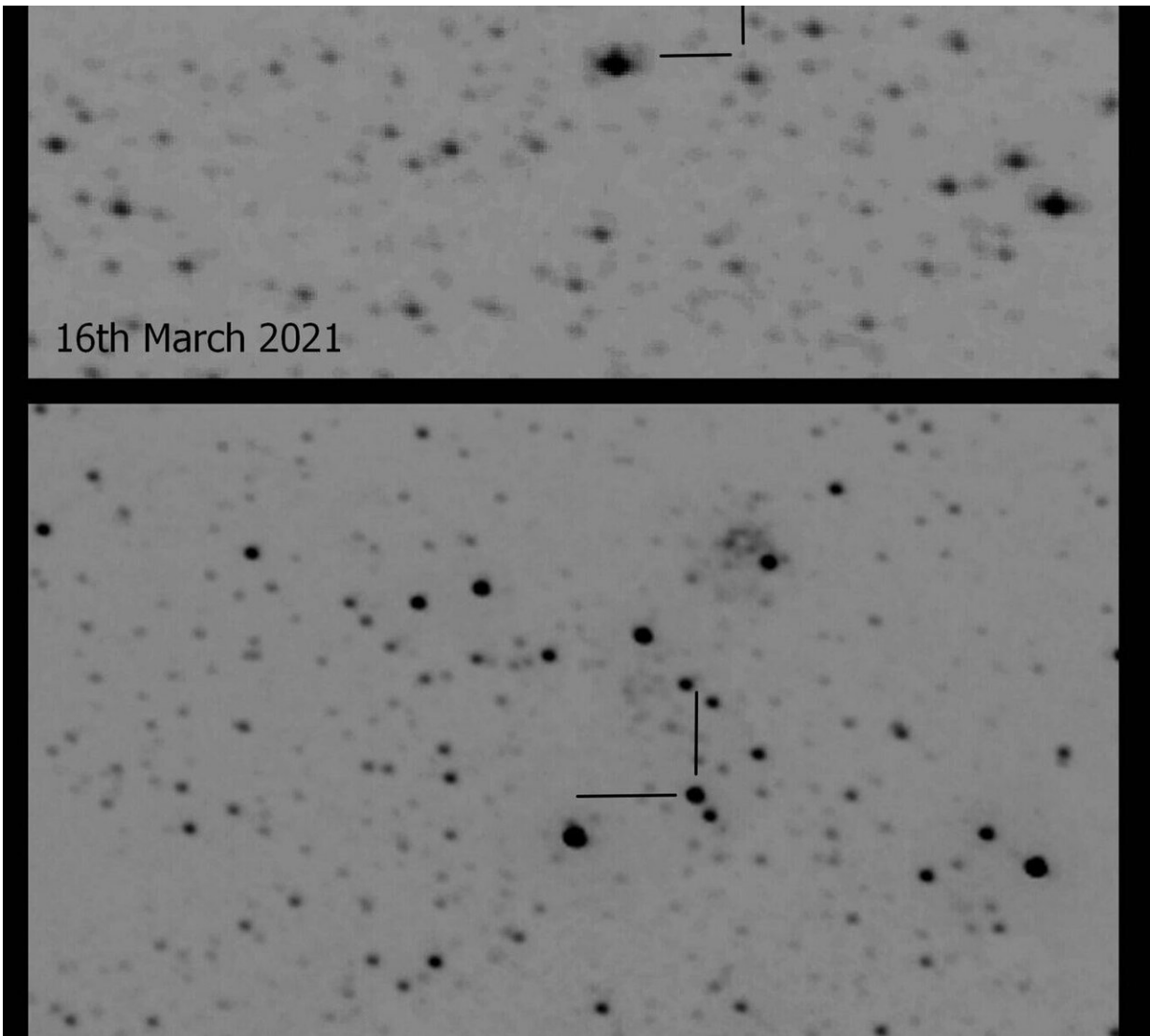


New binocular Nova Cas 2021 flares in Cassiopeia

March 23 2021, by David Dickinson



Nova Cas 2021. Credit: [Mary McIntyre](#)

It began, as all modern astronomical alerts seem to, with one tweet, then two. Early on the morning of Friday, March 19, we started seeing word that a nova was spotted in the constellation of Cassiopeia the Queen, near its border with Cepheus. At the time, the nova was at magnitude +10 "with a bullet," and still brightening. A formal notice came that same night from the American Association of Variable Star Observers (AAVSO) with Alert Notice 735 on the discovery of the first nova in Cassiopeia for 2021, Nova Cassiopeiae 2021, or N Cas 2021.

