

IAAS Monthly Astronomy Newsletter

June 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.

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*"The Beehive Cluster (right) in Cancer receives two visitors this month: First Mars (shown here at left) as the month opens, then Venus less than two weeks later."
Astronomy Magazine, June 2023, P. 28. - Alan Dyer*

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

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

The Moon

Phases:

- Full Moon occurs on the 3rd.
- Last Quarter Moon occurs on the 10th.
- New Moon occurs on the 18th.
- First Quarter Moon occurs on the 26th.

- The Moon is at [perigee](#) (226,714 miles from Earth) on the 6th.
- The Moon is at [apogee](#) (251,895 miles from Earth) on the 22nd.



Moon/Planet Pairs:

- Mercury passes 3° south of Uranus on the 4th.
- The Moon passes 3° south of Saturn on the 9th.
- The Moon passes 2° south of Neptune on the 11th.
- The Moon passes 1.5° north of Jupiter on the 14th.
- The Moon passes 2° north of Uranus on the 15th.
- The Moon passes 4° north of Mercury on the 16th.
- Mercury passes 4° north of Aldebaran on the 17th.
- The Moon passes 4° north of Venus on the 21st.
- The Moon passes 4° north of Mars on the 22nd.

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 June

"Venus reaches its best for the year as an evening object this month. Its brilliance captures attention long after sunset. Meanwhile, Mars continues to fade but enjoys a beautiful meeting with the Beehive Cluster, a view not to be missed. Saturn and Jupiter appear after midnight and offer some fine views, while the predawn sky hosts Mercury, best seen in the first half of June." Astronomy Magazine, June 2023, P. 28.



Mercury

Rises at 4:32 a.m. on the 1st and about 5:34 a.m. by month's end. Look for Mercury low on the eastern horizon just before sunrise during the first two weeks on the month. Mercury moves from the [constellation](#) of [Aries](#) into [Gemini](#) shining at [magnitude](#) 0.4 on the 1st.



Venus

Is at greatest eastern [elongation](#) (45°) on the 4th. Venus sets at 11:43 p.m. on the 1st and about 10:49 p.m. by month's end. Look for Venus high in the sky to the west after sunset. Venus moves from the constellation of [Gemini](#) into [Leo](#) shining at magnitude -4.5 on the 15th.



Earth

Summer [solstice](#) occurs at 10:58 A.M. EDT on the 21st.



Mars

Sets at 12:13 a.m. on the 1st and about 11:02 p.m. by month's end. Look for Mars in the southwestern sky in the evening soon after sunset. Mars moves from the constellation of [Cancer](#) into [Leo](#) shining at magnitude 1.7 on the 15th.



Jupiter

Rises at 3:46 a.m. on the 1st and about 2:04 a.m. by month's end. Jupiter is visible in the southeast before sunrise. Jupiter is in the constellation of [Aries](#)

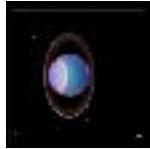


shining at magnitude -2.1.



Saturn

Rises at 1:31 a.m. on the 1st and about 11:29 p.m. by month's end. Saturn is [stationary](#) on the 18th. Look for Saturn in the early morning sky to the southeast and south before sunrise. Saturn is in the constellation of [Aquarius](#) shining at magnitude 0.7.



Uranus

Rises at 4:29 a.m. on the 1st and about 2:36 a.m. by month's end. Uranus can be spotted to the southeast before sunrise. Uranus is in the constellation of [Aries](#) shining at magnitude 5.9.



Neptune

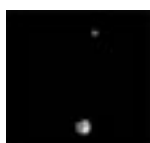
Rises at 2:18 a.m. on the 1st and about 12:17 a.m. by month's end. Look for Neptune to the southeast and south before sunrise. Neptune is in the constellation of [Pisces](#) shining at magnitude 7.8.

Dwarf Planets



Ceres

Sets at 3:09 a.m. on the 1st and about 1:15 a.m. by month's end. Look for Ceres to the south in the early evening and to the southwest in the early morning hours after midnight. Ceres is in the constellation of [Virgo](#) shining at magnitude 8.4.



Pluto

Rises at 11:46 p.m. on the 1st and about 9:46 p.m. by month's end. Look for Pluto in the south-southwest after midnight when it is highest in the sky. Pluto is in the constellation of [Capricornus](#) shining at magnitude 15.1.

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 Arietids Meteor Showers - This is the strongest daylight [meteor shower](#) of the year. The duration extends from May 22 to July 2, with maximum activity occurring on June 8. The hourly rate is near 60 at maximum.
- The June Lyrids - This shower is active during June 10 to 21, producing predominantly blue and white meteors at a maximum hourly rate of 8 per hour on June 15. The average magnitude of this shower is near 3, while 32% of the meteors leave trains.
- The Zeta Perseids - This daylight shower occurs during May 20 to July 5. Maximum occurs on June 13. Radar surveys have revealed the activity of this shower to be near 40 per hour.
- The June Boötids - This shower is currently active during June 27 to July 5 and possesses a maximum of activity that falls on the 28th... The shower is notable in that its meteors are primarily faint, with an average magnitude near 5; however, bright meteors do occur regularly.

