IAAS Monthly Astronomy Newsletter January 2025

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.

"A composite shows the Dec. 7, 2022, occultation of Mars by the Moon. Although the time-lapse image makes it look as though Mars is moving, in reality it was the Moon whose faster relative motion made it appear to pass in front of a stationary Mars in the background." Astronomy Magazine, January 2025, 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:

- First Quarter Moon occurs on the 6th.
- Full Moon occurs on the 13th.
- Last Quarter Moon occurs on the 21st.
- New Moon occurs on the 29th.

- The Moon is at perigee (230,013 miles from Earth) on the 7th.
- The Moon is at apogee (251,219 miles from Earth) on the 20th.

Moon/Planet Pairs:

- The Moon passes 1.1° south of Pluto on the 1st.
- The Moon passes 1.4° south of Venus on the 3rd.
- The Moon passes 0.7° north of Saturn on the 4th.
- The Moon passes 1.1° north of Neptune on the 5th.
- The Moon passes 4° north of Uranus on the 9th.
- The Moon passes 5° north of Jupiter on the 10th.
- The Moon passes 0.2° north of Mars on the 13th.
- Venus passes 3° north of Saturn on the 19th.
- The Moon passes 0.1° south of Spica on the 20th.
- Mars passes 2° south of Pollux on the 21st.
- The Moon passes 0.3° south of Antares on the 24th.
- The Moon passes 1.1° north of Saturn on the 31st.

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

Calendar of All Astronomical Events 2025

Weekly Rocket Report

Courtesy of "The Rocketman" Ed W6RDZ
Updated Weekly on Tuesday evenings
prior to the Colorado Astronomy Net

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.

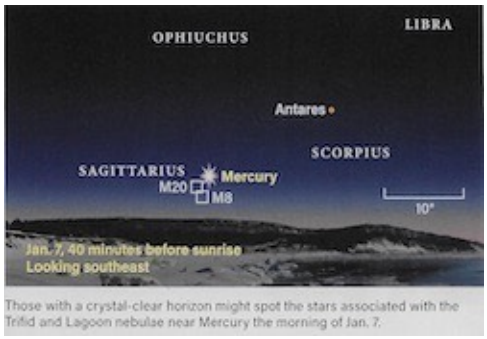
(Times are Mountain Daylight Time (MDT/MST) unless otherwise noted. Times will vary slightly depending on your location.)

Planetary Highlights for January

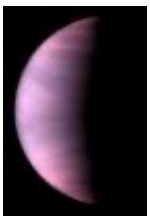
"All the major planets are on view this month. Venus has a fine evening conjunction with Saturn and Jupiter is high in Taurus. Uranus and Neptune are binocular targets, while Mars reaches opposition. Early morning reveals Mercury. Additionally, on the 9th the Moon crosses the Pleiades (M45), and on the 13th it hides Mars in a rare event." Astronomy Magazine, January 2025, p. 28.

Mercury

Rises at 5:49 a.m. on the 1st and about 7:02 a.m. by month's end. Mercury is visible about 30 minutes before sunrise just above the southeastern horizon during the first two weeks of January. Mercury moves from the constellation of Ophiuchus into Capricornus shining at magnitude -0.4 on the 1st.



Those with a crystal-clear horizon might spot the stars associated with the Trifid and Lagoon nebulae near Mercury the morning of Jan. 7.



Venus

Is at greatest eastern elongation (47°) on the 9th. Venus is in conjunction with Saturn on the 19th. Venus sets about 8:37 p.m. on the 1st and about 9:07 p.m. by month's end. Look for Venus to the southwest about 30 minutes after sunset. Venus moves from the constellation of Aquarius into Pisces shining at magnitude -4.6 on the 15th.

Earth

Is at perihelion (91.4 million miles from the Sun) on the 4th.

