

IAAS Monthly Astronomy Newsletter

March 2022



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 [The Home of KIØAR](#) - and is received nationally and internationally. Download the [PDF](#) formatted version of the newsletter.

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 WØWYX **146.94 MHz** and **449.825 MHz** repeaters. Due to hardware issues, links with the Allstar node, Echolink and the Cripple Creek repeater are down until further notice. 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 9 a.m.

** Check the website for current info during these COVID-19 times. **

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



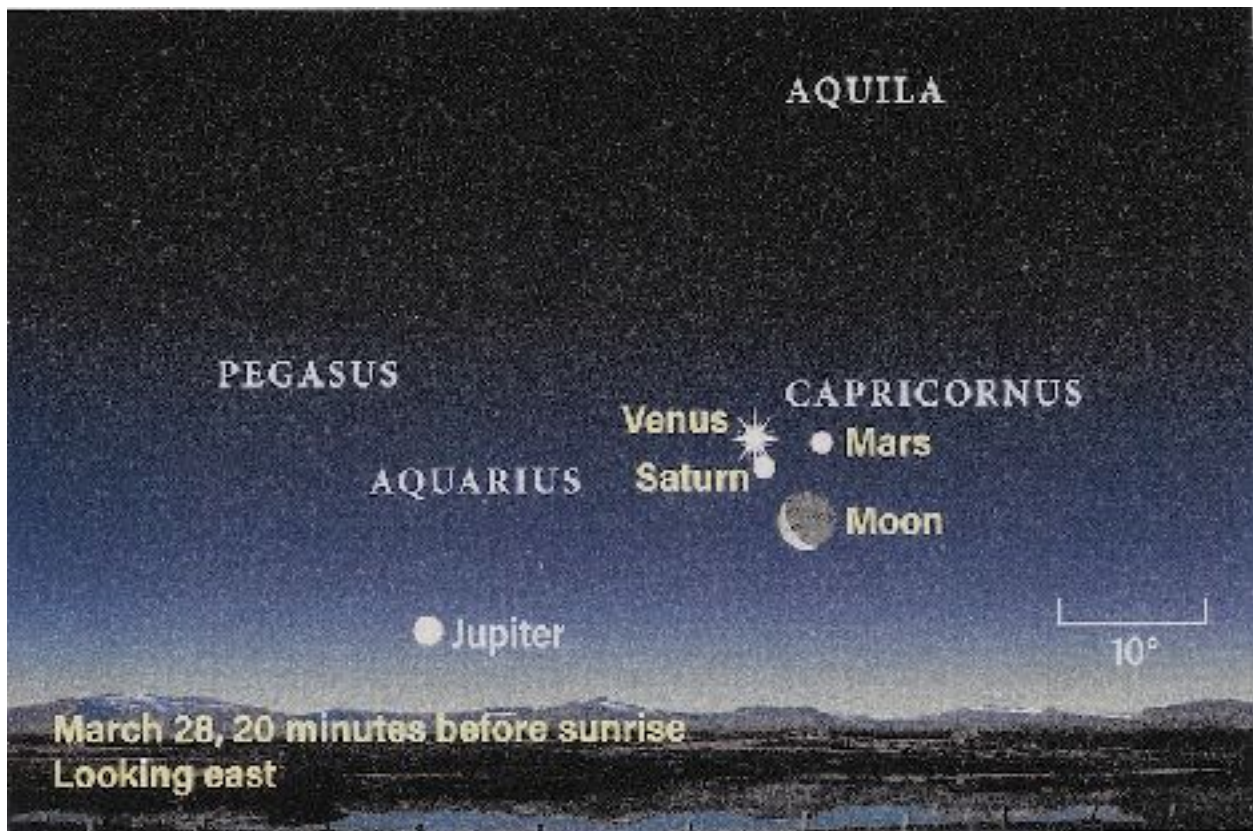
Excerpts from JPL mission updates are provided as a public service as part of the [JPL Solar System Ambassador / NASA Outreach](#) program.

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!

In This Newsletter...

