

IAAS Monthly Astronomy Newsletter February 2021



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, when in the Denver metro area, please join the Colorado Astronomy Net on the [Rocky Mountain Radio League](#)'s WØWYX **146.94 MHz** and **449.825 MHz** repeaters. Due to hardware issues, links with the Allstar node, Echolink and the Cripple Creek repeater are down until further notice. The net meets on Tuesday nights at 7 P.M. Mountain Time (US).

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 on the 1st Saturday of each month at our new Eagle Street Facility, The City of Centennial, 7272 South Eagle Street, Centennial, Colorado 80112-4244 at 9am.

** Check the website for current info during these COVID-19 times. **

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



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

Donate to the [IAAS](#)!

Shop Smile.Amazon.com, sign up or sign in to [smile.amazon.com](#) and select the **International Association for Astronomical Studies**. 0.5% of every purchase will be donated to the group. Thank you!

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 February	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	12
JPL Latest News	12
Juno	12
New Horizons	13
TESS	14
Mars Missions	15
JMARS	15
Laboratory for Atmospheric and Space Physics	16
LASP/MAVEN	16
Mars 2020 - Perseverance	16
Mars Science Laboratory - Curiosity	17
Mars Reconnaissance Orbiter Mission	18
Mars InSight - Journey to Mars	19
Mars Missions Status	19
Astronomy Links and Other Space News	20
Colorado Astronomy Links	20
Radio Astronomy Links	20
Other Astronomy Links	20
Acknowledgments and References	20
Subscription Information	20
Keep looking UP!	20



"This month you'll find several planets hiding in twilight. Careful observers can even follow Venus (pictured here) and Jupiter into daylight." Astronomy Magazine, February 2010, P. 32. Jamie Cooper



"Moonless February evenings are perfect for spotting the glow of the zodiacal light from a dark location." Astronomy Magazine, February 2010, P. 33. Barry Burgess

The Month At-A-Glance

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

The Moon

Phases:

- Last Quarter Moon occurs on the 4th.
 - New Moon occurs on the 11th.
 - First Quarter Moon occurs on the 19th
 - Full Moon occurs on the 27th.
-
- The Moon is at Perigee on the 3rd, 229,980miles from Earth.
 - The Moon is at Apogee on the 18th, 251,324 miles from Earth.

Moon/Planet Pairs:

- The Moon passes 3° south of Saturn on the 10th.
- The Moon passes 3° south of Jupiter on the 10th.
- The Moon passes 3° south of Venus on the 10th.
- Venus passes 0.4° south of Jupiter on the 11th.
- The Moon passes 4° south of Neptune on the 13th.
- Mercury passes 4° north of Jupiter on the 13th.
- The Moon passes 3° south of Uranus on the 17th.
- The Moon passes 4° south of Mars on the 18th.

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 February

Start the month off in the morning sky, viewing Jupiter, Saturn and Venus. After the first week of February, Mercury joins the trio. Wait until midmonth to observe all four planets together; however, due to their proximity to the Sun, they may still be rather difficult to spot though the morning twilight glow. In the evenings, look for Mars, Uranus and Neptune, but be quick to spot Neptune as it sets very soon after sunset. There are several elusive comets that may also be visible in the evening skies this month.

Mercury

Is in inferior conjunction on the 8th. Mercury sets at 6:27 p.m. on the 1st. After the 8th, Mercury returns to the morning skies. Mercury rises with the Sun on the 8th and about 5:21 a.m. by month's end. Mercury is stationary on the 20th. Start looking for Mercury after midmonth about 30 minutes before sunrise. Mercury is in the constellation of Capricornus shining at magnitude 0.3 on the 28th.

Venus

Rises at 6:31 a.m. on the 1st and about 6:25 a.m. by month's end. Look for Venus in the east before sunrise. Venus moves from the constellation of Capricornus into Aquarius shining at magnitude -3.9 on the 1st.