Mars

Comes closest to Earth (59.7 million miles away) on the 12th. The Moon occults Mars on the 13th/14th (See Occultations below). Mars is at opposition on the 15th, rising as the Sun sets. Mars rises at 6:02 p.m. on the 1st and about 3:01 p.m. by month's end. Look for Mars to the east in the evening. Follow Mars across the sky almost all night long. Mars moves from the constellation of Cancer into Gemini shining at magnitude -1.4.

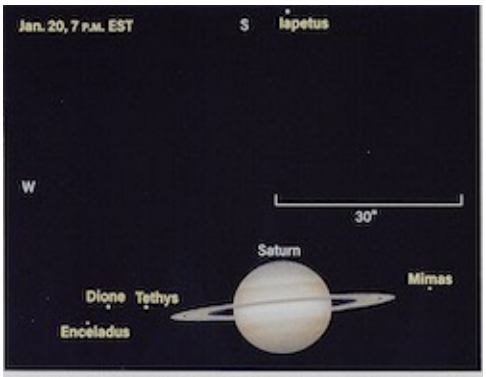
Mars reaches opposition Jan. 15, standing high in the south at midnight. Just days before, the Moon occults the Red Planet.

Jupiter

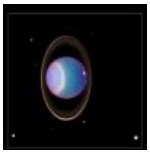
Sets at 5:22 a.m. on the 1st and about 3:12 a.m. by month's end. Jupiter is easy to spot to the south in the evening sky. Follow Jupiter across the sky for the rest of the evening and into the early morning hours. Jupiter is in the constellation of Taurus shining at magnitude -2.7.

Saturn

Sets at 9:54 p.m. on the 1st and about 8:07 p.m. by month's end. By the time the Sun sets, Saturn is high to the southwest. Saturn is in the constellation of Aquarius shining at magnitude 1.1.

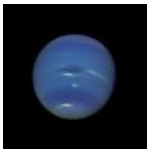


On Jan. 20, Iapetus is south of Saturn. Note that Enceladus (12th magnitude) and Mimas (13th magnitude) may be too faint for smaller telescopes.



Uranus

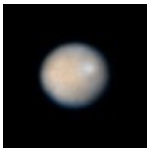
Sets at 3:47 a.m. on the 1st and about 1:44 a.m. by month's end. Uranus is stationary on the 30th. Look for Uranus to the south soon after sunset. Uranus is in the constellation of Taurus shining at magnitude 5.7.



Neptune

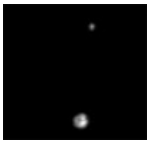
Sets at 10:59 p.m. on the 1st and about 9:01 p.m. by the month's end. Look for Neptune to the southwest following Saturn by about an hour all month. Neptune is in the constellation of Pisces shining at magnitude 7.8.

Dwarf Planets



Ceres

Sets at 6:41 p.m. on the 1st and about 5:43 p.m. by month's end. Ceres is visible in the evening sky to the southwest. Ceres is in the constellation of Capricornus shining at magnitude 9.2.



Pluto

Is in conjunction with the Sun on the 21st. Pluto sets at 6:07 p.m. on the 1st. After conjunction, Pluto returns to the morning sky rising about 6:50 a.m. by month's end. Pluto is lost in the evening and morning twilight glow all month and is not visible. Pluto is in the constellation of Capricornus shining at magnitude 15.2.

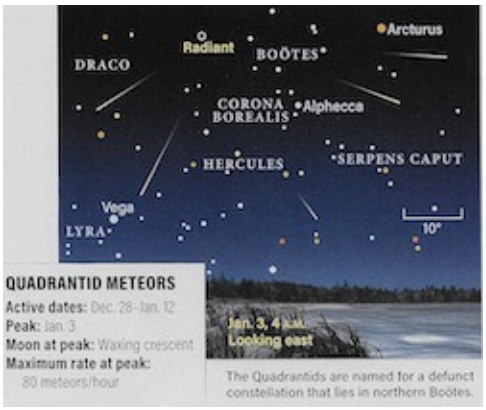
As always, good luck at spotting Neptune, Ceres and Pluto, a large telescope and dark skies will be needed.

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.