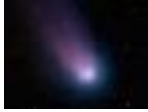


For more information about Meteor Showers, visit Gary Kronk's [Meteor Showers Online](#) web page.

[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 237P/LINEAR](#) is passing through the constellation of [Aquila](#) this month. Shining at 11th-12th magnitude, the comet will be very difficult to spot. A 10-inch scope or larger and dark skies would be better to spot this dim fuzz ball.
- Comet C2021 T4 (Lemmon) shines at 9th magnitude for observers south of the equator before sunrise.



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.

Observational Opportunities

(from evening to morning)

- Look for Venus and Mars in the evening.
- Look for Pluto, Saturn, Neptune and Jupiter in the morning.
- For amateur radio operators, try meteor scatter communications.

Asteroids

(From west to east)

- **Juno** is in [conjunction](#) with the Sun on the 20th.
- **Pallas** is in the constellation of [Leo](#).
- **Parthenope** is at [opposition](#) on the 6th in the constellation of [Ophiuchus](#).
- **Eunomia** is in the constellation of [Sagittarius](#).

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
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.

The Leo Triplet

April 2023

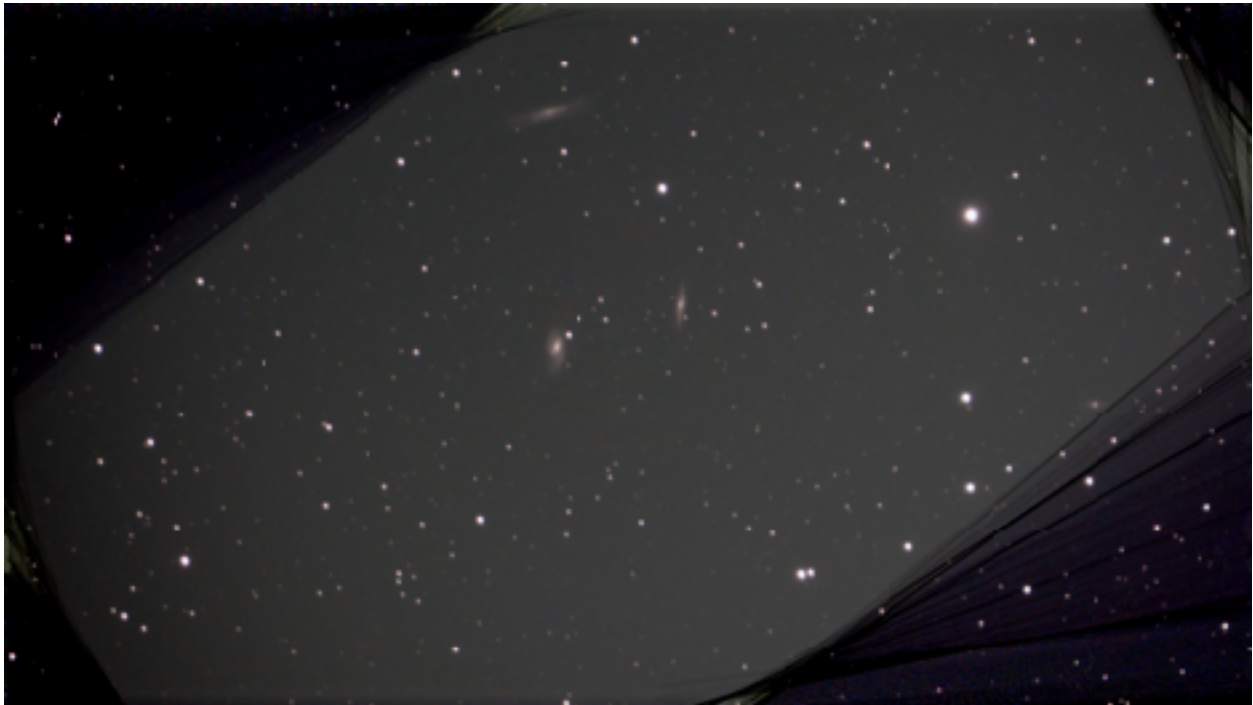


Image Courtesy of Roy Murray (KI7PKL)

[The Leo Triplet](#), three galaxies (M65, M66 & NGC3628) in the constellation of Leo

Taken by: [Dwarf II](#) (2 hour exposure)

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](#)

May 23, 2023

NASA Scientists Make First Observation of a Polar Cyclone on Uranus

[Full Article & Images](#)

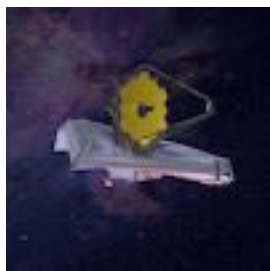
"Scientists used ground-based telescopes to get unprecedented views, thanks to the giant planet's position in its long orbit around the Sun.

For the first time, NASA scientists have strong evidence of a polar cyclone on Uranus. By examining radio waves emitted from the ice giant, they detected the phenomenon at the planet's north pole. The findings confirm a broad truth about all planets with substantial atmospheres in our solar system: Whether the planets are composed mainly of rock or gas, their atmospheres show signs of a swirling vortex at the poles."