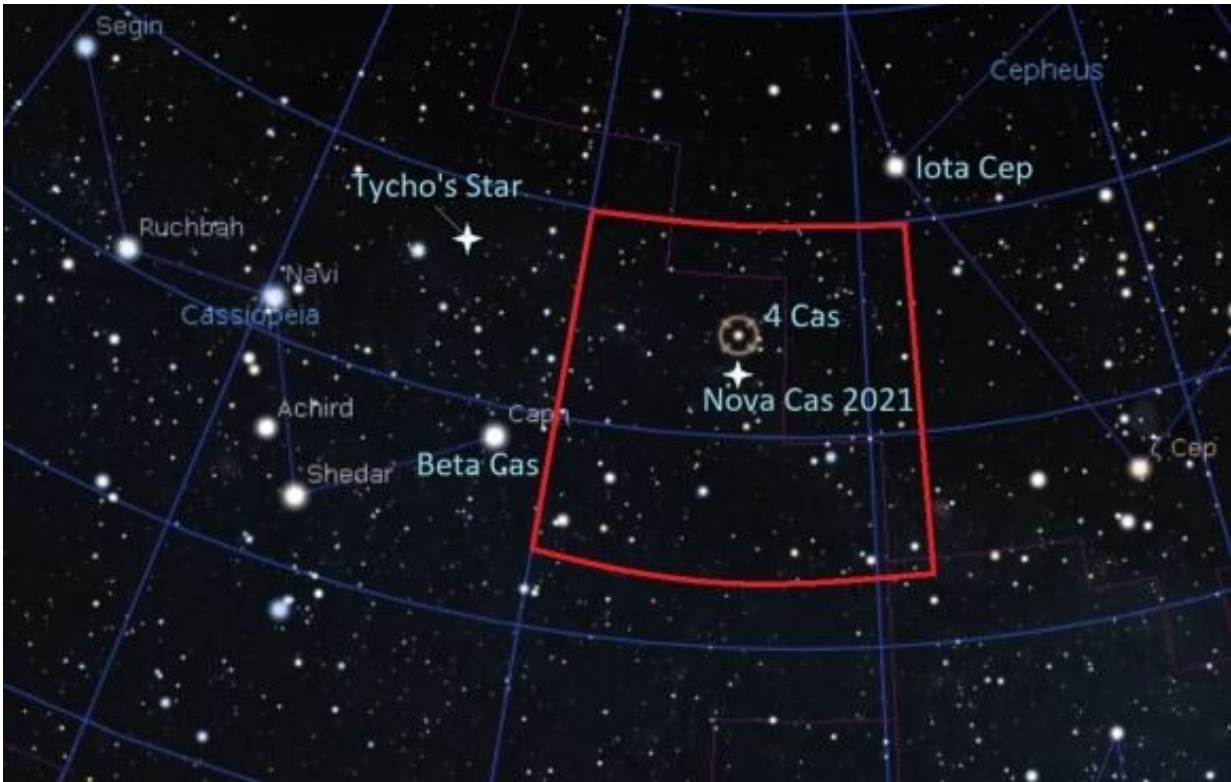
The discovery was made by Japanese observer Yuji Nakamura on the night of March 18, 2021, and the newly visible star had an initial brightness of +9.6.

Current visibility: Will Nova Cassiopeiae 2021 continue to brighten?

As of writing this, N Cas 2021 is still brightening at around magnitude +7. That puts it in easy range of binoculars, and if it brightens much more, it'll be within naked eye visibility from a dark sky site.

In late March, Cassiopeia is low to the northwest for northern hemisphere observers at dusk, sinking towards lower culmination near local midnight before gaining elevation to the northeast in the early dawn hours. The moon is now waxing towards full on March 28, after which it will wane and begin to leave the dusk scene.

The +5th magnitude star 4 Cassiopeiae is nearby, making a good guide star. Another familiar deep sky target is just over a half-degree from Nova Cas 2021, the +6.9 magnitude open cluster Messier 52. Nova Cas 2021 is approximately equidistant between the naked eye stars Beta Cassiopeiae and Iota Cephei.



