IAAS Monthly Astronomy Newsletter January 2024

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.

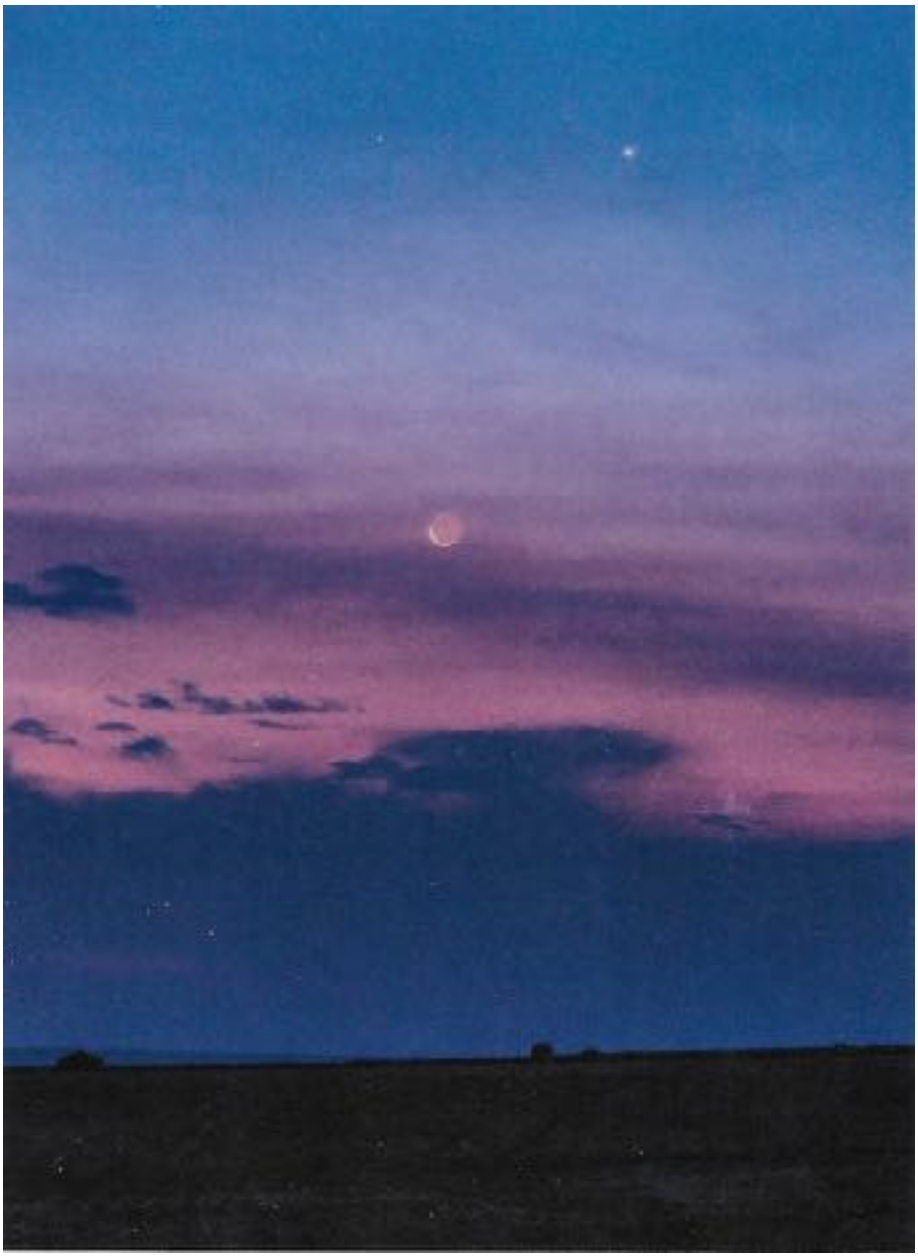
An Open Invitation - For amateur radio operators and scanner enthusiasts around the world, please join the Colorado Astronomy Net on the Rocky Mountain Radio League's **K1DUN** repeater on **449.450 MHz** or other digital and analog repeaters, Allstar nodes, Echolinks, DMR and internet links connected to the SKYHUBLINK system. The net meets on Tuesday nights at 7 P.M. Mountain Time (US) (Wednesday at 0200 GMT). Connecting to the SkyHubLink system has expanded our coverage in the U.S., Canada and internationally. All Amateur radio operators worldwide are welcome. Anyone may 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!
Your contributions are tax deductible.
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.



"The rocky planets congregate in the predawn sky to kick off the first month of 2024. Here, Venus lies highest (above the star Regulus), while Mars and brighter Mercury are below the Moon." Astronomy Magazine, January 2024, p. 28. - Alan Dyer

In This Newsletter...