Earth

N/A.

Mars

Sets at 12:54 a.m. on the 1st and about 12:24 a.m. by month's end. Look for Mars to the south soon after sunset and follow it to the west as the evening progresses. Mars moves from the constellation of Aries into Taurus shining at magnitude 0.7.



Jupiter

Rises at 7:03 a.m. on the 1st and about 5:32 a.m. by month's end. Look for Jupiter low in the east before sunrise, but you may have to wait until after the first week to spot Jupiter through the morning twilight glow. Jupiter is in the constellation of Capricornus shining at magnitude -2.0.

Saturn

Rises at 6:47 a.m. on the 1st and about 5:07 a.m. by month's end. Like Jupiter, Saturn has returned to the morning sky but still may be too low to observe until after midmonth. Saturn is in the constellation of Capricornus shining at magnitude 0.6.

Uranus

Sets at 12:20 a.m. on the 1st and around 10:30 p.m. by month's end. Uranus is visible in the evening. Look to the south-southwest soon after sunset to spot Uranus. Uranus is in the constellation of Aries shining at magnitude 5.8.

Neptune

Sets at 8:18 p.m. on the 1st and about 7:01 p.m. by month's end. Neptune can be spotted to the southwest once the skies darken. Neptune is in the constellation of Aquarius shining at magnitude 7.8.

Dwarf Planets

Ceres

Sets at 8:24 p.m. on the 1st and around 7:28 p.m. by month's end. Ceres can be spotted to the southwest soon after sunset. Neptune and Ceres are relatively close to each other but will still be difficult to see this month. Ceres is in the constellation of Aquarius shining at magnitude 9.3.

Pluto

Rises at 6:17 a.m. on the 1st and about 4:30 a.m. by month's end. Pluto is lost in the morning twilight glow for most of the month, but may be visible under the right conditions by the end of the month. Pluto is in the constellation of Sagittarius shining at magnitude 14.4.

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



Astronomical Events

Meteor Showers

- There are a few minor meteor showers this month but none that produce rates much higher than 2-5 meteors per hour at their peaks. However, there's a possibility that observers may see a fireball or a bolide in the early hours before sunrise associated with the Beta Herculids or Delta Serpentids minor meteor showers.



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

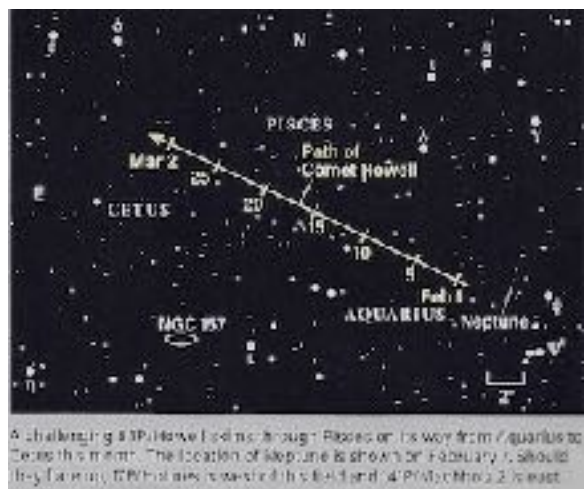
[Meteor Shower Radiant Report](#)

[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 17/P Holmes is passing through the constellation of Pisces. The comet has had outbursts as bright as 2nd magnitude in the past, and (who knows) may happen again.
- Comet 141P/Machholz 2 is passing from Cetus into Orion and may possibly brighten to 10th magnitude.
- Comet 88P/Howell is now passing from the constellation of Aquarius, through Pisces on its way into Cetus. Look for Comet Howell about 90 minutes after sunset dimming to about 13th magnitude.



For information, orbital elements and ephemerides on observable comets visit the [Observable Comets](#) page from the Harvard-Smithsonian Center for Astrophysics.