The Month At-A-Glance	4
The Moon	4
Phases:	4
Moon/Planet Pairs:	4
The Planets & Dwarf Planets	5
Planetary Highlights for March	5
Mercury	5
Venus	5
Earth	5
Saturn	6
Uranus	6
Neptune	6
Dwarf Planets	6
Ceres	6
Pluto	6
Astronomical Events	7
Meteor Showers	7
Comets	7
Eclipses	7
Observational Opportunities	8
Asteroids	8
Occultations	9
Member Meteor Sightings	9
Subscriber Gallery	10
Planetary/Lunar Exploration Missions	11
JPL Latest News	11
James Webb Space Telescope	11
Juno	12
New Horizons	12
TESS	13
Mars Missions	14
JMARS	14
LASP/MAVEN	15
Mars 2020 - Perseverance	16
Mars Science Laboratory - Curiosity	16
Mars Reconnaissance Orbiter Mission	17
Mars InSight - Journey to Mars	18
Mars Missions Status	18
Astronomy Links and Other Space News	18
Colorado Astronomy Links	18
Radio Astronomy Links	18
Other Astronomy Links	18
Acknowledgments and References	18
Subscription Information	19
Keep looking UP!	19



"The Moon and planets are out to play by March 28 - including Jupiter, which sits low in twilight. Those with a clear eastern horizon may spot it." Astronomy Magazine, March 2022, p. 39.

The Month At-A-Glance

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

The Moon

Phases:

- New Moon occurs on the 2nd.
- First Quarter Moon occurs on the 10th.
- Full Moon occurs on the 18th.
- Last Quarter Moon occurs on the 25th.

- The Moon is at apogee (251,200 miles from Earth) on the 10th.
- The Moon is at perigee (229,758 miles from Earth) on the 23rd.



Moon/Planet Pairs:

- Mercury passes 0.7° south of Saturn on the 2nd.
- The Moon passes 0.8° south of Uranus on the 7th.
- The Moon passes 0.3° south of dwarf planet Ceres on the 9th.
- Venus passes 4° north of Mars on the 12th.
- Mercury passes 1.3° south of Jupiter on the 20th.
- The Moon passes 4° south of Mars on the 27th.
- The Moon passes 7° south of Venus on the 28th.
- The Moon passes 4° south of Saturn on the 28th.
- Venus passes 2° north of Saturn on the 29th.
- The Moon passes 4° south of Jupiter on the 30th.
- The Moon passes 4° south of Neptune on the 30th.

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

The Planets & Dwarf Planets

[Planetary Reports](#) are generated by "TheSkyX" 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 March

"Venus continues to dominate in the morning, along with a retinue of fellow planets gracing the predawn sky. Mars, Saturn, and elusive Mercury provide lots to observe. Jupiter is largely hidden from view after its conjunction with the Sun. Meanwhile, the evening sky carries William Herschel's great discovery of 1781, the planet Uranus, easily visible in binoculars." Astronomy Magazine, March 2022, P. 32.

Mercury

Rises at 5:39 a.m. on the 1st and about 6:48 a.m. by month's end. Look for Mercury to the east about 30 minutes before sunrise. Mercury moves from the constellation of Capricornus into Pisces shining at magnitude -0.1 on the 1st.



Venus

Rises at 4:06 a.m. on the 1st and about 4:49 a.m. by month's end. Venus is at greatest western elongation (47°) on the 20th. Look for Venus low to the east before sunrise. Venus moves from the constellation of Sagittarius into Capricornus shining at magnitude -4.6 on the 15th.

Earth

- [Daylight Saving Time](#) begins for most of the U.S. at 2 a.m. on the 13th.
- The Vernal Equinox occurs at 11:33 a.m. EDT on the 20th.

Mars

Rises at 4:31 a.m. on the 1st and about 4:43 a.m. by month's end. Look for Mars low to the southeast before sunrise. Mars moves from the constellation of Sagittarius into Capricornus shining at magnitude 1.2 on the 15th.

Jupiter

Is in conjunction with the Sun on the 5th. Jupiter sets at 7:19 p.m. on the 1st. After conjunction, Jupiter returns to the morning sky. Jupiter rises about 6:02 a.m. by month's end. Jupiter is lost in the evening and morning twilight glow all month and is not visible until late in the month. Jupiter is in the



constellation of Aquarius shining at magnitude -2.0.

