

IAAS Monthly Astronomy Newsletter September 2023



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, please join the Colorado Astronomy Net on the [Rocky Mountain Radio League's K1DUN](#) repeater on **449.450 MHz** or other repeaters connected to the [SKYHUBLINK](#) system. The net meets on Tuesday nights at 7 P.M. Mountain Time (MDT-US) (Wednesday at 0100 GMT). Connecting to the SkyHubLink system will expand our coverage in the U.S., Canada and internationally. All Amateur radio operators worldwide are welcome. If anyone wishes to "listen" to the net, the RMRL provides a "[Live Audio Feed](#)" using Broadcastify.

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 by appointment only. Check the website for current information. All others interested in Amateur Radio, check out the [Amateur Radio Relay League](#) website to find out more information about becoming an Amateur Radio operator.

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

Donate to the [IAAS](#)!
Thank you for your support!



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

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 September	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	8
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
TESS	12
Mars Missions	13
JMARS	13
LASP	14
MAVEN	14
Mars 2020 - Perseverance	15
Mars Science Laboratory - Curiosity	15
Mars Reconnaissance Orbiter Mission	16
Mars Missions Status	16
Astronomy Links and Other Space News	17
Colorado Astronomy Links	17
Radio Astronomy Links	17
More Astronomy Links	17
Acknowledgments and References	17
Subscription Information	17
Keep looking UP!	17



"Saturn holds court over a plethora of moons. Visible here are Dione (far left) Enceladus (near the rings' left edge), Mimas (in the shadow of the rings on the planet's left limb), Rhea (transiting near the north pole), Tethys (right of the rings), and Titan (lower right)."
Astronomy Magazine, September 2023, P. 28. - NASA/JPL/Space Science Institute

The [Month At-A-Glance](#)

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

The Moon

Phases:

- Last Quarter Moon occurs on the 6th.
- New Moon occurs on the 14th.
- First Quarter Moon occurs on the 22nd.
- Full Moon occurs on the 29th.

- The Moon is at [apogee](#) (252,457 miles from Earth) on the 12th.
- The Moon is at [perigee](#) (223,639 miles from Earth) on the 27th.

Four [supermoons](#) in a row beginning this past July. The largest/brightest on August 30th, the last for this year on September 29th.



Moon/Planet Pairs:

- The Moon passes 1.4° south of Neptune on the 1st.
- The Moon passes 3° north of Jupiter on the 4th.
- The Moon passes 3° north of Uranus on the 5th.
- The Moon passes 11° north of Venus on the 11th.
- The Moon passes 0.7° north of Mars on the 16th.
- The Moon passes 0.9° north of Antares on the 21st.
- The Moon passes 3° south of Saturn on the 26th.
- The Moon passes 1.4° south of Neptune on the 28th.

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 September

"**Saturn continues to stun...**Peak viewing season for the giant planets continues. Saturn is visible all night, at its best in the late evening. Jupiter rises later and dominates the early morning. Neptune reaches opposition near a 5th-magnitude star — grab binoculars to catch the best view of 2023. Uranus hovers between the Pleiades and Jupiter, offering good opportunities to catch this distant giant. Venus grows to greatest brilliancy before dawn — you can't miss it — and Mercury comes up to join it later in September." Astronomy Magazine, September 2023, P. 28.



Mercury

Is in [inferior conjunction](#) on the 6th. Mercury is [stationary](#) on the 14th. Mercury is at greatest western [elongation](#) (18°) on the 22nd. Mercury sets at 7:30 p.m. on the 1st. After conjunction, Mercury returns to the morning sky. Mercury rises about 5:44 a.m. by month's end. Look for Mercury in the morning sky after mid-month. Mercury moves from the [constellation](#) of [Leo](#) into [Virgo](#) shining at [magnitude](#) -1.0 on the 30th.



Venus

Is [stationary](#) on the 2nd. Venus is at greatest brilliancy (magnitude -4.8) on the 19th. Venus rises at 4:33 a.m. on the 1st and about 3:22 a.m. by month's end. Look for Venus low to the east before sunrise. Venus moves from the constellation of [Cancer](#) into [Leo](#) shining at magnitude -4.8 on the 15th.



