets, visit Gary Kronk's Cometography.com web page at <http://cometography.com/>.



Eclipses

- No solar eclipse activity this month.
- No lunar eclipse activity this month.

Observational Opportunities

(from evening to morning)

- Enjoy Venus and Jupiter in the evening skies after sunset.
- Try to spot Comet PANSTARRS passing through Auriga.
- Look for Mars and Saturn in the morning skies before sunrise.
- Enjoy the Eta Aquarid meteor shower during the first couple of weeks of May.

Asteroids

(From west to east)

- **Vesta** is in the constellation of Ophiuchus.

Information about the Minor Planets can be found at <http://www.minorplanetobserver.com> the Minor Planet Observer web site.

Occultations



Information on various occultations can be found at <http://lunar-occultations.com/iota/iotandx.htm>, the International Occultation Timing Association's (IOTA) web site.

Member Meteor Sightings

This is a new section where I will post meteor, fireball, etc sightings that have been published on the [American Meteor Society](http://www.americansocietyofmeteorology.com)'s web site. I want to make this an active section of the web pages and newsletter and would like to publish the links to member sightings. If you have any published sightings, please provide me with the links and I will post them here for all to enjoy.

<u>Event ID</u>	<u>Date/Time</u>	<u>Location</u>	<u>Observer</u>	<u>Link</u>
3587-2015	2015-11-22 17:38 MST	CO	Kevin S	3587aw
3829-2015	2015-12-05 18:06 MST	CO	Burness A	3829a
3871-2015	2015-11-13 01:55 MST	CO	Charles N	3871a

[Subscriber Gallery](#)

I have created a web page containing images taken and submitted by subscribers to the email newsletter, check-ins to the Colorado Astronomy Net and readers of the online newsletter and some of my own images. Any one wishing to submit their images to the gallery, please let me know. The images must be taken by the submitter and be astronomy related. Please include a description and your information so that I can give proper credit to your work. I will post the most recent submissions here.



August 21, 2017 - Total Solar Eclipse - "Bailey's Beads" and the "Diamond Ring"
Taken by: Burness Ansell, Location: Guernsey, WY - More to come. I will be creating a special Solar Eclipse page to showcase subscriber contributions.

Planetary/Lunar Exploration Missions

(Excerpts from recent mission updates)



JPL Latest News

The Latest from Space

[JPL Latest News](#)

April 27, 2018

NASA Sets Sights on May 5 Launch of InSight to Mars

[Full Article & Images](#)

"NASA's next mission to Mars, Interior Exploration using Seismic Investigations, Geodesy and Heat Transport ([InSight](#)), is scheduled to launch Saturday, May 5, on a first-ever mission to study the heart of the Red Planet. Coverage of prelaunch and launch activities begins Thursday, May 3, on NASA Television and the agency's [website](#)."

Read the latest news and discoveries from JPL's dozens of active space missions exploring Earth, the solar system and worlds beyond.

Past, Present, Future and Proposed JPL Missions - <http://www.jpl.nasa.gov/missions>.

For special JPL programs and presentations in your area visit the JPL Solar System Ambassador web site at <http://www2.jpl.nasa.gov/ambassador/index.html>.



Juno

April 11, 2018

NASA's Juno Mission Provides Infrared Tour of Jupiter's North Pole

[Full Article & Images](#)

"Scientists working on NASA's Juno mission to Jupiter shared a 3-D infrared movie depicting densely packed cyclones and anticyclones that permeate the planet's polar regions, and the first detailed view of a dynamo, or engine, powering the magnetic field for any planet beyond Earth. Those are among the items unveiled during the European Geosciences Union General Assembly in Vienna, Austria, on Wednesday, April 11."

