

14 Best Variable Stars for Northern Observers

A curated selection of fourteen rewarding variable stars visible from the northern hemisphere. This list spans every major type of variability – eclipsing binaries, pulsating Cepheids, long-period Mira types, eruptive Be stars, and semi-regular giants – chosen for naked-eye or binocular visibility, dramatic brightness changes, and historical significance. Each star tells a different story about stellar physics and offers a hands-on introduction to variable star observing.

14

Objects

3

Easy

8

Medium

1

Hard

2

Very Hard

Per · Lyr · Gem · Cet · Ori · Cep · Aql · Cas · Cyg · UMi · Tau

Visibility scored for: **150mm Reflector** · Bortle 4

1 **Algol** HIP 14576; Beta Per; 26 Per

● Variable Star · Per

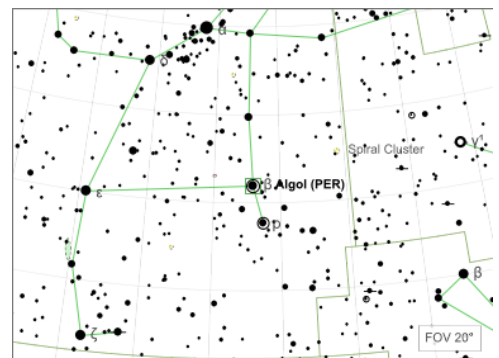
Easy

Position RA 03h 08m 10.1s Dec +40d 57' 20"
 Magnitude 2.1 mag
 Distance 93 ly
 Visibility 8.9 / 10

Notes

The 'Demon Star' – prototype of eclipsing binaries. Drops from mag 2.1 to 3.4 every 2.867 days as the dimmer companion passes in front. The eclipse lasts about 10 hours and is easily tracked with the naked eye. Ancient Arabs and Greeks knew of its variability. Compare with nearby Alpha Persei (mag 1.8) to judge its brightness.

Observed

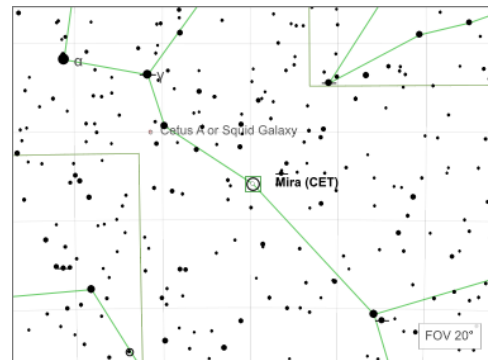


2 **Mira** HIP 10826; 68 Cet

● Variable Star · Cet

Easy

Position RA 02h 19m 20.7s Dec -2d 58' 39"
Magnitude 3.0 mag
Distance 418 ly
Visibility 8.1 / 10



Notes

The 'Wonderful Star' – first recognized variable star (1596) and prototype of long-period variables. Swings from mag 2.0 to 10.1 over 332 days, disappearing entirely from naked-eye view. A red giant nearing the end of its life, pulsating as it sheds its outer layers. Best tracked over months with binoculars using nearby comparison stars.

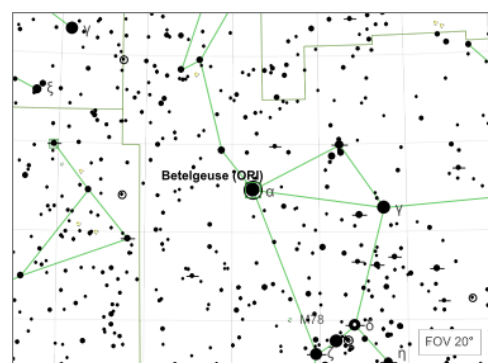
Observed

3 Betelgeuse HIP 27989; Alpha Ori; 58 Ori

• Variable Star · Ori

Medium

Position RA 05h 55m 10.3s Dec +7d 24' 25"
Magnitude 0.5 mag
Distance 489 ly
Visibility 7.5 / 10



Notes

The famous red supergiant at Orion's shoulder. A semi-regular variable fluctuating between mag 0.0 and 1.6 with a rough 400-day cycle. The dramatic 'Great Dimming' of 2019–2020 (mag 1.6) was caused by a dust cloud from a surface mass ejection. Compare with Rigel (mag 0.1) and Aldebaran (mag 0.9) to estimate its brightness. Vivid orange-red color.