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

May 30, 2023

Webb Maps Surprisingly Large Plume Jetting From Saturn's Moon Enceladus

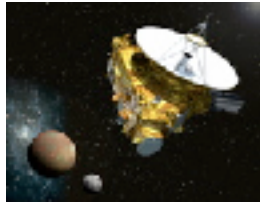
[Full Article & Images](#)

"A water vapor plume from Saturn's moon Enceladus spanning more than 6,000 miles – nearly the distance from Los Angeles, California to Buenos Aires, Argentina – has been detected by researchers using NASA's James Webb Space Telescope. Not only is this the first time such a water emission has been seen over such an expansive distance,

but Webb is also giving scientists a direct look, for the first time, at how this emission feeds the water supply for the entire system of Saturn and its rings."

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

May 15, 2023

NASA's Juno Mission Getting Closer to Jupiter's Moon Io

[Full Article & Images](#)

"The gas giant orbiter has flown over 510 million miles and also documented close encounters with three of Jupiter's four largest moons.

NASA's Juno spacecraft will fly past Jupiter's volcanic moon Io on Tuesday, May 16, and then the gas giant itself soon after. The flyby of the Jovian moon will be the closest to date, at an altitude of about 22,060 miles (35,500 kilometers). Now in the third year of its [extended mission](#) to investigate the interior of Jupiter, the solar-powered spacecraft will also explore the ring system where some of the gas giant's inner moons reside."

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

March 14, 2023

NASA's New Horizons Team Discusses Discoveries from the Kuiper Belt

[Full Article & Images](#)

"More than 5 billion miles from Earth and 17 years into a mission that included the first close-up exploration of Pluto and the first encounter with a planetary building block in the Kuiper Belt, NASA's New Horizons continues to shed light on the mysterious planets and smaller bodies of the outer solar system."

[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

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 (<https://nasa.gov/kepler>) 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 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 out the "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
May 3, 2023

LASP's Laila Andersson named to prominent National Academies committee

[Full Article & Images](#)

"Laila Andersson, a research scientist at the Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado Boulder, has been named to the National Academies of Sciences, Engineering, and Medicine's Committee on Solar and Space Physics (CSSP). This prominent committee supports scientific progress in solar and space physics (heliophysics) by providing advice to the federal government on the implementation of decadal survey recommendations."



MAVEN

April 11, 2023

NASA's MAVEN mission team reflects on its approaches to inclusion

[Full Article & Images](#)

"In a recent *Frontiers in Astronomy and Space Sciences* publication, NASA's MAVEN (Mars Atmosphere and Volatile Evolution) mission team reflected on their perspectives and approaches to inclusion. This paper is part of the *Frontiers Research Topic "Driving Towards a More Diverse Space Physics Research Community – Perspectives, Initiatives, Strategies, and Actions."* "

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



Mars 2020 - Perseverance

May 18, 2023

NASA's Perseverance Rover Captures View of Mars' Belva Crater

[Full Article & Images](#)

"The six-wheeled scientist encountered the crater during its latest science campaign in search of rock samples that could be brought to Earth for deeper investigation."

The Mastcam-Z instrument aboard NASA's Perseverance Mars rover recently collected 152 images while looking deep into Belva Crater, a large impact crater within the far larger Jezero Crater. Stitched into a dramatic mosaic, the results are not only eye-catching, but also provide the rover's science team some deep insights into the interior of Jezero."

With Flight 50 in the mission logbook, the helicopter team plans to perform another repositioning flight before exploring the "Fall River Pass" region of Jezero Crater."

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



Mars Science Laboratory - Curiosity

April 13, 2023

NASA's Curiosity Mars Rover Gets a Major Software Upgrade

[Full Article & Images](#)

"The update brings loads of improvements, the most significant being new driving capabilities."

Years in the making, a major software update that has been installed on NASA's Curiosity rover will enable the Mars robot to drive faster and reduce wear and tear on its wheels. Those are just two of about 180 changes implemented during the update, which required the team to put Curiosity's science and imaging operations on hold between April 3 and April 7."

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](#)

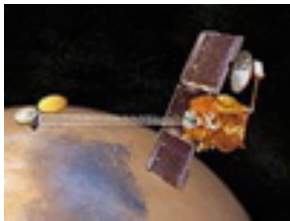
"One of six instruments aboard the agency's Mars Reconnaissance Orbiter, CRISM produced global maps of minerals on the Red Planet's surface."

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.

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**

April 24, 2023

NASA InSight Study Provides Clearest Look Ever at Martian Core

[Full Article & Images](#)

"A pair of quakes in 2021 sent seismic waves deep into the Red Planet's core, giving scientists the best data yet on its size and composition."

While NASA retired its InSight Mars lander in December, the trove of data from its seismometer will be pored over for decades to come. By looking at seismic waves the instrument detected from a pair of temblors in 2021, scientists have been able to deduce that Mars' liquid iron core is smaller and denser than previously thought."

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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