NASA's JunoCam website can be visited at: <https://www.missionjuno.swri.edu/junocam>

More information on the Juno mission is available at: <http://www.nasa.gov/juno>

The public can follow the mission on Facebook and Twitter at:

<http://www.facebook.com/NASAJuno>

<http://www.twitter.com/NASAJuno>



Cassini Legacy

April 26, 2018

Cassini Significant Events 3/28/18 - 4/24/18

[Full Article & Images](#)

"Tuesday April 24

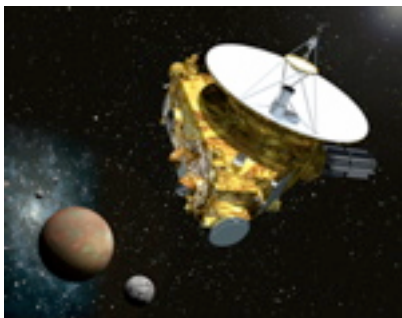
Cassini spacecraft engineers presented papers at two different conferences held this week. The 2018 IEEE International Vacuum Electronics Conference (IVEC) in Monterrey, California included "The Flight Operations History of the Cassini X-Band Traveling Wave Tube Amplifiers (TWTAs)," and the 36th annual Space Power Workshop in Los Angeles included "Cassini Spacecraft Radioisotope Thermoelectric Generators (RTG) Power and Thermal Analysis During the 20 Year Mission."

Featured as NASA's "Astronomy Picture of the Day" today is a fanciful creation that renders ring-brightness into musical notes: <https://apod.nasa.gov/apod/ap180424.html>."

Raw images are available at <http://saturn.jpl.nasa.gov/photos/raw/index.cfm>.

More information about Cassini is available at the following sites:

<http://saturn.jpl.nasa.gov> & <http://www.nasa.gov/cassini>.



New Horizons

April 11, 2018

Charon's First Official Feature Names

[Full Article & Images](#)

"Map projection of Charon, the largest of Pluto's five moons, annotated with its first set of official feature names. With a diameter of about 755 miles, the Texas-sized moon is one of largest known objects in the Kuiper

Belt, the region of icy, rocky bodies beyond Neptune. "

[New Horizons gallery](#)

For more information on the New Horizons mission - the first mission to the ninth planet - visit the New Horizons home page: <http://pluto.jhuapl.edu/>.



Dawn
March 14, 2018
NASA Dawn Reveals Recent Changes in Ceres' Surface

[Full Article & Images](#)

"Observations of Ceres have detected recent variations in its surface, revealing that the only dwarf planet in the inner solar system is a dynamic body that continues to evolve and change.

NASA's Dawn mission has found recently exposed deposits that give us new information on the materials in the crust and how they are changing, according to two papers published March 14 in Science Advances that document the new findings.

Observations obtained by the visible and infrared mapping spectrometer (VIR) on the Dawn spacecraft previously found water ice in a dozen sites on Ceres. The new study revealed the abundance of ice on the northern wall of Juling Crater, a crater 12 miles (20 kilometers) in diameter. The new observations, conducted from April through October 2016, show an increase in the amount of ice on the crater wall."

For more information on the Dawn mission, visit the Dawn home page: http://www.nasa.gov/mission_pages/dawn/main/index.html.



TESS
April 18, 2018
NASA Planet Hunter on Its Way to Orbit

[Full Article & Images](#)

"NASA's Transiting Exoplanet Survey Satellite (TESS) launched on the first-of-its-kind mission to find worlds beyond our solar system, including some that could support life.

TESS, which is expected to find thousands of new exoplanets orbiting nearby stars, lifted off at 6:51 p.m. EDT Wednesday on a SpaceX Falcon 9 rocket from Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida. At 7:53 p.m., the twin solar arrays that will power the spacecraft successfully deployed.

"We are thrilled TESS is on its way to help us discover worlds we have yet to imagine, worlds that could possibly be habitable, or harbor life," said Thomas Zurbuchen, associate administrator of NASA's Science Mission Directorate in Washington. "With

missions like the James Webb Space Telescope to help us study the details of these planets, we are ever the closer to discovering whether we are alone in the universe."