Earth

Autumnal [equinox](#) occurs at 2:50 a.m. EDT on the 23rd.



Mars

Sets at 8:30 p.m. on the 1st and about 7:18 p.m. by month's end. Look for Mars, low, on the western horizon in the evening soon after sunset. Mars is in the constellation of [Virgo](#) shining at magnitude 1.7 on the 15th.



Jupiter

Is [stationary](#) on the 4th. Jupiter rises at 10:15 p.m. on the 1st and about 8:13 p.m. by month's end. Look for Jupiter in the evening to the southeast and morning to the south before sunrise. Jupiter is in the constellation of [Aries](#) shining at magnitude -2.7.



Saturn

Rises at 7:17 p.m. on the 1st and about 5:15 p.m. by month's end. Saturn is still at its best viewing for the year. By the time the Sun sets, Saturn is high enough in the east to enjoy all evening

and night as it traverses the heavens. Saturn is in the constellation of [Aquarius](#) shining at magnitude 0.5.



Optical view of Saturn and Jupiter in December. But since Saturn is in the North, the maximum of 11° north of the sky.



Uranus

Rises at 10:32 p.m. on the 1st and about 8:32 p.m. by month's end. Uranus follows just about 15 minutes behind Jupiter. Uranus is in the constellation of [Aries](#) shining at magnitude 5.7.



Neptune

Is at [opposition](#) on the 19th, rising as the Sun sets. Neptune rises at 8:11 p.m. on the 1st and about 6:11 p.m. by month's end. Neptune is at it's best

viewing this month. Look for Neptune following Saturn by about an hour. Neptune is in the constellation of [Pisces](#) shining at magnitude 7.7.



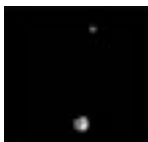
The outer system's most distant planet reaches opposition this month, shortly after passing 10° magnitude 20 Proxima.

Dwarf Planets



Ceres

Sets at 9:43 p.m. on the 1st and about 8:12 p.m. by month's end. Look for Ceres to the southwest in the evening after sunset. Ceres moves from the constellation of [Virgo](#) into [Libra](#) shining at magnitude 9.0.



Pluto

Sets at 3:01 a.m. on the 1st and about 1:01 a.m. by month's end. Look for Pluto in the south in the late evening when it is highest in the sky. Pluto is in the constellation of [Sagittarius](#) shining at magnitude 15.2.

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

Constellation information provided by [Go Astronomy](#).

Astronomical Events



Meteor Showers

•The Alpha Aurigids - This [shower's](#) duration seems to persist from August 25 to September 6. Maximum occurs on September 1. The annual

maximum hourly rate may be as high as 9, but outbursts of over 30 occurred in 1935, 1986, and 1994, and observers recorded up to 130 meteors per hour in 2007.

- The Epsilon Perseids meteor shower is a relatively new meteor shower which can be observed from September 4 to September 14. The Epsilon Perseids peaks on the night of September 9, morning of September 10. Observers may expect to see up to 5 or 6 meteors per hour during the peak.



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](#) 103P/Hartley 2 is passing through the constellation of [Perseus](#) this month. Comet Hartley 2 may brighten to about 8th magnitude this month. A 4-inch telescope or larger as well as dark skies will be needed to spot the comet.

For information, orbital elements and ephemerides on observable comets visit [Observable Comets](#).

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.

Observational Opportunities

(from evening to morning)

- Look for Mars, Ceres and Pluto in the evening.
- Look for Jupiter, Saturn, Uranus and Neptune in the evening and morning.
- Look for Venus in the morning.

Asteroids

(From west to east)

- **Eunomia** is in the constellation of [Sagittarius](#).
- **Flora** is in the constellation of [Capricornus](#).
- **Amphitrite** is in the constellation of [Pisces](#).
- **Melpomene** is in the constellation of [Cetus](#).
- **Vesta** is in the constellation of [Orion](#).

Information about the Minor Planets can be found at the [MinorPlanet.info](#) 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
6763-2022	2022-10-06 05:56 CDT	OK	Mike C	6763

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.