Saturn

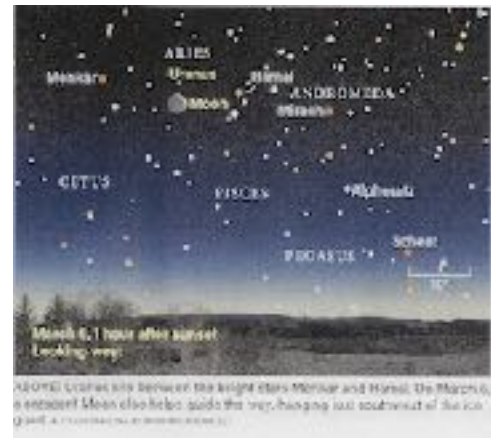
Rises at 5:41 a.m. on the 1st and about 4:48 a.m. by month's end. Look for Saturn low to the southeast before sunrise. Saturn is in the constellation of Capricornus shining at magnitude 0.7.

Uranus

Sets at 10:51 p.m. on the 1st and around 9:56 p.m. by month's end. Look to the southwest soon after sunset to spot Uranus. Uranus is in the constellation of Aries shining at magnitude 5.8.

Neptune

Is in conjunction with the Sun on the 13th. Neptune sets at 6:44 p.m. on the 1st. After conjunction, Neptune returns to the morning sky. Neptune rises about 6:08 a.m. by month's end. Neptune is lost in the evening and morning twilight glow all month. Neptune is in the constellation of Aquarius shining at magnitude 7.8.



ALDRICH'S CONJUNCTION BETWEEN THE BRIGHT STARS MIZAR AND RIGEL, THE MARCH 6, 1 HOUR AFTER SUNSET LOOKING WEST. A REDDISH MARS ALSO HELPS GUIDE THE TRAIL, HANGING JUST SOUTHWEST OF MIZAR. (SOURCE: ALDRICH'S CONJUNCTIONS BY BRUCE W. WALKER)

Dwarf Planets

Ceres

Sets at 12:53 a.m. on the 1st and about 12:36 a.m. by month's end. Look for Ceres towards the southwest in the early evening. Ceres is in the constellation of Taurus shining at magnitude 8.7.

Pluto

Rises at 4:39 a.m. on the 1st and about 3:40 a.m. by month's end. Pluto is in the constellation of Sagittarius shining at magnitude 15.2.



ALDRICH'S CONJUNCTION BETWEEN THE BRIGHT STARS ALDEBARAN AND RIGEL, THE MARCH 6, 1 HOUR AFTER SUNSET LOOKING WEST. A REDDISH CERES ALSO HELPS GUIDE THE TRAIL, HANGING JUST SOUTHWEST OF ALDEBARAN. (SOURCE: ALDRICH'S CONJUNCTIONS BY BRUCE W. WALKER)

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

Astronomical Events

Meteor Showers

- There are a few minor meteor showers but none that produce rates much higher than 2-5 per hour, except the Gamma Normids that extend over the period of March 11 to 21, with the maximum occurring on March 16. The maximum rate reaches about 5-9 meteors per hour.

For more information about Meteor Showers, visit Gary Kronk's [Meteor Showers Online](#) web page.

[Meteor Shower Radiant Report](#)

[Meteor Scatter](#) (or 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. Try other frequencies as well... 6m FT8 digital - 50.313 Mhz & 50.276 Mhz, JP-65 digital mode and the carrier frequencies of the lower VHF bands for TV channels 2, 3 & 4.

[Meteor Rx How-To](#) by Terry Bullett (WØASP).

Comets

- Comet 19P/Borrelly travels through the constellations of Aries and Perseus this month. Shining around 10th magnitude, Comet Borrelly will be a challenge to spot with a 4 inch telescope. Larger apertures and dark skies are recommended.

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

For more information about Comets, check out Gary Kronk's 6-volume series of books on [Cometography](#).

Eclipses

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



A sporadic meteor that is not associated with a shower streaks across the sky in May 2001 in Arizona.



Stargazers get a nice treat on the night of March 25 when Comet Borrelly is only 1.9 AU (286 million miles) from Earth. The comet's last perihelion was in 1993.

Observational Opportunities

(from evening to morning)

- Look for Uranus in the evening.
- Look for Mars Venus, Mercury, and Saturn in the early morning before sunrise.
- Jupiter joins the morning crowd late in the month.

