# IAAS Monthly Astronomy Newsletter December 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.

## The Colorado Astronomy Net is now on YouTube!! All are welcome to join us Tuesday evenings!

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.


*"Geminid meteors stream from the radiant in Gemini in this composite, complete with the aurora borealis at left, which appeared later in the night."*
*Alan Dyer, Astronomy Magazine, December 2025, p.28.*

**In This Newsletter...**

# The Month At-A-Glance

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

## The Moon

### Phases:

- Full Moon occurs on the 4th. Super Moon
- Last Quarter Moon occurs on the 11th.
- New Moon occurs on the 19th.
- First Quarter Moon occurs on the 27th.

- The Moon is at perigee (221,806 miles from Earth) on the 4th.
- The Moon is at apogee (252,477 miles from Earth) on the 17th.

### Moon/Planet Pairs:

- The Moon passes 5° north of Uranus on the 3rd.
- The Moon passes 4° north of Jupiter on the 7th.
- The Moon passes 0.7° north of Regulus on the 10th.
- The Moon passes 6° south of Mercury on the 18th.
- The Moon passes 0.4° south of Antares on the 18th.
- Mercury passes 6° north of Antares on the 18th.
- The Moon passes 0.6° north of Pluto on the 22nd.
- The Moon passes 4° north of Saturn on the 26th.
- The Moon passes 3° north of Neptune on the 27th.
- The Moon passes 5° north of Uranus 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.

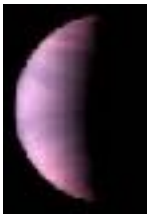
*(Times are Mountain Time (**MST**/MDT) unless otherwise noted. Times will vary slightly depending on your location.)*

## Planetary Highlights for December

"The long nights of December are an astronomical delight. The early evening sky hosts Saturn as the main feature, along with Uranus and Neptune. Jupiter rises later and is visible all night, its four main satellites undergoing many notable events. The morning sky shows the best Northern Hemisphere appearance of Mercury for the year." Astronomy Magazine, December 2025, p.28.

### Mercury

Is at greatest western elongation (21°) on the 7th. Mercury rises at 5:24 a.m. on the 1st and about 6:36 a.m. by month's end. Mercury is visible about 30 minutes before sunrise, low to the east. Mercury moves from the constellation of Libra into Sagittarius shining at magnitude 0.1 on the 1st.

### Venus

Rises about 6:18 a.m. on the 1st and about 7:20 a.m. by month's end. Look for Venus to the east about an 30 minutes before sunrise during the first two weeks of the month. Venus moves from the constellation of Libra into Sagittarius shining at magnitude -3.9 on the 15th.

### Earth

Winter solstice occurs at 10:03 A.M. EST on the 21st.

### Mars

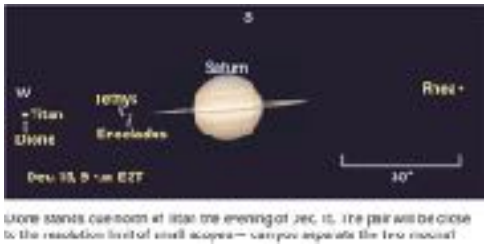
Sets at 5:10 p.m. on the 1st and about 4:51 p.m. by month's end. Look for Mars low to the west in the evening about 30 minutes after sunset during the first two weeks of the month. Mars moves from the constellation of Ophiuchus into Sagittarius shining at magnitude 1.2.

## Jupiter

Rises at 7:42 p.m. on the 1st and about 5:24 p.m. by month's end. Look for Jupiter to the southeast in the evening, then follow it through the night sky as it sets in the early morning hours before dawn. Jupiter is in the constellation of Gemini shining at magnitude -2.6.

## Saturn

Rises at 1:13 p.m. on the 1st and about 11:13 a.m. by month's end. Look for Saturn to the south in the evening sky, soon after sunset. Saturn is in the constellation of Aquarius shining at magnitude 1.0.




## Uranus

Rises about 3:51 p.m. on the 1st and about 1:45 p.m. by month's end. Look for Uranus to the south in the evening. Uranus is in the constellation Taurus shining at magnitude 5.6.

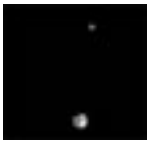
## Neptune

Is stationary on the 10th. Neptune rises at 1:18 p.m. on the 1st and about 11:16 a.m. by the month's end. Look for Neptune to the south in the evening just east following Saturn by a few minutes all month. Neptune is in the constellation of Pisces shining at magnitude 7.7.

# Dwarf Planets

## Ceres

Rises at 2:12 p.m. on the 1st and about 12:09 p.m. by month's end. Ceres can be spotted low to the south just below and east of Saturn and Neptune. Ceres is in the constellation of Cetus shining at magnitude 8.7.