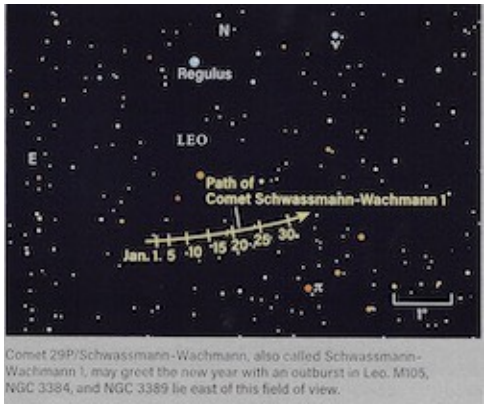
Meteor Shower Radiant Report

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 **29P/Schwassmann-Wachmann 1** may have an outburst in brightness from around magnitude 15 to 10.5 this month, but will be a challenge for most observers. The comet is passing through the constellation of Leo near several deep-sky objects.



Comet 29P/Schwassmann-Wachmann, also called Schwassmann-Wachmann 1, may greet the new year with an outburst in Leo. M105, NGC 3384, and NGC 3389 lie east of this field of view.

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

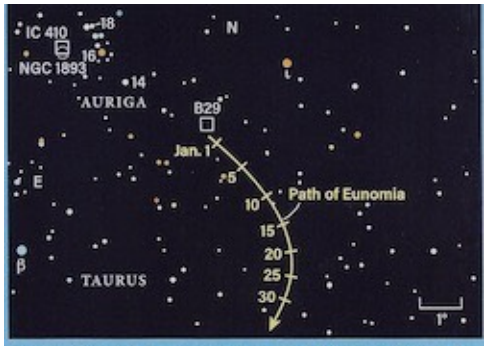
(from evening to morning)

- Look for Ceres, Venus, Saturn, Neptune, Uranus and Jupiter in the evening from the west to south.
- Look for Mars in the evening to the east and follow across the sky all night.
- Look for Mercury in the early morning to the east before mid-month.

Asteroids

(From west to east)

- **Pallas** is in conjunction with the Sun.
- **Iris** is in the constellation of Pisces.
- **Eunomia** is in the constellation of Auriga.
- **Irene** is at opposition on the 3rd in the constellation of Gemini.
- **Vesta** is in the constellation of Virgo.



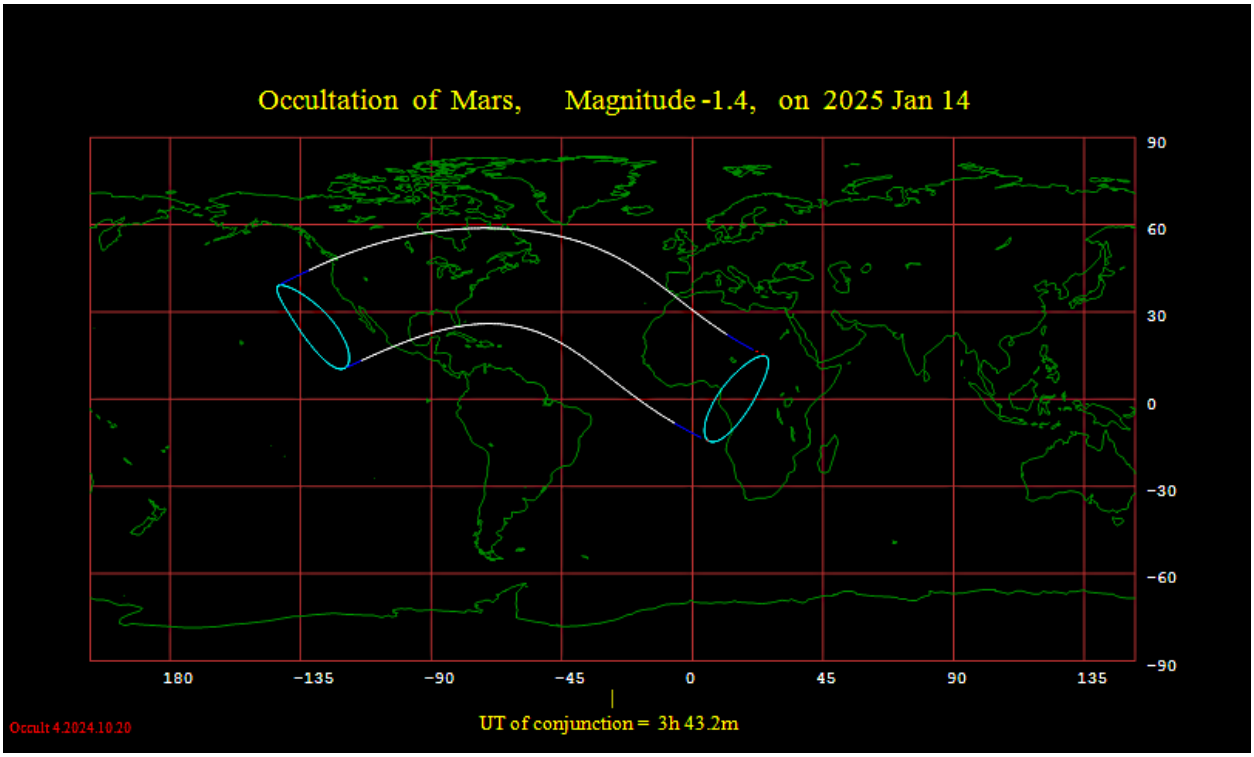
Eunomia is traveling through a dusty swath of the Milky Way, offering a peek at several dark clouds along the way.