Our Sun

July 30, 2023

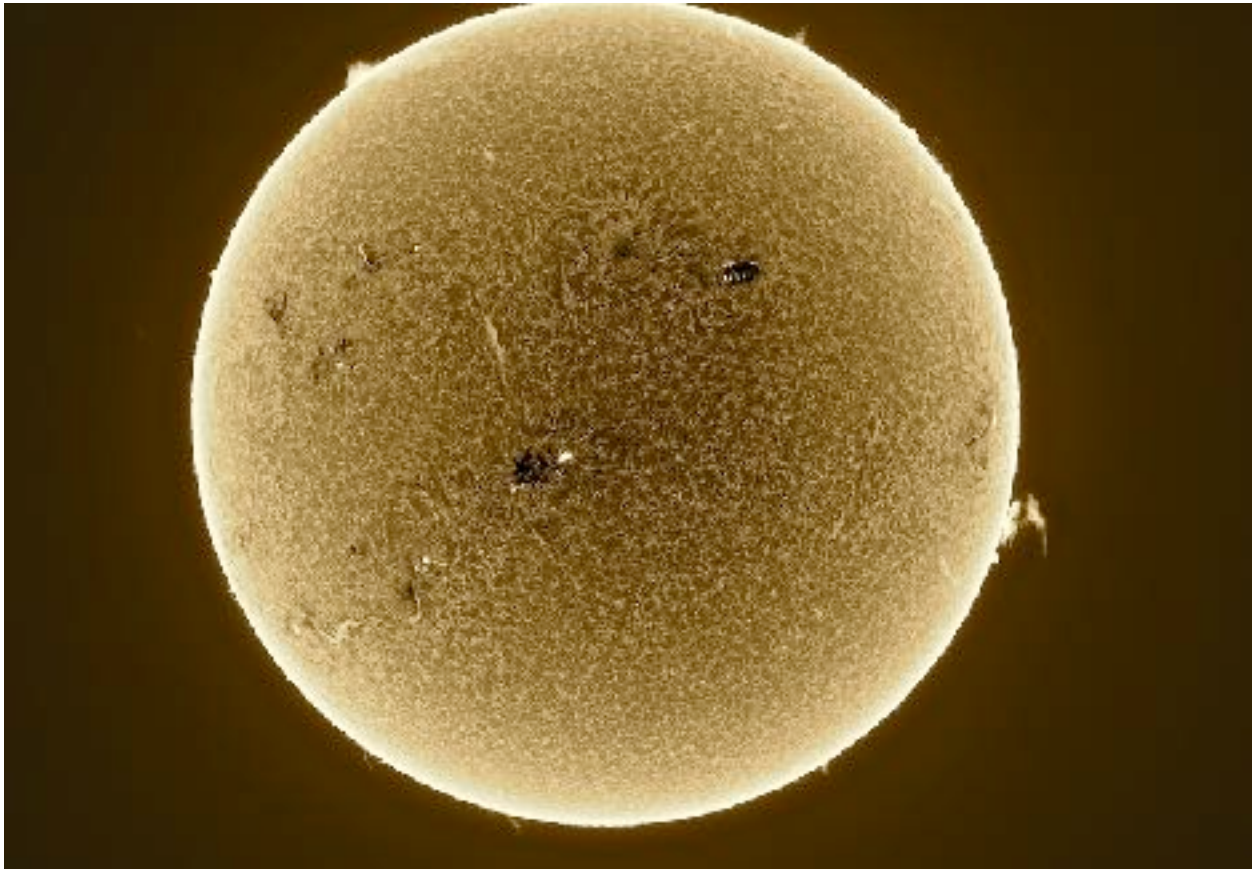


Image Courtesy of V. Parker Lessig (KØVL) & Cline Lessig

Date:	July 30, 2023
Telescope:	Lunt 60mm H-Alpha Solar Telescope
Camera:	ZWO 178MM
Gain:	102
Exposure:	1.5 ms
Frames:	500 stacked (2000 taken)
Capture Software:	SharpCap
Stacking Software:	AutoStakkert
Processing Software:	IMPPG (primarily curves)

Planetary/Lunar Exploration Missions

(Excerpts from recent mission updates)



JPL Latest News

The Latest from Space

[The Origin of JPL](#) (a Youtube video-1 Hour 29 minutes).