Over the course of several weeks, TESS will use six thruster burns to travel in a series of progressively elongated orbits to reach the Moon, which will provide a gravitational assist so that TESS can transfer into its 13.7-day final science orbit around Earth. After approximately 60 days of check-out and instrument testing, the spacecraft will begin its work."

For more news and information on the TESS mission, visit the [Latest Tess Stories](#) page.

Mars Missions

[Be A Martian](#)



Mars website mobile version is here!

Simply type

<http://mars.jpl.nasa.gov>

into your mobile browser.



Mars on the Go! NASA Be A Martian Mobile App

If you want the latest news as it happens, try our Be A Martian app.

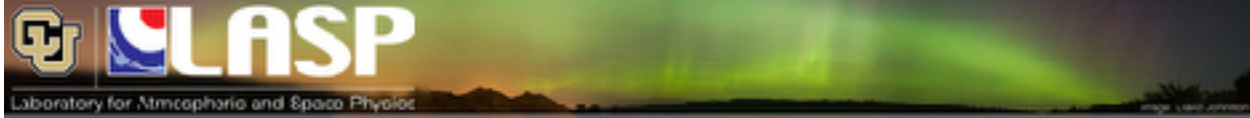
Download on Mobile Devices

[Android](#) | [iPhone](#) | [Windows Phone](#)



JMARS

JMARS is an acronym that stands for Java Mission-planning and Analysis for Remote Sensing. It is a geospatial information system (GIS) developed by ASU's Mars Space Flight Facility to provide mission planning and data-analysis tools to NASA's orbiters, instrument team members, students of all ages, and the general public. <https://jmars.mars.asu.edu/>



Laboratory for Atmospheric and Space Physics

"The Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado Boulder (CU) began in 1948, a decade before NASA. We are the world's only research institute to have sent instruments to all eight planets and Pluto.

LASP combines all aspects of space exploration through our expertise in science, engineering, mission operations, and scientific data analysis. As part of CU, LASP also works to educate and train the next generation of space scientists, engineers and mission operators by integrating undergraduate and graduate students into working teams. Our students take their unique experiences with them into government or industry, or remain in academia to continue the cycle of exploration.

LASP is an affiliate of [CU-Boulder AeroSpace Ventures](#), a collaboration among aerospace-related departments, institutes, centers, government labs, and industry partners."



MAVEN

December 13, 2017

MAVEN Sheds Light on Habitability of Distant Planets

[Full Article & Images](#)

"How long might a rocky, Mars-like planet be habitable if it were orbiting a red dwarf star? It's a complex question but one that MAVEN can help answer.

"The MAVEN mission tells us that Mars lost substantial amounts of its atmosphere over time, changing the planet's habitability," said David Brain, a MAVEN co-investigator and a professor at the Laboratory for Atmospheric and Space Physics, or LASP, at the University of Colorado Boulder. "We can use Mars, a planet that we know a lot about, as a laboratory for studying rocky planets outside our solar system, which we don't know much about yet."

Visit [LASP](#) and [MAVEN](#) for more information.



Mars Science Laboratory - Curiosity

April 27, 2018

Sols 2036-2037: Down the ridge she comes

[Full Article & Images](#)

"Curiosity continues to pick her way downhill off the "Vera Rubin Ridge" and onto the Murray formation rocks below. This weekend's plan only covers two sols, to give Earth planning time and Mars time a chance to realign so that the science team is not up in the middle of the night commanding the rover. The two sols, however, are still chock full of activities. The rover is positioned on a rock-strewn sandy slope, and the science team thought the scattered rocks of the workspace would be better interrogated with Mastcam and ChemCam than MAHLI and APXS. ChemCam targeted "Virginia," a tan bedrock slab with small nodules, "Shannon Lake," a red bedrock slab, and "Eveleth," a block with distinctive layers. One of the advantages of driving backward is that rocks the rover has driven over end up in view of the remote sensing instruments. Mastcam acquired multispectral data from a rock broken by the rover wheels, the target "Britt," and an expanse of crossbedded ! outcrop, "Aurora," to the left of the rover. Mastcam completed imaging of the "Taconite" crater structure, which the rover has been skirting around the last several sols, with a large mosaic, and captured a single image of a well-preserved scarp in the sand amongst the rocks dubbed "Kinney."