Asteroids

(From west to east)

- **Iris** is in the constellation of Gemini.
- **Massalia** is in the constellation of Cancer.

Information about the Minor Planets can be found at the [Minor Planet Observer](#) web site.

Occultations



Information on various occultations can be found at the [International Occultation Timing Association's \(IOTA\)](#) web site.

Member Meteor Sightings

In this section I will post meteor, fireball, etc sightings that have been published on the [American Meteor Society'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>
3871-2015	2015-11-13 01:55 MST	CO	Charles N	3871a
3587-2015	2015-11-22 17:38 MST	CO	Kevin S	3587aw
3829-2015	2015-12-05 18:06 MST	CO	Burness A	3829a
986-2020	2020-02-21 22:20 MST	CO	Lukas S	986
3716-2020	2020-07-24 23:22 MDT	CO	Lukas S	3716
4774-2021	2021-08-13 21:57 MDT	UT	Lukas S	4774
7044-2021	2021-10-28 20:37 MDT	CO	Burness A	249058

[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.

StarLink Train (G4-3) STARLINK-3200 and others

December 03, 2021

Courtesy of Burness Ansell

Taken with iPhone X @ 6:43 P.M. MST



Traveling from WSW to W passing close to the bright star Altair in Aquila.

Planetary/Lunar Exploration Missions

(Excerpts from recent mission updates)



JPL Latest News

The Latest from Space

[JPL Latest News](#)

February 24, 2022

Astronomers Find Two Giant Black Holes Spiraling Toward a Collision

[Full Article & Images](#)

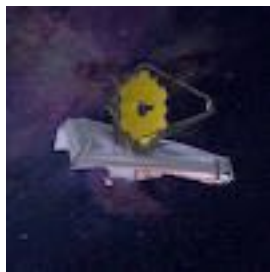
"A supermassive black hole 9 billion light-years away appears to have a companion black hole orbiting around it. As the orbit shrinks, the pair gets closer to merging.

Supermassive black holes millions to billions of times the mass of our Sun lie at the heart of most galaxies, and astronomers are eager to know how these behemoths came to be. While they think most resulted from at least one merger between two smaller supermassive black holes, scientists lacked the observations that could give insight, since [only one pair of supermassive black holes](#) on the way to a merger had been found."

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](#)

For special JPL programs and presentations in your area visit the [JPL Solar System Ambassador](#) web site.



James Webb Space Telescope

February 16, 2022

Studying the Next Interstellar Interloper with Webb

[Full Article & Images](#)

"One of the most exciting findings in planetary science in recent years is the discovery of interstellar objects passing through our solar system. So far, astronomers have confirmed only two of these interlopers from other star systems — 1I/Oumuamua in 2017 and 2I/Borisov in 2018 — but many, many more are thought to exist. Scientists have had only limited ability to study these objects

once discovered, but all of that is about to change with NASA's James Webb Space Telescope.

"The supreme sensitivity and power of Webb now present us with an unprecedented opportunity to investigate the chemical composition of these interstellar objects and find out so much more about their nature: where they come from, how they were made, and what they can tell us about the conditions present in their home systems," explained Martin Cordiner, principal investigator of a [Webb Target of Opportunity program](#) to study the composition of an interstellar object."

More information on the James Webb Space Telescope mission is available at [The James Webb Space Telescope](#) website.

The public can follow the mission on [Facebook](#), [Twitter](#) and [YouTube](#).



Juno

February 10, 2022

NASA Telescope Spots Highest-Energy Light Ever Detected From Jupiter

[Full Article & Images](#)

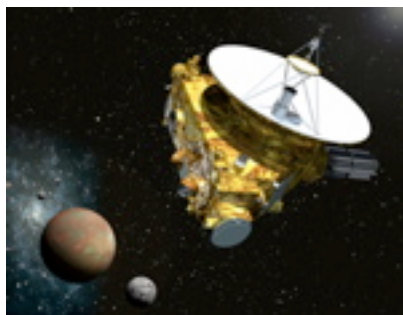
"The planet's auroras are known to produce low-energy X-ray light. A new study finally reveals higher-frequency X-rays and explains why they eluded another mission 30 years ago."