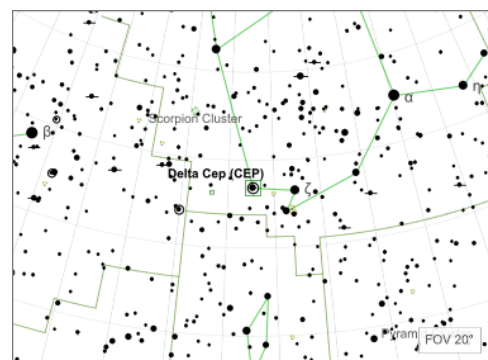
Observed

4 Delta Cep HIP 110991; Delta Cep; 27 Cep

• Variable Star · Cep

Medium

Position RA 22h 29m 10.3s Dec +58d 24' 55"
Magnitude 3.8 mag
Distance 863 ly
Visibility 7.3 / 10



Notes

Prototype of the Cepheid variables – the 'standard candles' that measure cosmic distances. Pulsates from mag 3.5 to 4.4 over a precise 5.366-day period with a characteristic rapid rise and slow decline. Henrietta Leavitt's study of Cepheids led to the discovery of the expanding universe. Compare with nearby Epsilon and Zeta Cephei to track changes. Circumpolar from mid-northern latitudes.

Observed

5 Sheliak HIP 92420; Beta Lyr; 10 Lyr

• Variable Star · Lyr

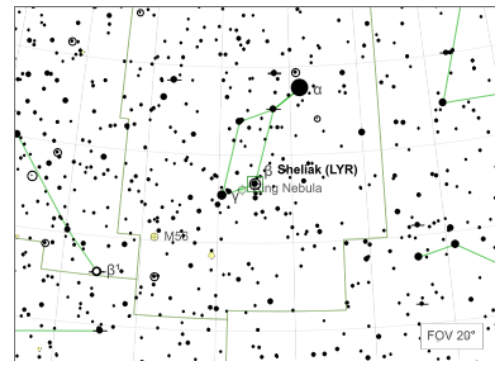
Easy

Position RA 18h 50m 4.8s Dec +33d 21' 46"
Magnitude 3.5 mag
Distance 959 ly
Visibility 8.4 / 10

Notes

Prototype of the Beta Lyrae class of eclipsing binaries. Two stars so close they share material, producing continuous brightness changes from mag 3.3 to 4.4 over 12.94 days – there is no constant phase. The system includes a thick accretion disk. Compare with Gamma Lyrae (mag 3.2, constant) right next door – a perfect built-in comparison star.

Observed



6 **Eta Aql** HIP 97804; Eta Aql; 55 Aql
● Variable Star · Aql

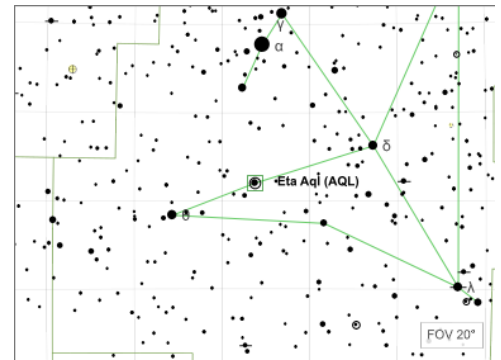
Medium

Position RA 19h 52m 28.4s Dec +1d 00' 20"
Magnitude 3.9 mag
Distance 1.4 kly
Visibility 7.0 / 10

Notes

One of the brightest classical Cepheid variables. Pulsates from mag 3.5 to 4.4 over 7.177 days. Discovered as variable in 1784 by Edward Pigott – one of the first variables ever identified. Located just south of Altair, making it easy to find. Compare with nearby Delta Aquilae (mag 3.4) and Theta Aquilae (mag 3.2) to estimate brightness.

Observed



7 **Gamma Cas** HIP 4427; Gamma Cas; 27 Cas
● Variable Star · Cas

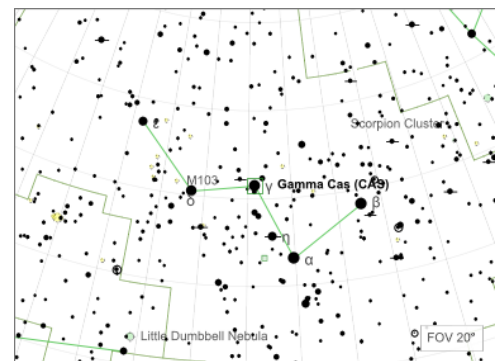
V.Hard

Position RA 00h 56m 42.5s Dec +60d 43' 0"
Magnitude 2.5 mag
Distance 549 ly
Visibility 1.2 / 10

Notes

The middle star of the W of Cassiopeia and prototype of the Gamma Cassiopeiae eruptive variables. A rapidly spinning Be star that unpredictably throws off rings of gas, causing irregular brightness swings from mag 1.6 to 3.0. In 1937 it brightened to mag 1.6, outshining all other stars in the W. Circumpolar – visible year-round from northern latitudes.