While MAHLI did not see any action over rock targets today, she will image the REMS UV sensor, positioned on the rover deck. Such MAHLI images keep track of dust accumulation, supporting the observations of the sky made by the sensor. The sky itself will get attention from Mastcam and Navcam, with observations of dust in the atmosphere and dust devils at midday, and observations of dust in the atmosphere and clouds in the early morning."

To follow the Mars Curiosity rover and NASA on Foursquare, visit: <http://www.foursquare.com/MarsCuriosity> and <http://www.foursquare.com/NASA>



For information about NASA's partnership with Foursquare, visit: <http://www.nasa.gov/connect/foursquare.html>.

[Mars Rover Landing](#) - Free for the Xbox 360 (requires Kinect)

Visit the Mars Science Laboratory page at <http://mars.jpl.nasa.gov/msl>.



Mars Exploration Rover Mission (Spirit and Opportunity)

April 17, 2018

SPIRIT UPDATE: Spirit Remains Silent at Troy - sols 2621-2627, May 18-24, 2011:

"More than 1,300 commands were radiated to Spirit as part of the recovery effort in an attempt to elicit a response from the rover. No communication has been received from Spirit since Sol 2210 (March 22, 2010). The project concluded the Spirit recovery efforts on May 25, 2011. The remaining, pre-sequenced ultra-high frequency (UHF) relay passes scheduled for Spirit on board the Odyssey orbiter will complete on June 8, 2011.

Total odometry is unchanged at 7,730.50 meters (4.80 miles)."

OPPORTUNITY UPDATE: Looking for a Path of Less Resistance - sols 5053 to 5059, April 11, 2018 - April 17, 2018:

"Opportunity is continuing the exploration of "Perseverance Valley" on the west rim of Endeavour Crater, pursuing several scientific hypotheses as to the origin of the valley.

The rover is positioned about halfway down the approximately 656 feet (200-meter) valley near an apparent flow stream island. Opportunity is finishing up some in-situ (contact) investigations of local outcrops. However, tabular rocks a few feet upslope have become of great interest to the science team. On Sol 5053 (April 11, 2018), the rover completed the investigation of the target called, "Nazas" with a Microscopic Imager (MI) mosaic, followed by the placement of the Alpha Particle X-ray Spectrometer (APXS) for a multi-hour integration.

The next three sols, Opportunity performed targeted remote sensing with all 13 filters of the Panoramic Camera (Pancam) multispectral camera. With activities complete, the rover moved on Sol 5057 (April 15, 2018), backing up and turning just about 14.8 feet (4.5 meters) to set up the approach upslope to the tabular rocks. The usual post-drive Navigation Camera (Navcam) panoramas were collected along with some targeted 13-filter Pancam images.

On the next sol, Opportunity tried to go upslope to the tabular rocks. However, the terrain was difficult and the rover experienced high slip. Just under 9.8 feet (3 meters) of motion was achieved. More post-drive documentary imagery was collected. The assessment is that a different, less difficult route to the tabular rocks must be taken.

So, in future sols a more roundabout path to the rocks will be planned over multiple sols. Sol 5059 (April 17, 2018) was to be a remote sensing sol, but the Deep Space Network station's transmitter was flagged red (not operational) and our Sol 5059 (April 17, 2018) plan was never received. Opportunity instead exercised the onboard run-out sol. Nominal planning will resume with Sol 5060 (April 18, 2018).

As of Sol 5058 (April 16, 2018), the solar array energy production was 726 watt-hours with an atmospheric opacity (Tau) of 0.558 and an improved solar array dust factor of 0.826.

Total odometry is 28.05 miles (45.14 kilometers)."

Landing sites link - <http://marsoweb.nas.nasa.gov/landingsites/>

Visit the Mars Exploration Rover page at <https://mars.nasa.gov/mer/home/>.