The Month At-A-Glance

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

The Moon

Phases:

- Last Quarter Moon occurs on the 3rd.
- New Moon occurs on the 11th.
- First Quarter Moon occurs on the 17th.
- Full Moon occurs on the 25th.

- The Moon is at apogee (251,599 miles from Earth) on the 1st.
- The Moon is at perigee (225,102 miles from Earth) on the 13th.
- The Moon is at apogee (252,138 miles from Earth) on the 29th.

Moon/Planet Pairs:

- The Moon passes 0.8° north of Antares on the 8th.
- The Moon passes 6° south of Venus on the 8th.
- The Moon passes 7° south of Mercury on the 9th.
- The Moon passes 4° south of Mars on the 10th.
- The Moon passes 2° south of Saturn on the 14th.
- The Moon passes 0.9° south of Neptune on the 15th.
- The Moon passes 3° north of Jupiter on the 18th.
- The Moon passes 3° north of Uranus on the 19th.

For reference: The Full Moon subtends an angle of ~0.5°.

Experts Pick the Top Stargazing Events for 2024

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.

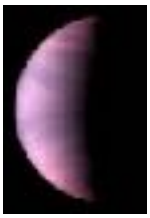
(All times are local unless otherwise noted.)

Planetary Highlights for January

"The new year begins with Jupiter and Saturn visible most of the evening. Uranus and Neptune are on show as well, requiring optical aid to spot. Meanwhile Mercury, Venus, and Mars congregate in the morning sky, with Mercury and Mars reaching a close conjunction. Also don't miss the occultation of Antares, visible from portions of the mountain states and southern California. Add the potential for some binocular comets, and 2024 is off to a great start." Astronomy Magazine, January 2024, p. 28.

Mercury

Is stationary on the 1st. Mercury is at greatest western elongation (24°) on the 12th. Mercury rises at 5:52 a.m. on the 1st and about 6:18 a.m. by month's end. Look for Mercury in the morning sky very low on the horizon about 30 minutes before sunrise. Mercury moves from the constellation of Ophiuchus into Sagittarius shining at magnitude -0.2 on the 15th.



Venus

Rises at 4:27 a.m. on the 1st and about 5:21 a.m. by month's end. Look for Venus to the east before sunrise. Venus moves from the constellation of Scorpius into Sagittarius shining at magnitude -4.0 on the 15th.

Earth

Is at perihelion (91.4 million miles from the Sun) on the 2nd.

Mars

Rises at 6:31 a.m. on the 1st and about 6:04 a.m. by month's end. Look for Mars after mid-month low on the eastern horizon before sunrise. Mars is in the constellation of Sagittarius shining at magnitude 1.3 on the 31st.

Jupiter

Sets at 2:17 a.m. on the 1st and about 12:25 a.m. by month's end. By the time the Sun sets, Jupiter is visible, high in the south. Jupiter is in the constellation of Aries shining at magnitude -2.5.

Saturn

Sets at 9:01 p.m. on the 1st and about 7:16 p.m. by month's end. By the time the Sun sets, Saturn is visible in the southwest soon after sunset. Saturn is in the constellation of Aquarius shining at magnitude 0.9.

Uranus

Sets at 3:29 a.m. on the 1st and about 1:26 a.m. by month's end. Uranus is stationary on the 27th. Uranus follows just about an hour behind Jupiter, visible in the south soon after sunset. Uranus is in the constellation of Aries shining at magnitude 5.7.

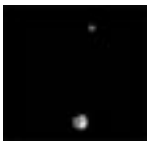
Neptune

Sets at 10:51 p.m. on the 1st and about 8:53 p.m. by month's end. Look for Neptune following Saturn by about 2 hours in the south-southwest soon after sunset. Neptune is in the constellation of Pisces shining at magnitude 7.8.

Dwarf Planets

Ceres

Rises at 5:27 a.m. on the 1st and about 4:23 a.m. by month's end. Ceres is visible in the early morning sky to the east. Ceres moves from the constellation of Ophiuchus into Sagittarius shining at magnitude 9.1.



Pluto

Is in conjunction with the Sun on the 20th. Pluto sets at 6:03 p.m. on the 1st. After conjunction, Pluto returns to the morning sky, rising about 6:45 a.m. by month's end. Pluto is too low and too dim to spot this month. 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 Quadrantids** - This shower is generally visible between December 28 and January 7, with a very sharp maximum of 45 to 200 meteors per hour occurring during January 3 and 4. The meteors tend to be bluish and possess an average magnitude of about 2.8.

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 12P/Pons-Brooks passes through the constellation of Cygnus. This once in a life time comet (71 year orbit) may shine around 10th magnitude this month. Be prepared to view this comet early in the evening soon after sunset and before it dips below about 10° above the western horizon.