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 Mars on the 13th/14th. The occultation is observable from mid/northwest Africa across the continental U.S.



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

578-2024 2024-01-28 23:05 MST CO Lukas S 578

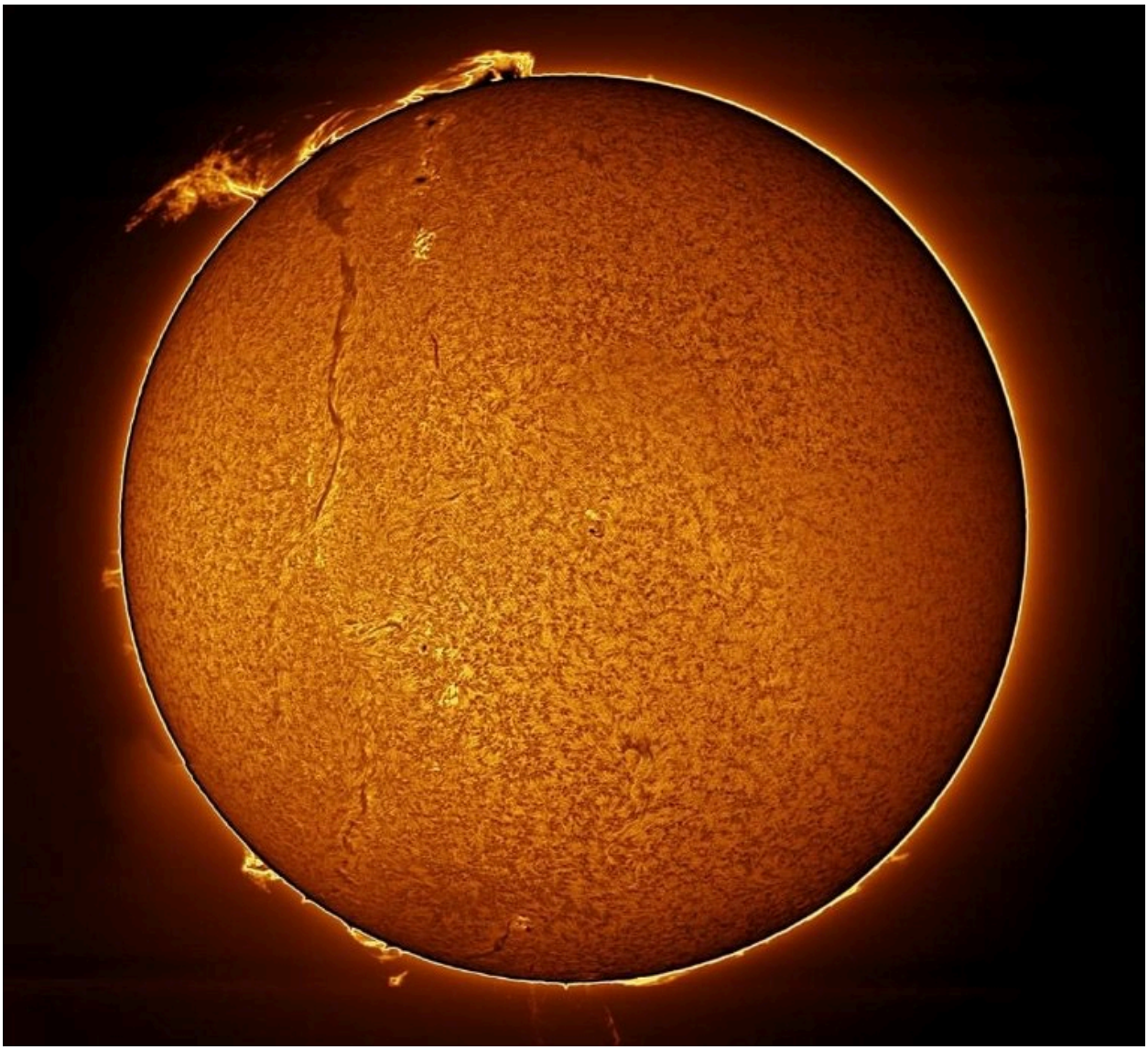
Subscriber Gallery

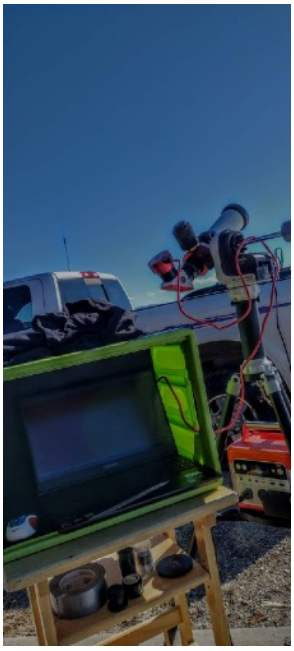