Scientists have been [studying Jupiter up close](#) since the 1970s, but the gas giant is still full of mysteries. New observations by NASA's [NuSTAR](#) space observatory have revealed the highest-energy light ever detected from Jupiter. The light, in the form of X-rays that NuSTAR can detect, is also the highest-energy light ever detected from a solar system planet other than Earth. A [paper](#) in the journal Nature Astronomy reports the finding and solves a decades-old mystery: Why the [Ulysses mission](#) saw no X-rays when it flew past Jupiter in 1992."

Images from NASA's [JunoCam](#).

More information on the Juno mission is available at [Juno](#) and [Mission Juno](#).

The public can follow the mission on [Facebook](#) and [Twitter](#).



New Horizons

February 10, 2022

On Kuiper Belt Object Arrokoth, New Horizons Team Puts Names to the Places

[Full Article & Images](#)

"Three prominent features on the Kuiper Belt object Arrokoth – the farthest planetary body ever explored, by

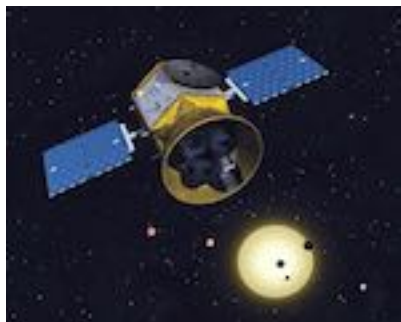
NASA's New Horizons spacecraft – now have official names.

Proposed by the New Horizons team and approved by the International Astronomical Union, the new feature names follow a theme set by "[Arrokoth](#)" itself, which means "sky" in the Powhatan/Algonquin Native American language."

[New Horizons gallery](#)

Find [New Horizons](#) in the iTunes App Store.

For more information on the New Horizons mission -- the first mission to the ninth planet -- visit the [New Horizons](#) home page.



TESS

January 13, 2022

Citizen Scientists Spot Jupiter-like Planet in NASA TESS Data

[Full Article & Images](#)

"Tom Jacobs of Bellevue, Washington, loves treasure hunts. Since 2010, the former U.S. naval officer has participated in online volunteer projects that allow anyone who is interested — "citizen scientists" — to look through NASA telescope data for signs of exoplanets, planets beyond our solar system.

Now, Jacobs has helped discover a giant gaseous planet about 379 light-years from Earth, orbiting a star with the same mass as the Sun. The Jupiter-size planet is special for astronomers because its 261-day year is long compared to many known gas giants outside our solar system. The result also suggests the planet is just a bit farther from its star than Venus is from the Sun. The finding was published in the *Astronomical Journal* and presented at an American Astronomical Society virtual press event on Jan. 13."

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

[Past, Present, Future and Proposed JPL Missions.](#)

Mars Missions

[Be A Martian](#)



Mars website mobile version is here!
Simply type
<http://mars.jpl.nasa.gov>
into your mobile browser.

[MARS WEATHER](#)

Mars Daily Weather Report



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.

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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.



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."



LASP/MAVEN

February 25, 2022

'Go for launch'—the next GOES satellite to include instrument built at CU Boulder

[Full Article & Images](#)

LASP

"The newest addition to the National Oceanic and Atmospheric Administration's (NOAA) weather-observing and environmental-monitoring satellite system is slated to launch from the Kennedy Space Center on March 1. The third satellite in the [GOES-R+](#) series includes an instrument built by the Laboratory for Atmospheric and Space Physics (LASP) at CU Boulder that will serve as the nation's "eyes" on the Sun."

MAVEN

February 3, 2022

The MAVEN Team Playlist

"Ever wonder what the MAVEN team is listening to while studying the Red Planet? We asked the scientists and engineers behind the MAVEN mission what they listen to while working and what they thought MAVEN's favorite songs might be. This led to an amazing playlist with songs of all different genres. Listen along to MAVEN's favorite hits!

[Listen on Spotify!](#)"

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



Mars 2020 - Perseverance
February 18, 2022
NASA's Curiosity Rover Measures Intriguing Carbon Signature on Mars

[Full Article & Images](#)

"The type of carbon is associated with biological processes on Earth. Curiosity scientists offer several explanations for the unusual carbon signals."