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

Asteroids

(From west to east)

- **Melpomene** is in the constellation of Cetus.
- **Vesta** is in the constellation of Gemini.
- **Metis** is in the constellation of Gemini.
- **Astraea** is in the constellation of Orion.
- **Juno** is in the constellation of Virgo.
- **Pallas** is in the constellation of Serpens.

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.

The Moon occults Antares on the morning of January 8, visible in the northwestern part of the U.S. Check these two links:

1) OCCULTATION of ZC2366 on 08 JAN 2024
2) Lunar occultation of Antares

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.

Event ID	Date/Time	Location	Observer	Link
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
5300-2023	2023-09-11 22:04 MDT	CO	Lukas S	5300

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.

Andromeda Galaxy (M31)

October 13, 2023

Image Courtesy of Burness Ansell (KIØAR)
Approx. 90 minute exposure (1000 stacked frames)
Location: 37° 12' 10.19" N, 109° 56' 02.05" W
Elevation: 5143 ft.
Taken with: Dwarf II
Note: Dwarf Galaxy M32 to the upper left

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

December 22, 2023
NASA's Deep Space Network Turns 60 and Prepares for the Future

Full Article & Images

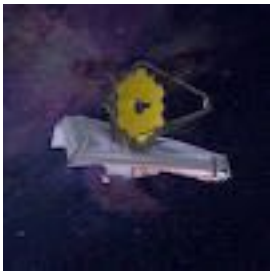
"The agency's DSN provides critical communications and navigation services to dozens of space missions, and it's being modernized to support dozens more.

NASA's Deep Space Network marks its 60th year on Dec. 24. In continuous operations since 1963, the DSN is what makes it possible for NASA to communicate with spacecraft at or beyond the Moon. The dazzling galactic images captured by the James Webb Space Telescope, the cutting-edge science data being sent back from Mars by the Perseverance rover, and the historic images sent from the far side of the Moon by Artemis I – they all reached Earth via the network's giant radio dish antennas."

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

December 22, 2023
A Look Through Time with NASA's Lead Photographer for the James Webb Space Telescope

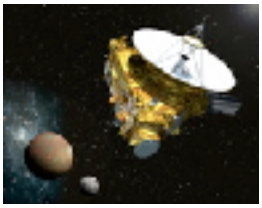
Full Article & Images

"Nearly two years ago in the early morning hours of Dec. 25, NASA's James Webb Space Telescope successfully took flight from the jungle-encircled ELA-3 launch complex at Europe's Spaceport near Kourou, French Guiana. Following a successful deployment in space, and the precise alignment of the telescope's mirrors and instruments, Webb began science operations nearly six months after liftoff. As the

two-year anniversary of the launch aboard ESA's (European Space Agency) Ariane 5 rocket approaches, Webb's lead photographer Chris Gunn has remastered a selection of his favorite images from his career, including one previously unreleased image."

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

December 27, 2023
NASA's Juno to Get Close Look at Jupiter's Volcanic Moon Io on Dec. 30

Full Article & Images

"*The orbiter has performed 56 flybys of Jupiter and documented close encounters with three of the gas giant's four largest moons.*

NASA's Juno spacecraft will on Saturday, Dec. 30, make the closest flyby of Jupiter's moon Io that any spacecraft has made in over 20 years. Coming within roughly 930 miles (1,500 kilometers) from the surface of the most volcanic world in our solar system, the pass is expected to allow Juno instruments to generate a firehose of data."

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

November 29, 2023
Discovery Alert: Watch the Synchronized Dance of a 6-Planet System

Full Article & Images

"**The discovery:** Six planets orbit their central star in a rhythmic beat, a rare case of an "in sync" gravitational lockstep that could offer deep insight into planet formation and evolution.

Key facts: A star smaller and cooler than our Sun hosts a truly strange family of planets: six "sub-Neptunes" – possibly smaller versions of our own Neptune – moving in a cyclic rhythm. This orbital waltz repeats itself so precisely it can be readily set to music.

Details: While multi-planet systems are common in our galaxy, those in a tight gravitational formation known as "resonance" are observed by astronomers far less

often. In this case, the planet closest to the star makes three orbits for every two of the next planet out – called a 3/2 resonance – a pattern that is repeated among the four closest planets."