Observed



8 **Chi Cyg** HIP 97629; Chi Cyg
● Variable Star · Cyg

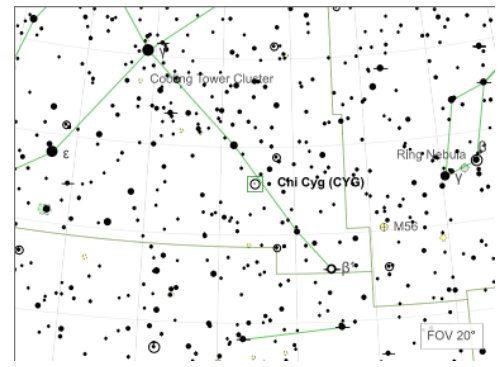
Impos.

Position RA 19h 50m 33.9s Dec +32d 54' 51"
Magnitude 4.2 mag
Distance 272 ly
Visibility 0.8 / 10

Notes

A Mira-type variable with one of the largest brightness ranges of any naked-eye star: mag 3.3 to 14.2 over a 408-day period. At maximum it is an easy naked-eye object; at minimum it requires a 6-inch telescope. An S-type red giant with striking deep red color. Located in the neck of the Swan, near Eta Cygni. A dramatic long-term monitoring target.

Observed



9 **Tejat Posterior** HIP 30343; Mu Gem; 13 Gem

• Variable Star • Gem

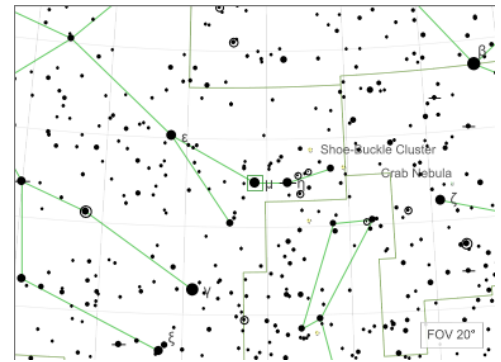
Hard

Position RA 06h 22m 57.6s Dec +22d 30' 49"
Magnitude 2.9 mag
Distance 231 ly
Visibility 4.9 / 10

Notes

A slow irregular variable red giant fluctuating between mag 2.7 and 3.0 over roughly 72 days, plus a longer 2,000-day cycle. Marks the left foot of Castor in Gemini. Its deep orange-red color (spectral type M3) makes it a beautiful sight in binoculars. Compare with nearby Eta Geminorum (mag 3.3, also variable) for a two-for-one observing session.

Observed



10 **RR Lyr** HIP 95497

• Variable Star • Lyr

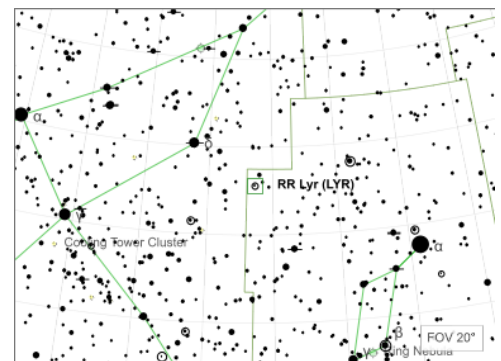
Medium

Position RA 19h 25m 28.0s Dec +42d 47' 4"
Magnitude 7.1 mag
Visibility 7.6 / 10

Notes

Prototype of the RR Lyrae class — old, metal-poor pulsating stars used as distance indicators for globular clusters and the galactic halo. Varies from mag 7.1 to 8.1 in just 13 hours and 36 minutes, making a full cycle visible in a single night with binoculars or a small scope. Located between Vega and Sulafat. The fastest-cycling star on this list — deeply rewarding to follow over an evening.