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>
3587-2015	2015-11-22 17:38 MST	CO	Kevin S	3587aw
3829-2015	2015-12-05 18:06 MST	CO	Burness A	3829a
3871-2015	2015-11-13 01:55 MST	CO	Charles N	3871a
986-2020	2020-02-21 22:20 MST	CO	Lukas S	986
3716-2020	2020-07-24 23:22 MDT	CO	Lukas S	3716

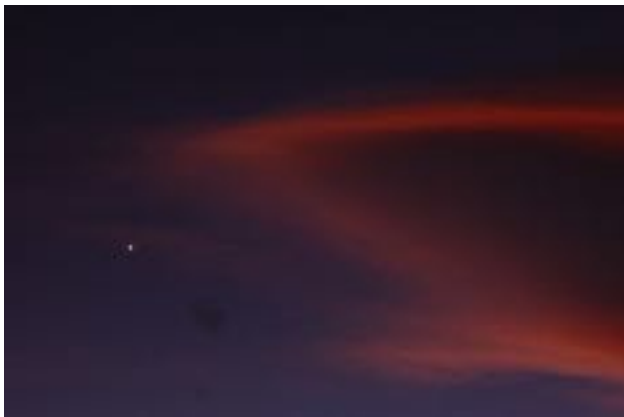
Subscriber Gallery

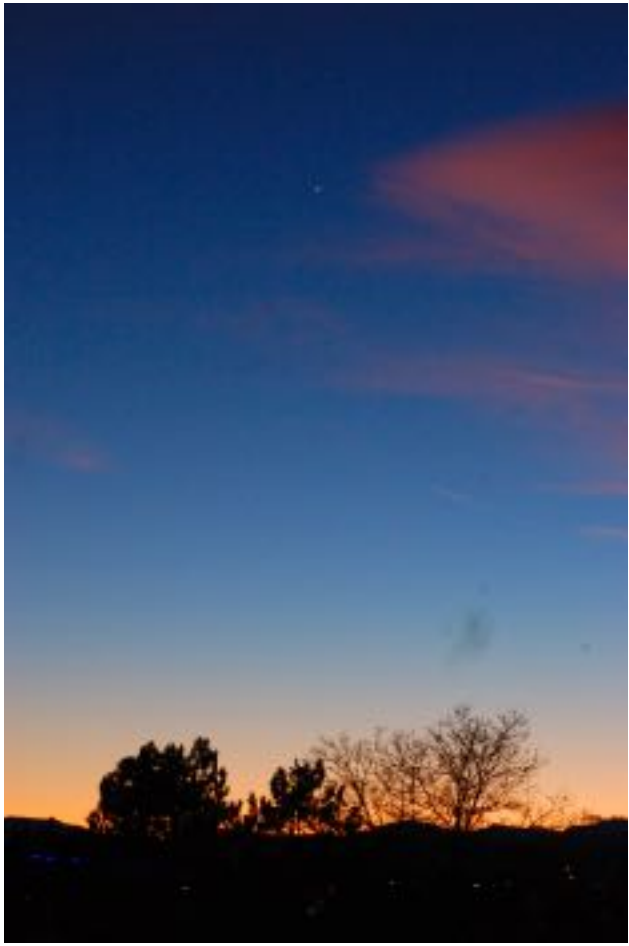
I have created a web page containing images taken and submitted by subscribers to the email newsletter, check-ins to the Colorado Astronomy Net and readers of the online newsletter and some of my own images. Any one wishing to submit their images to the gallery, please let me know. The images must be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

Jupiter/Saturn Conjunction December 21, 2020

Several images from the recent conjunction.

Courtesy of Milton Omoto and Ed Hubbs





Planetary/Lunar Exploration Missions

(Excerpts from recent mission updates)



JPL Latest News

The Latest from Space

[JPL Latest News](#)

January 25, 2021

Warming Seas Are Accelerating Greenland's Glacier Retreat

[Full Article & Images](#)

"Scientists with NASA's Oceans Melting Greenland mission are probing deep below the island's warming coastal waters to help us better predict the rising seas of the future.