## Pluto

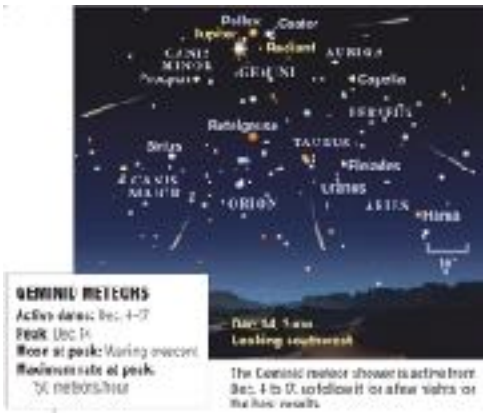
Sets at 8:13 p.m. on the 1st and about 6:16 p.m. by month's end. The best time to spot Pluto will be about an hour after sunset to the southwest. Pluto is in the constellation of Capricornus shining at magnitude 15.3.

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 Geminids** - This shower is active during the period December 6 to December 19. Upon reaching maximum activity during December 13 to 14, hourly rates are typically near 80. The meteors are described as rapid and yellowish, with about 4% displaying persistent trains. They possess an average magnitude of 2.4.

The Geminids on FM: A Celestial Symphony You Can Hear - Radio World

- **The Ursids** - Occurring primarily between December 17 and 24, this meteor shower reaches maximum on December 22... The maximum hourly rate is usually between 10 and 15... Meteors belonging to this stream are typically faint.

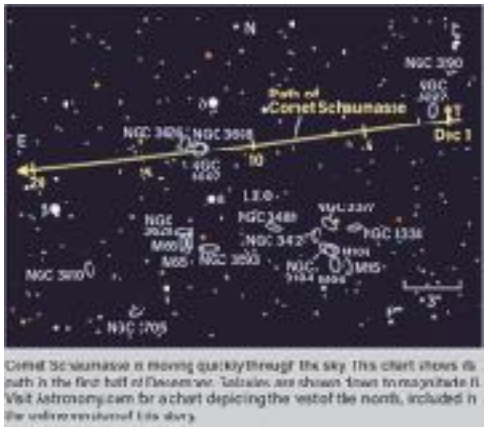
For more information about Meteor Showers, visit Gary Kronk's Meteor Showers Online web page.

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 24P/s rises around midnight, making it worthwhile to stay up late, especially on the weekend of the Geminids. On Friday the 12th, it shares a low-power field with NGC 3607 and 3608 (10th and 11th magnitude, respectively). With Schaumasse forecast at 9th to 12th magnitude, you can estimate its brightness easily. Use detailed charts to make sure you're not misidentifying a background galaxy!" Astronomy Magazine, December 2025, p.34.

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 and Pluto in the very early evening to the southwest.
- Look for Saturn, Neptune, Ceres, Jupiter and Uranus in the evening and early morning to the south.
- Look for Venus and Mercury in the morning to the east.

## Asteroids

(From west to east)

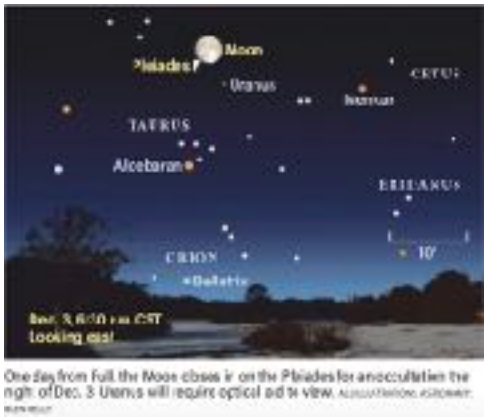
- **Hebe** is in the constellation of Aquarius.
- **Papagena** is in the constellation of Cetus.
- **Psyche** is at opposition on the 7th in the constellation of Taurus.
- **Harmonia** is in the constellation of Gemini.
- **Nysa** is in the constellation of Cancer.
- **Iris** is in the constellation of Sextans.

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 the Pleiades on the 3rd.



## 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 |
| 2864-2025 | 2025-05-19 20:29 PDT | NV | Kenneth T | 375753 |

# 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. Anyone wishing to submit their images to the gallery, please send me an email. 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.

## Auroral Activity - November 11, 2025

**Contributors from---**
**Strasburg, Colorado -- Frederick, Colorado -- Littleton, Colorado -- Lynchburg, Ohio -- Paris, Texas**
Images taken November 11, 2025


The Sun was quite active on the evening of November 11, 2025 (November 12 UTC). Auroral activity was seen as far south as Paris Texas. Many of our Colorado Astronomy Net participants and IAAS members sent in their images of this rare event so far south. Here is the link from SpaceWeather.com for November 11, Severe Geomagnetic Storm Watch, explaining what was occurring with our dynamic Sun.

(Click on the following link(s) to start the slideshow.)
Aurora Activity 11/11/25 - MPEG-4 (.m4v) format
Aurora Activity 11/11/25 - QuickTime (.mov) format

# 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.

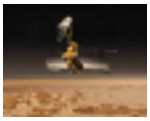

**Laboratory for Atmospheric and Space Physics**
"The Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado Boulder (CU) began in 1948, a decade before NASA. We are the world's only research institute to have sent instruments to all eight planets and Pluto.

## LASP
Visit the LASP website for latest news and information.

## MAVEN
Visit the MAVEN website for latest news and information.

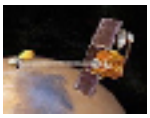
## Mars 2020 - Perseverance
Visit the Mars 2020 (Perseverance) mission website for mission information and news updates.

## 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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