I have created a web page containing images taken and submitted by subscribers (or special images) to the email newsletter, check-ins to the Colorado Astronomy Net and readers of the online newsletter and some of my own images. Any one wishing to submit their images to the gallery, please let me know. 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.

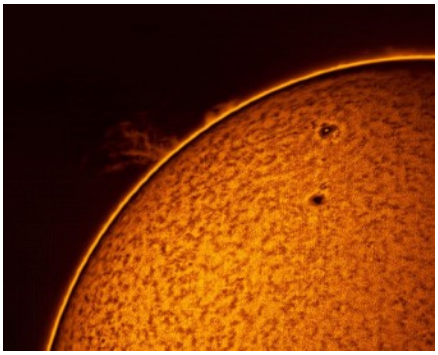
Our Sun

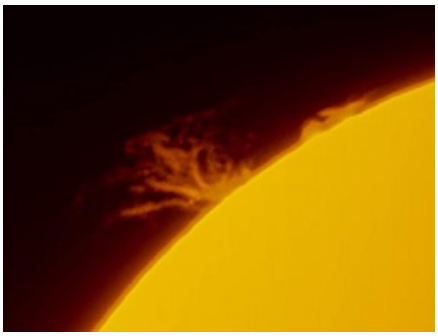
Courtesy of Bryan Gunsher (K6SKI)