Greenland's melting glaciers, which plunge into Arctic waters via steep-sided inlets, or fjords, are among the main contributors to global sea level rise in response to climate change. Gaining a better understanding of how warming ocean water affects these glaciers will help improve predictions of their fate. Such predictions could in turn be used by communities around the world to better prepare for flooding and mitigate coastal ecosystem damage."

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.



Juno

January 13, 2021

NASA's Juno Mission Expands Into the Future

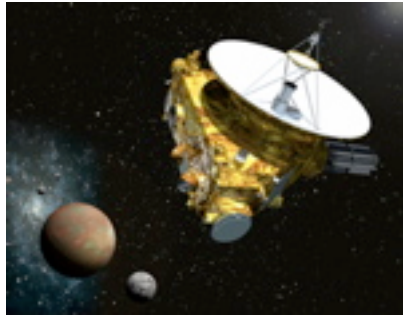
[Full Article & Images](#)

"New Horizons roared into the skies aboard a powerful Atlas V rocket at 2 p.m. EST on Jan. 19, 2006. It separated from its solid-fuel kick motor 44 minutes, 53 seconds after launch, and mission controllers at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Md., where the spacecraft was designed and built, received the first radio signals from New Horizons a little more than five minutes later. The radio communications, sent through NASA's Deep Space Network antennas in Canberra, Australia, confirmed to controllers that the spacecraft was healthy and ready to begin initial operations."

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

November 4, 2020

The PI's Perspective: New Plans Afoot

[Full Article & Images](#)

"New Horizons is healthy and continuing to send data back from the flyby of the Kuiper Belt object (KBO) Arrokoth back in late 2018 and early 2019, even as it speeds deeper into the Kuiper Belt and farther from the

Earth and the Sun.

By next spring, New Horizons will be 50 times as far from the Sun as the Earth is – only the fifth operating spacecraft to reach that distance. But as far as we've come, there's much more ahead! We plan to upgrade the spacecraft system and instrument software aboard New Horizons to enhance the mission's scientific capabilities and to search for new KBO targets to study or even fly by. I'll describe both of those plans just below."

[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

January 7, 2021

Striped or Spotted? Winds and Jet Streams Found on the Closest Brown Dwarf

[Full Article & Images](#)

"A University of Arizona-led research team has found bands and stripes on the brown dwarf closest to Earth, hinting at the processes churning the brown dwarf's

atmosphere from within.

Brown dwarfs are mysterious celestial objects that are not quite stars and not quite planets. They are about the size of Jupiter but typically dozens of times more massive. Still, they are less massive than the smallest stars, so their cores do not have enough pressure to fuse atoms the way stars do. They are hot when they form and gradually cool, glowing faintly and dimming slowly throughout their lives, making them hard to find. No telescope can clearly see the atmospheres of these objects."

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 our 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 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/MAVEN

December 7, 2020

LASP researcher reveals new clues on what makes the Sun's atmosphere so hot



[Full Article & Images](#)

"New research appears today in the [Journal Nature Astronomy](#) that may help resolve a long-standing mystery about the Sun: Why the solar atmosphere is millions of degrees hotter than the surface.

The study was led by Shah Bahauddin, a former graduate student at Rice University, and now a solar researcher at the [Laboratory for Atmospheric and Space Physics](#) (LASP) at the University of Colorado, Boulder."

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



Mars 2020 - Perseverance

January 15, 2021

NASA to Host Virtual Briefing on February Perseverance Mars Rover Landing

[Full Article & Images](#)

"NASA leadership and members of the mission will discuss the agency's latest rover, which touches down on the Red Planet on Feb. 18.

NASA is hosting a media briefing on Wednesday, Jan. 27, at 4:30 p.m. EST (1:30 p.m. PST) to discuss the upcoming landing of the Mars 2020 Perseverance rover. The event will air live on NASA TV, the agency's [website](#), and [YouTube](#).