For more news and information on the TESS mission, visit the Latest Tess News 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

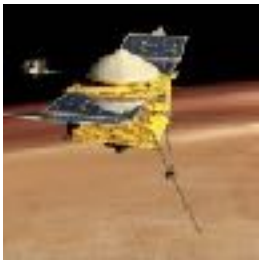
JMARS is an acronym that stands for Java Mission-planning and Analysis for Remote Sensing. It is a geospatial information system (GIS) developed by ASU's Mars Space Flight Facility to provide mission planning and data-analysis tools to NASA's orbiters, instrument team members, students of all ages, and 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
December 22, 2023
LASP's Top Articles of 2023

Full Article & Images

"As 2023 draws to a close and we take a look back on the top website articles of the year, we see many highlighting LASP's role in the past, present, and future of space science. This is fitting in a year in which LASP celebrated its 75th anniversary. What also emerges is a celebration of the people of LASP: Articles about those who carry out the lab's transformative research, those who carry on the traditions of education and training the next generation of space scientists, and about the undergraduate and graduate students and postdoctoral researchers whose work is carrying forward our proud tradition of excellence. Here, we've pulled together our top stories of 2023 celebrating the people of LASP. From undergraduates awarded prestigious scholarships, to artists beginning a new program that brings art and space science together, to early-career researchers kicking off exciting new missions — 2023 was not only a year of celebrating LASP's history, but its future."



MAVEN
December 11, 2023
NASA's MAVEN Observes the Disappearing Solar Wind

Full Article & Images

"In December 2022, NASA's MAVEN (Mars Atmosphere and Volatile EvolutioN) mission observed the dramatic and unexpected "disappearance" of a stream of charged particles constantly emanating off the Sun, known as the solar wind. This was caused by a special type of solar event that was so powerful, it created a void in its wake as it traveled through the solar system.

Due to this event, MAVEN's measurements at Mars showed that the number of particles making up the solar wind dropped significantly. Without the pressure of the solar wind, the Martian atmosphere and magnetosphere expanded by thousands of kilometers. MAVEN is the only asset currently at Mars able to simultaneously observe both the Sun's activity and the response of the Martian atmosphere to these solar influences."

Visit LASP and MAVEN for more information.

Mars 2020 - Perseverance

December 12, 2023
NASA's Perseverance Rover Deciphers Ancient History of Martian Lake

Full Article & Images

"*Now at 1,000 days on Mars, the mission has traversed an ancient river and lake system, collecting valuable samples along the way.*

Marking its 1,000th Martian day on the Red Planet, NASA's Perseverance rover recently completed its exploration of the ancient river delta that holds evidence of a lake that filled Jezero Crater billions of years ago. The six-wheeled scientist has to date collected a total of 23 samples, revealing the geologic history of this region of Mars in the process."

Learn more about the Mars 2020 (Perseverance) mission.

Mars Science Laboratory - Curiosity

November 6, 2023
NASA's Curiosity Rover Clocks 4,000 Days on Mars

Full Article & Images

"*The mission team is making sure the robotic scientist, now in its fourth extended mission, is staying strong, despite wear and tear from its 11-year journey.*

Four thousand Martian days after setting its wheels in Gale Crater on Aug. 5, 2012, NASA's Curiosity rover remains busy conducting exciting science. The rover recently drilled its 39th sample then dropped the pulverized rock into its belly for detailed analysis."

Visit the Mars Science Laboratory page.

Mars Reconnaissance Orbiter Mission

December 18, 2023
Ice Flows on Mars

Full Article & Images

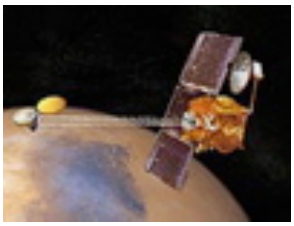
"On Aug. 18, 2023, the Mars Reconnaissance Orbiter (MRO) captured ridged lines carved onto Mars' landscape by the gradual movement of ice.

While surface ice deposits are mostly limited to Mars' polar caps, these patterns appear in many non-polar Martian regions.

As ice flows downhill, rock and soil are plucked from the surrounding landscape and ferried along the flowing ice surface and within the icy subsurface. While this process takes perhaps thousands of years or longer, it creates a network of linear patterns that reveal the history of ice flow."

MARS RECONNAISSANCE ORBITER HIRISE IMAGES

View all of the archived HiRISE images.
More information about the MRO mission is available online.



Mars Odyssey Orbiter

November 28, 2023
NASA Orbiter Snaps Stunning Views of Mars Horizon

Full Article & Images

"*The Odyssey orbiter captured clouds and dust in the Red Planet's skies, along with one of its two tiny moons.*

Astronauts often react with awe when they see the curvature of the Earth below the International Space Station. Now Mars scientists are getting a taste of what that's like, thanks to NASA's 2001 Mars Odyssey orbiter, which completed its 22nd year at the Red Planet last month.

The spacecraft captured a series of panoramic images that showcases the curving Martian landscape below gauzy layers of clouds and dust. Stitched end to end, the 10 images offer not only a fresh, and stunning, view of Mars, but also one that will help scientists gain new insights into the Martian atmosphere."

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 KIØAR
Created by Burness F. Ansell, III
Email

COO, Director of Aerospace Technologies, IAAS
JPL Solar System Ambassador, Colorado
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