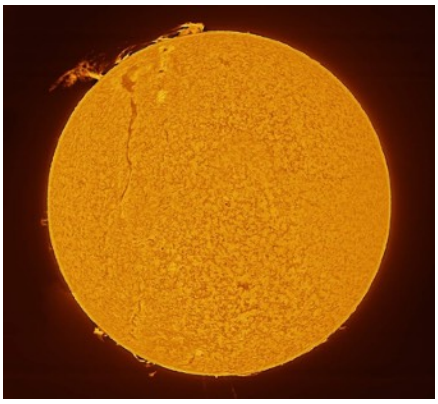
Images taken November 2024

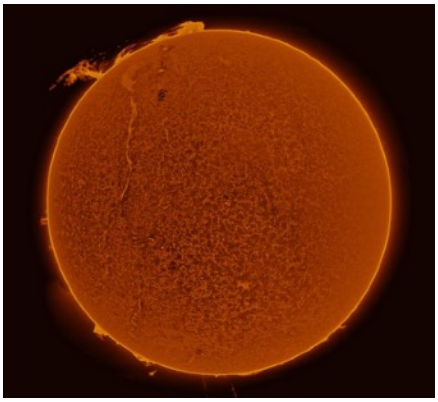


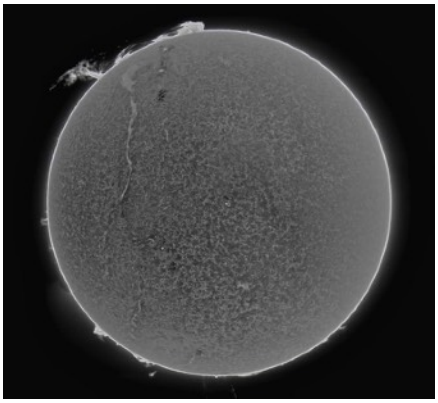


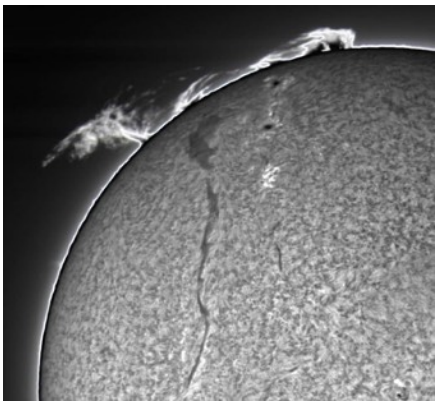












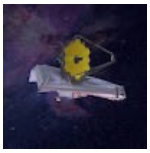
Planetary/Lunar Exploration Missions

(Excerpts from recent mission updates)

JPL Latest News

The Latest from Space

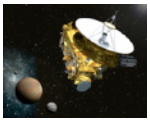
The Origin of JPL (a Youtube video-1 Hour 29 minutes).



James Webb Space Telescope

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

Information on the Juno mission is available at Juno and Mission Juno.
Images from NASA's JunoCam.
The public can follow the mission on Facebook and Twitter.

TESS

Information on the TESS mission can be found on the Latest Tess News page.

Past, Present, Future and Proposed JPL Missions

For special JPL programs and presentations in your area visit the JPL Solar System Ambassador web site.

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

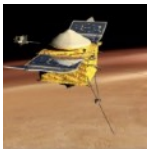
If you want the latest news as it happens, try out the "Be A Martian" app.
Download on Mobile Devices
Android | iPhone | Windows Phone

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
Visit the LASP website for latest news and information.



MAVEN
Visit the MAVEN website for latest news and information.

Mars 2020 - Perseverance
Visit the Mars 2020 (Perseverance) mission website for mission information and news updates.

Mars Science Laboratory - Curiosity
Visit the Mars Science Laboratory website for mission information and news updates.

Mars Reconnaissance Orbiter Mission

Mars Reconnaissance Orbiter HIRISE Images
View all of the archived HiRISE images.
More information about the MRO mission is available online.

Mars Odyssey Orbiter
Daily Mars Odyssey THEMIS Images
Thermal Emission Imaging System (THEMIS) web site.
Visit the Mars Odyssey Mission website for mission information and news updates.

Mars Missions Status
New Mars missions are being planned to include several new rover and sample collection missions. Check out the NASA 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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