to enable anyone, anywhere, to participate in scientific discovery through variable star astronomy

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October's Featured Variable: Mira, or Omicron Ceti, in Cetus the Whale, or Sea Monster

I bet you have seen a star twinkling —the air surrounding Earth makes it look like the star is sparkling! Even if we went to outer space, we could see many stars change in brightness.

"Variable stars" continuously dim, brighten, and dim. Some complete this pattern in under a second, while others take years.

One variable star YOU can see tonight is Mira. You can find it by imagining the "V" of stars in Pisces as being an arrowhead (with Alpha Piscium at its tip) pointing south to Mira. Another "V" of stars formed by the Hyades cluster in the face of Taurus, the Bull, points to the west. Where the two pointing lines intersect, you will find Mira….

Or maybe not! While at its brightest, Mira is easily visible to the naked eye, for about half of its roughly 332-day period, it is fainter than can be seen with your eyes alone.

Miras are a class of variable stars that have completed fusing their hydrogen fuel, and are the coolest, largest, and most luminous red giant stars. Their brightness varies as the star pulsates. Recent Hubble Space Telescope images of Mira show evidence of mass streaming away from the star at a rate of one Earth mass per year.

More info: www.aavso.org/featured-variables

Try recording your observations below:

Time	Magnitude

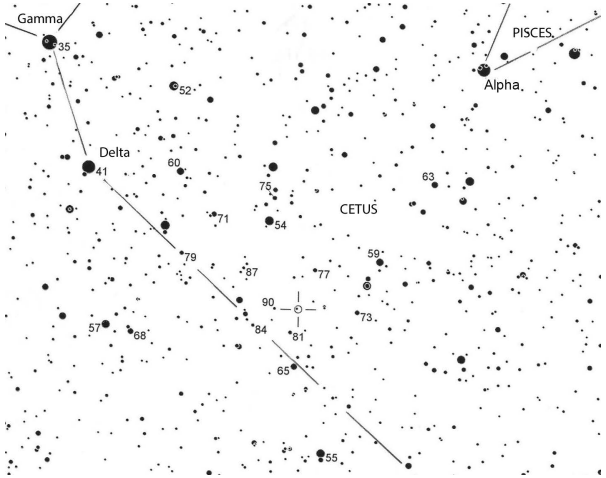
Star Finder Chart for Mira

You can estimate a star's brightness (magnitude), but first note: in star comparison and finder charts like below or at aavso.org/featured-variables:

- brighter stars are indicated by larger dots
- the *brighter* the star, the *lower* the magnitude number
- any magnitudes given are to the nearest tenth—but without a decimal point, because it could be confused as a star. So, 90 = magnitude 9.0.

Find two comparison stars close to your given variable star's brightness: one brighter, one dimmer, and observe them: is the variable's brightness half-way between the two comparisons'? A quarter? Really close? Apply that fraction to the difference between the two magnitudes and you estimated the star's brightness for that time!

This finder chart, plus the two charts that include the "arrowheads" of Taurus and Pisces at aavso.org/featured-variables, will help you find Mira in the night sky. The ⊙ icon indicates the location of Mira.



About the AAVSO

The American Association of Variable Star Observers (AAVSO) is an international nonprofit organization of citizen and professional astronomers interested in stars that change in brightness—variable stars.

From its earliest days in 1911, AAVSO members have included some of the most prolific astronomers of the 20th & 21st centuries.

AAVSO Databases

AAVSO International Database (AID): The largest and most comprehensive digital variable star database in the world, with over 43 million variable star observations—a free resource for the entire scientific community

Variable Star Index (VSX): a collection of up-to-the-minute data on over 200,000,000 specific variable stars

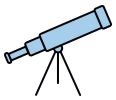
Spectroscopy Database: spectroscopic observations of stars

Solar Database: Sudden Ionospheric Disturbance (SID) Database, and data relating to sunspot observations

Exoplanet Database: long-term follow-up information on planets orbiting other stars

Community

Explore



Education

Connect with the AAVSO

Who are AAVSO Members?

★ **A citizen scientist**—contributes to science by acquiring data on variable objects and submitting them to our databases, or other activities, such as data mining.

★ **An educator or mentor**—teaches observing skills to fellow AAVSO observers, through instructing AAVSO CHOICE courses or being a mentor.

★ **A student**—is learning how to find a star, set up a telescope, observe, submit data, or is increasing their astronomy knowledge

★ **A professional astronomer**— uses AAVSO data and services to advance their research

Discover the benefits of membership and join us!

aavso.org/membership

Benefits include being able to participate in our mentor program: beginners are paired with an experienced observer for guidance and techniques: aavso.org/mentor-program

Interested in becoming an AAVSO ambassador?

Ambassadors are students or young professionals representing AAVSO through conducting astronomy education and outreach.

aavso.org/ambassador-program

AAVSO can help YOU become a citizen astronomer!

AAVSO Tools for Beginner Observers:

Beginner Tutorials: aimed at those with absolutely no experience, these introduce variable star science basics and then provide "challenges" for you to apply the concepts: avso.org/tutorials

AAVSO Online Forum: talk to peers for advice: aavso.org/forum

Observing Manuals: each one is dedicated to a type of observing, including visual, CCD, DSLR, Spectroscopy, Solar, and more: aavso.org/observing-manuals

CHOICE Courses: peer-taught informal online observing courses: aavso.org/choice-astronomy

You are invited to join us for:

AAVSO Hybrid Annual Meeting & In-person Workshop

Nov. 4 - 7, 2022 | Tucson, Arizona

aavso.org/111

AAVSO webinars

About three Saturdays per month

aavso.org/participate