Perseverance lands Feb. 18, carrying new science instruments and technologies, including the Ingenuity Mars Helicopter on its belly. Perseverance will use a drill on the end of its robotic arm to capture rock and regolith (broken rock and dust) samples in metal tubes, which will be deposited on the surface of Mars for a future mission to collect and return to Earth. The rover will seek signs of ancient life on the Red Planet as a primary goal."

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



Mars Science Laboratory - Curiosity

January 12, 2021

NASA's Curiosity Rover Reaches Its 3,000th Day on Mars

[Full Article & Images](#)

"As the rover has continued to ascend Mount Sharp, it's found distinctive benchlike rock formations.

It's been 3,000 Martian days, or sols, since Curiosity touched down on Mars on Aug. 6, 2012, and the rover keeps making new discoveries during its gradual climb up Mount Sharp, the 3-mile-tall (5-kilometer-tall) mountain it has been exploring since 2014. Geologists were intrigued to see a series of rock "benches" in the most recent panorama from the mission."

Follow the [Mars Curiosity](#) rover on [Foursquare](#).

Check out information about NASA's partnership with [Foursquare](#).



[Mars Rover Landing](#) - Free for the Xbox 360 (requires Kinect)

Visit the [Mars Science Laboratory](#) page.



Mars Reconnaissance Orbiter Mission

October 1, 2020

AI Is Helping Scientists Discover Fresh Craters on Mars

[Full Article & Images](#)

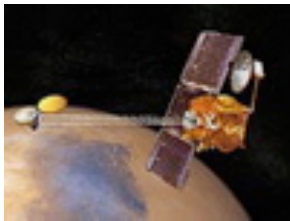
"It's the first time machine learning has been used to find previously unknown craters on the Red Planet.

Sometime between March 2010 and May 2012, a meteor streaked across the Martian sky and broke into pieces, slamming into the planet's surface. The resulting craters were relatively small -- just 13 feet (4 meters) in diameter. The smaller the features, the more difficult they are to spot using Mars orbiters. But in this case -- and for the first time -- scientists spotted them with a little extra help: artificial intelligence (AI)."

MARS RECONNAISSANCE ORBITER HIRISE IMAGES

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

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



Mars Odyssey Orbiter

June 8, 2020

Three New Views of Mars' Moon Phobos

[Full Article & Images](#)

"Three new views of the Martian moon Phobos have been captured by NASA's Odyssey orbiter. Taken this past winter and this spring, they capture the moon as it drifts into and out of Mars' shadow.

The orbiter's infrared camera, the Thermal Emission Imaging System (THEMIS), has been used to measure temperature variations across the surface of Phobos that provide insight into the composition and physical properties of the moon. Further study could help settle a debate over whether Phobos, which is about 16 miles (25 kilometers) across, is a captured asteroid or an ancient chunk of Mars that was blasted off the surface by an impact."

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
January 14, 2021
NASA InSight's 'Mole' Ends Its Journey on Mars

[Full Article & Images](#)

"The heat probe hasn't been able to gain the friction it needs to dig, but the mission has been granted an extension to carry on with its other science."

The heat probe developed and built by the German Aerospace Center (DLR) and deployed on Mars by NASA's InSight lander has ended its portion of the mission. Since Feb. 28, 2019, the probe, called the "mole," has been attempting to burrow into the Martian surface to take the planet's internal temperature, providing details about the interior heat engine that drives the Mars' evolution and geology. But the soil's unexpected tendency to clump deprived the spike-like mole of the friction it needs to hammer itself to a sufficient depth."

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

Created by Burness F. Ansell, III

ki0ar@ki0ar.com

COO, Director of Aerospace Technologies, IAAS

JPL Solar System Ambassador, Colorado

Last modified: February 01, 2021