[JPL Latest News](#)

August 16, 2023

NASA's Lunar Trailblazer Gets Final Payload for Moon Water Hunt

[Full Article & Images](#)

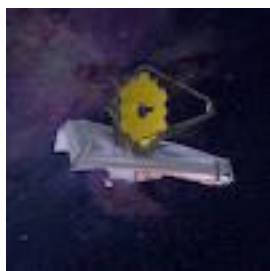
"The spacecraft's Lunar Thermal Mapper science instrument will work with an imaging spectrometer to help researchers understand the nature of water on the Moon's surface.

NASA's Lunar Trailblazer is nearing completion now that its second and final cutting-edge science instrument has been added to the small spacecraft. Built by the University of Oxford in England and contributed by the UK Space Agency, the Lunar Thermal Mapper ([LTM](#)) joins the High-resolution Volatiles and Minerals Moon Mapper ([HVM3](#)), which was integrated with the spacecraft [late last year](#). Together, the instruments will enable scientists to determine the abundance, location, and form of the Moon's water."

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

August 31, 2023

Webb Reveals New Structures Within Iconic Supernova

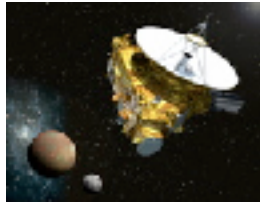
[Full Article & Images](#)

"NASA's James Webb Space Telescope has begun the study of one of the most renowned supernovae, SN 1987A (Supernova 1987A). Located 168,000 light-years away in the Large Magellanic Cloud, SN 1987A has been a target of intense observations at wavelengths ranging from gamma rays to radio for nearly 40 years, since its discovery in February of 1987. New observations by

Webb's NIRCams (Near-Infrared Cameras) provide a crucial clue to our understanding of how a supernova develops over time to shape its remnant."

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

July 26, 2023

NASA's Juno Is Getting Ever Closer to Jupiter's Moon Io

[Full Article & Images](#)

"The spinning, solar-powered spacecraft will take another look of the fiery Jovian moon on July 30.

When NASA's Juno mission flies by Jupiter's fiery moon Io on Sunday, July 30, the spacecraft will be making its closest approach yet, coming within 13,700 miles (22,000 kilometers) of it. Data collected by the Italian-built JIRAM (Jovian InfraRed Auroral Mapper) and other science instruments is expected to provide a wealth of information on the hundreds of erupting volcanoes pouring out molten lava and sulfurous gases all over the volcano-festooned moon."

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](#).



TESS

May 30, 2023

Astronomers Discover Planets in NASA Kepler's Final Days of Observations

[Full Article & Images](#)

"A team of astrophysicists and citizen scientists have identified what may be some of the last planets NASA's retired [Kepler space telescope](#) observed during its nearly decade-long mission.

The trio of exoplanets – worlds beyond our solar system – are all between the size of Earth and Neptune and closely orbit their stars."

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 on the Go! NASA Be A Martian Mobile App

If you want the latest news as it happens, try out the "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.



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
August 7, 2023

2023 Boulder Solar Alliance students shine

[Full Article & Images](#)

"Last week the [Boulder Solar Alliance Research Experience for Undergraduates](#) (BSA REU) program concluded its sixteenth summer session. Seventeen students from across the nation spent 10 weeks in Boulder, Colorado conducting professional research on a wide variety of solar and space physics topics. These ranged from characterizing active regions on the Sun (and their relevance to space weather forecasting), to engineering wire harnesses for a future CubeSat mission, to exploring the effects of a young Sun on the clouds of Venus. "



MAVEN

June 22, 2023

NASA's MAVEN Spacecraft Stuns with Ultraviolet Views of Red Planet

[Full Article & Images](#)

"NASA's MAVEN (Mars Atmosphere and Volatile Evolution) mission acquired stunning views of Mars in two ultraviolet images taken at different points along our neighboring planet's orbit around the Sun.