After analyzing powdered rock samples collected from the surface of Mars by NASA's Curiosity rover, scientists have announced that several of the samples are rich in a type of carbon that on Earth is associated with biological processes."

Learn more about the [Mars 2020 \(Perseverance\) mission](#).



Mars Science Laboratory - Curiosity
January 18, 2022
NASA's Curiosity Rover Measures Intriguing Carbon Signature on Mars

[Full Article & Images](#)

"The type of carbon is associated with biological processes on Earth. Curiosity scientists offer several explanations for the unusual carbon signals."

After analyzing powdered rock samples collected from the surface of Mars by NASA's Curiosity rover, scientists have announced that several of the samples are rich in a type of carbon that on Earth is associated with biological processes.

While the finding is intriguing, it doesn't necessarily point to ancient life on Mars, as scientists have not yet found conclusive supporting evidence of ancient or current biology there, such as sedimentary rock formations produced by ancient bacteria, or a diversity of complex organic molecules formed by life."

Check out information about NASA's partnership with [Foursquare](#). Visit the [Mars Science Laboratory](#) page.



Mars Reconnaissance Orbiter Mission

February 14, 2022

How Do Spacecraft Deal with Dust Storms on Mars?

[Full Article & Images](#)

"A large dust storm on Mars, nearly twice the size of the United States, covered the southern hemisphere of the Red Planet in early January 2022, leading to some of NASA's explorers on the surface hitting pause on their normal activities. NASA's InSight lander put itself in a "safe mode" to conserve battery power after dust prevented sunlight from reaching the solar panels. NASA's Ingenuity Mars Helicopter also had to postpone flights until conditions improved. A fleet of NASA orbiters monitor Martian dust storms like this one and serve as lifelines to Earth by relaying data from the rovers and lander on the ground back to the team. This includes the Mars Reconnaissance Orbiter, MAVEN, and Odyssey. Odyssey, while facing its technical issue, was able to recover quickly enough to come to InSight's aid during the dust storm."

MARS RECONNAISSANCE ORBITER HIRISE IMAGES

View all of the archived [HiRISE](#) images.

More information about the [MRO](#) mission is available online.



Mars Odyssey Orbiter

April 7, 2021

NASA's Odyssey Orbiter Marks 20 Historic Years of Mapping Mars

[Full Article & Images](#)

"NASA's 2001 Mars Odyssey spacecraft launched 20 years ago on April 7, making it the oldest spacecraft still working at the Red Planet. The orbiter, which takes its name from Arthur C. Clarke's classic sci-fi novel "2001: A Space Odyssey" (Clarke blessed its use before launch), was sent to map the composition of the Martian surface, providing a window to the past so scientists could piece together how the planet evolved."

DAILY MARS ODYSSEY THEMIS IMAGES

Thermal Emission Imaging System ([THEMIS](#)) web site.

The Odyssey data are available through a new online access system established by the [Planetary Data System](#).

Visit the [Mars Odyssey Mission](#) page.



Mars InSight - Journey to Mars **InSight - Revealing the Heart of Mars**

January 11, 2022

NASA's InSight Sees Power Levels Stabilize After Dust Storm

[Full Article & Images](#)

"Updated Feb. 15, 2022, at 2:35 p.m. PST (5:35 p.m. EST):

Several weeks after the end of a dust storm on Mars, the solar panels of NASA's InSight lander are producing almost as much power as they did before the storm. That power level should enable the lander to continue science operations into the summer.

The team anticipates that continued dust accumulation will progressively diminish the spacecraft's overall power budget in the months ahead and has been carefully conserving energy by turning on science instruments for limited periods of time. Having completed all primary mission science objectives, the goal now is to enable the spacecraft to operate through the end of its extended mission in December. A passing whirlwind that removes dust or a new dust storm that increases the dust accumulation could alter the timeline."

Interactive selection of [raw images](#) taken by the cameras aboard InSight.

Learn more about the [InSight mission](#).

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 and the [Mars Exploration](#) page.

[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!

Subscription Information

- Email Newsletter [archives](#).
- [Full documentation](#) of the online administration system.
- The latest version of the [newsletter](#).

Keep looking UP!

73 from KI0AR

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