



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

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April's Featured Variable: R Leonis in Leo the Lion

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 brightness.

“Variable stars” continuously dim, brighten, and dim. Some complete the pattern in under a second, while others take years.

One variable star YOU can see this month is R Leonis in the constellation Leo the Lion. It was only the fourth long period variable discovered. Make *your* discovery of this star by looking 5 degrees (about one binocular field) west of the bright star Regulus (Alpha Leonis), the heart of this constellation. R Leonis appears scarlet and forms a small triangle with two yellow stars.

R Leonis is a red giant star near the end of its life. Its low surface gravity means its outer atmosphere is loosely bound, forming a shell around its core. Pulsations within the core may send shock waves through this shell, causing variation in brightness (which changes over about 310 days). This may happen to our Sun in 5 billion years.

When dim, R Leonis is difficult to see, even in binoculars, so look for the “missing” star of the typical star pattern. The star is still there, we just can’t see it!

Time	Magnitude

Star Finder Chart for R Leonis

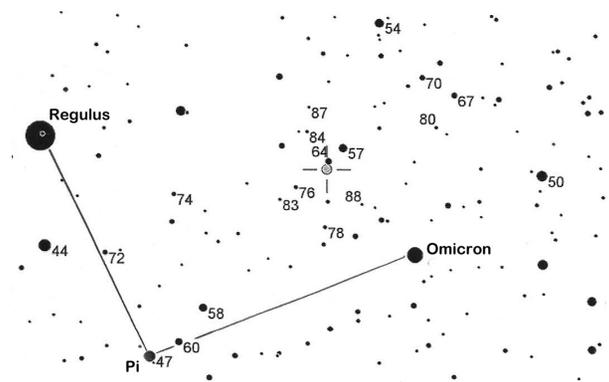
It is easy to estimate the brightness (“magnitude”) of a star, but first note:

- in finder charts like below, brighter stars are indicated by larger dots
- the *brighter* the star, the *lower* the magnitude number
- magnitudes are written to the nearest tenth—but *without* a decimal point, which could be confused as a star. So, 47= magnitude 4.7
- in this chart, magnitudes for comparison stars—nearby stars to compare a given star’s brightness to—are noted

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

This star comparison and finder chart for R Leonis will help you estimate its brightness.

The icon indicates the location of R Leonis.



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
- ★ An **AAVSO Ambassador**—a student or young professional representing AAVSO through astronomy education and activities

Interested in becoming an ambassador?

- www.aavso.org/ambassador-program
- Email Lward@aavso.org

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You, your friends, and colleagues are also invited to join us for:

AAVSO's free-to-all 2021 Webinar Series!

Come to one or all! Most Saturdays of the year.

See the schedule and sign up:

<https://www.aavso.org/2021-webinars>



AAVSO can help YOU become a citizen astronomer!

Discover the benefits of membership and join us!

<https://www.aavso.org/join-aavso#benefits>

Benefits include being able to participate in our **mentor program**: beginners are paired with an experienced observer for guidance and techniques:

<https://www.aavso.org/mentor-program>

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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:

<https://www.aavso.org/tutorials>

AAVSO Online Forum: talk to peers for advice: <https://www.aavso.org/forum>

Observing Manuals: each one is dedicated to a type of observing, including visual, CCD, DSLR, Spectroscopy, Solar, and more:

<https://www.aavso.org/observing-manuals>

CHOICE Courses: peer-taught informal online observing courses:

<https://www.aavso.org/choice-astronomy>

Let's connect and explore