Observed

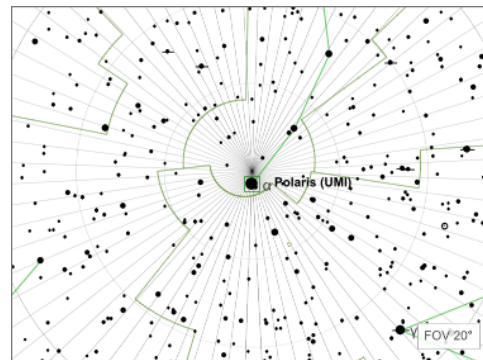


11 **Polaris** HIP 11767; Alpha UMi; 1 UMi

• Variable Star • UMi

Medium

Position RA 02h 31m 48.7s Dec +89d 15' 51"
Magnitude 2.0 mag
Distance 432 ly
Visibility 8.0 / 10



Notes

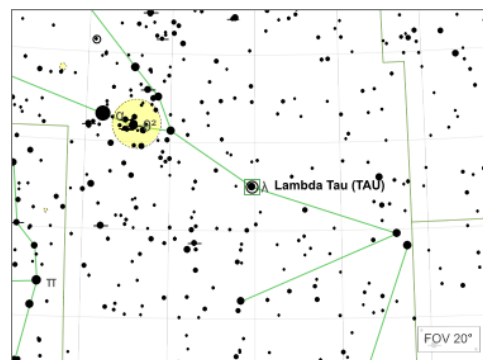
The North Star is a Cepheid variable – a fact that surprises many observers. It pulsates with a 3.97-day period, though the amplitude has shrunk dramatically over the past century: from 0.12 mag in the early 1900s to just 0.02 mag by 2000, before rebounding slightly. A rare chance to watch stellar evolution in real time. Its variability is too small for naked-eye detection but measurable with careful photometry.

Observed

12 **Lambda Tau** HIP 18724; Lambda Tau; 35 Tau
● Variable Star · Tau

Medium

Position RA 04h 00m 40.8s Dec +12d 29' 25"
Magnitude 3.5 mag
Distance 484 ly
Visibility 5.7 / 10



Notes

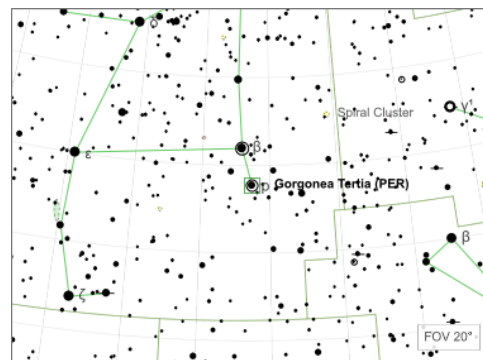
An eclipsing binary of the Algol type, dropping from mag 3.4 to 3.9 every 3.953 days. The eclipse lasts about 8 hours. Located in the Hyades region, making comparison stars abundant – use nearby Gamma Tauri (mag 3.7) and Xi Tauri (mag 3.7). A triple system where the eclipsing pair orbits a third star every 33 days. Easier to follow than Algol thanks to its convenient field stars.

Observed

13 **Gorgonea Tertia** HIP 14354; Rho Per; 25 Per
● Variable Star · Per

Medium

Position RA 03h 05m 10.6s Dec +38d 50' 25"
Magnitude 3.4 mag
Distance 297 ly
Visibility 6.5 / 10



Notes

A semi-regular variable red giant pulsating between mag 3.3 and 4.0 over roughly 50 days, with a longer secondary period near 1,100 days. Its deep reddish-orange color (spectral type M4) is striking in binoculars. Located just 1.5° from Algol – observe both variables in the same binocular field for a fascinating contrast between eclipsing and pulsating variability.

Observed

14 **Mekbuda** HIP 34088; Zeta Gem; 43 Gem
● Variable Star · Gem

Medium

Position RA 07h 04m 6.5s Dec +20d 34' 13"
Magnitude 3.8 mag
Distance 1.4 kly
Visibility 5.9 / 10

Notes

A classical Cepheid pulsating from mag 3.6 to 4.2 over 10.15 days – the longest Cepheid period on this list. Its slow, steady rhythm makes it ideal for beginners learning to estimate magnitudes. Compare with nearby Delta Geminorum (mag 3.5, constant). Together with Delta Cephei and Eta Aquilae, it completes a trio of naked-eye Cepheids spanning different periods for studying the period-luminosity relation firsthand.

Observed