By viewing the planet in ultraviolet wavelengths, scientists can gain insight into the Martian atmosphere and view surface features in remarkable ways.

MAVEN's Imaging Ultraviolet Spectrograph (IUVS) instrument obtained these global views of Mars in 2022 and 2023 when the planet was near opposite ends of its elliptical orbit."

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



Mars 2020 - Perseverance

August 7, 2023

NASA's Ingenuity Mars Helicopter Flies Again After Unscheduled Landing

[Full Article & Images](#)

"The helicopter performed a short hop to help the team better understand why its previous flight was interrupted.

NASA's Ingenuity Mars Helicopter successfully completed its 54th flight on August 3, the first flight since the helicopter cut its July 22 flight short. The 25-second up-and-down hop provided data that could help the Ingenuity team determine why its 53rd flight ended early.

Flight 53 was planned as a 136-second scouting flight dedicated to collecting imagery of the planet's surface for the Perseverance Mars rover science team. The complicated flight profile included flying north 666 feet (203 meters) at an altitude of 16 feet (5 meters) and a speed of 5.6 mph (2.5 meters per second), then descending vertically to 8 feet (2.5 meters), where it would hover and obtain imagery of a rocky outcrop. Ingenuity would then climb straight up to 33 feet (10 meters) to [allow its hazard divert system to initiate](#) before descending vertically to touch down."

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

Mars Science Laboratory - Curiosity

August 29, 2023

Sols 3930-3931: Wrapping up at the Ridge

[Full Article & Images](#)

"In the next 2 sols we are wrapping up our mini campaign at the upper Gediz Vallis Ridge (uGVR) that has been documented in [previous blogs](#) over the last week or so. Before we leave however, we want to collect as much data as we can! Next, Curiosity will be driving back to the nominal Mount Sharp Ascent Route (MSAR). We diverted from the MSAR back in June in order to navigate some [tricky terrain](#), and then again briefly here at the uGVR."

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



Mars Reconnaissance Orbiter Mission

April 25, 2023

NASA Retires Mineral Mapping Instrument on Mars Orbiter

[Full Article & Images](#)

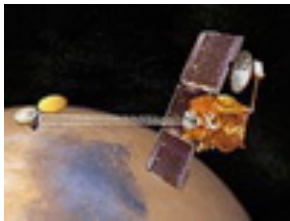
"One of six instruments aboard the agency's Mars Reconnaissance Orbiter, CRISM produced global maps of minerals on the Red Planet's surface."

NASA switched off one of its oldest instruments studying Mars on April 3, a step that's been planned since last year. Riding aboard NASA's Mars Reconnaissance Orbiter, CRISM, or the Compact Reconnaissance Imaging Spectrometer for Mars, revealed minerals such as clays, hematite (otherwise known as iron oxide), and sulfates across the Red Planet's surface for 17 years."

MARS RECONNAISSANCE ORBITER HIRISE IMAGES

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

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



Mars Odyssey Orbiter

March 15, 2023

Engineers Keep an Eye on Fuel Supply of NASA's Oldest Mars Orbiter

[Full Article & Images](#)

"Measuring the fuel supply on Odyssey, a decades-old spacecraft without a fuel gauge, is no easy task."

Since NASA launched the 2001 Mars Odyssey Orbiter to the Red Planet almost 22 years ago, the spacecraft has looped around Mars more than 94,000 times. That's about the equivalent of 1.37 billion miles (2.21 billion kilometers), a distance that has required extremely careful management of the spacecraft's fuel supply. This feat is all the more impressive given that Odyssey has no fuel gauge; engineers have had to rely on math instead."

DAILY MARS ODYSSEY THEMIS IMAGES

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

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

Mars Missions Status

New Mars missions are being planned to include several new rover and sample collection missions. Check out the [Mars Exploration](#) web 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](#)

[More 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

Created by Burness F. Ansell, III

ki0ar@ki0ar.com

COO, Director of Aerospace Technologies, IAAS

JPL Solar System Ambassador, Colorado

Last modified: September 01, 2023