Mars Reconnaissance Orbiter Mission

February 20, 2018

Nearly a Decade After Mars Phoenix Landed, Another Look

[Full Article & Images](#)

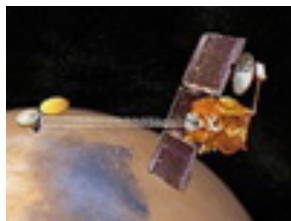
"A recent view from Mars orbit of the site where NASA's Phoenix Mars mission landed on far-northern Mars nearly a decade ago shows that dust has covered some marks of the landing.

The Phoenix lander itself, plus its back shell and parachute, are still visible in the image taken Dec. 21, 2017, by the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter. But an animated-blink comparison with an image from about two months after the May 25, 2008, landing shows that patches of ground that had been darkened by removal of dust during landing events have become coated with dust again."

MARS RECONNAISSANCE ORBITER HIRISE IMAGES

All of the HiRISE images are archived here: <http://hirise.lpl.arizona.edu/>.

More information about the MRO mission is available online at <http://www.nasa.gov/mro>.



Mars Odyssey Orbiter

October 4, 2017

Examining Mars' Moon Phobos in a Different Light

[Full Article & Images](#)

"NASA's longest-lived mission to Mars has gained its first look at the Martian moon Phobos, pursuing a deeper understanding by examining it in infrared wavelengths.

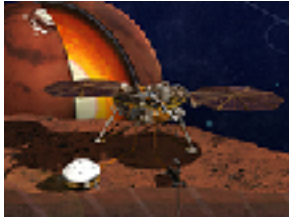
The Thermal Emission Imaging System (THEMIS) camera on NASA's Mars Odyssey orbiter observed Phobos on Sept. 29, 2017. Researchers have combined visible-wavelength and infrared data to produce an image color-coded for surface temperatures of this moon, which has been considered for a potential future human-mission outpost."

DAILY MARS ODYSSEY THEMIS IMAGES

Thermal Emission Imaging System (THEMIS) web site: (<http://themis.asu.edu/gallery>)

The Odyssey data are available through a new online access system established by the Planetary Data System at: <http://starbrite.jpl.nasa.gov/pds/>

Visit the Mars Odyssey Mission page at <http://mars.jpl.nasa.gov/odyssey/index.html>.



Journey to Mars
InSight - Revealing the Heart of Mars
April 29, 2018
'Rock it' to Mars
From the West Coast on May 5

[Full Article & Images](#)

"InSight is scheduled to launch from the California coast to the plains of Mars on May 5 at 4:05 a.m. PT. This is the first launch to another planet from the West Coast. A whole new region of the country will witness the start of an interplanetary journey when InSight soars into predawn skies."

[Watch in Person](#)

[Watch Online](#)

Learn more about the InSight mission at: <http://www.jpl.nasa.gov/missions/insight/>

Mars Missions Status

New Mars missions are being planned to include several new rover and sample collection missions. Check out the Mars Missions web page: <http://mars.jpl.nasa.gov/missions/> and the Mars Exploration page: <http://marsprogram.jpl.nasa.gov/>.

[Astronomy Links and Other Space News](#)

(If you have a link you would like to recommend to our readers, please feel free to submit it.)

[Colorado Astronomy Links](#)

[Radio Astronomy Links](#)

[Other Astronomy Links](#)

Acknowledgments and References

Much of the information in this newsletter is from "Astronomy Magazine" (Kalmbach Publishing), JPL mission status reports, "Meteor Showers - A Descriptive Catalog" by Gary W. Kronk and other astronomical sources that I have stashed on my book shelves.

The author will accept any suggestions, constructive criticisms, and corrections. Please feel free to send me any new links or articles to share as well. I will try to accommodate any reasonable requests. Please feel free to send questions, comments, criticisms, or donations to the email address listed below. Enjoy!

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Keep looking UP!

73 from KI0AR

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