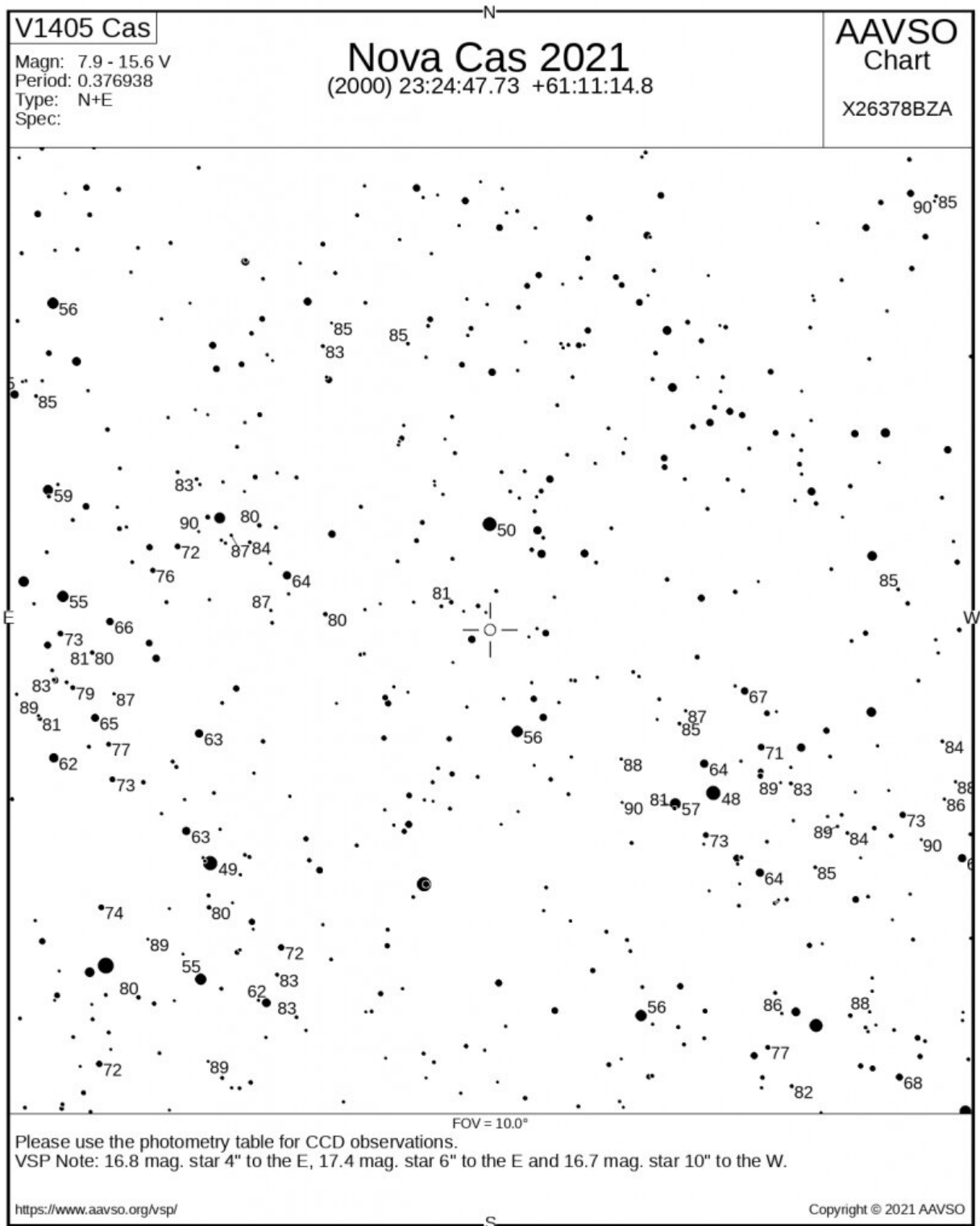
A widefield finder chart for Nova Cas 2021. The red inset is the field for the close-in chart (below). Credit: Dave Dickinson/Stellarium

The coordinates for Nova Cas 2021 are right ascension (RA) 23 hours 24 minutes and 48 seconds, declination +61 degrees 11 minutes and 15 seconds. Star hop through the field and compare the nova with nearby stars of known brightness to find the nova and gauge its magnitude. You can make your own custom finder charts for Nova Cas 2021 at the [AAVSO](http://www.aavso.org) website.

This particular nova is about a degree off of the [galactic plane](#), a standard region along which novae typically appear. Classical novae occur when a white dwarf orbits a [main sequence star](#) in a tight embrace,

drawing in material which then accretes or concentrates around the white dwarf. The material then compresses around the white dwarf, heats up, and eventually ignites in a runaway fusion process. A sub-category of repeating eruptive variable [stars](#) are known as cataclysmic or recurrent novae. T Pyxidis and U Scorpii are good examples of this subclass.

The exact distance to Nova Cas 2021 isn't yet known, but most of these tend to peak around an absolute magnitude of -8 and—like extra-galactic supernovae—hold promise for use as standard candles to measure distance. If +7th [magnitude](#) is the peak for Nova Cas 2021, that would suggest it's about 30,000 to 32,000 light-years distant, out at the edge of the Outer Arm of the Milky Way Galaxy, just beyond the Perseus Arm—but if it brightens, it may be considerably closer.



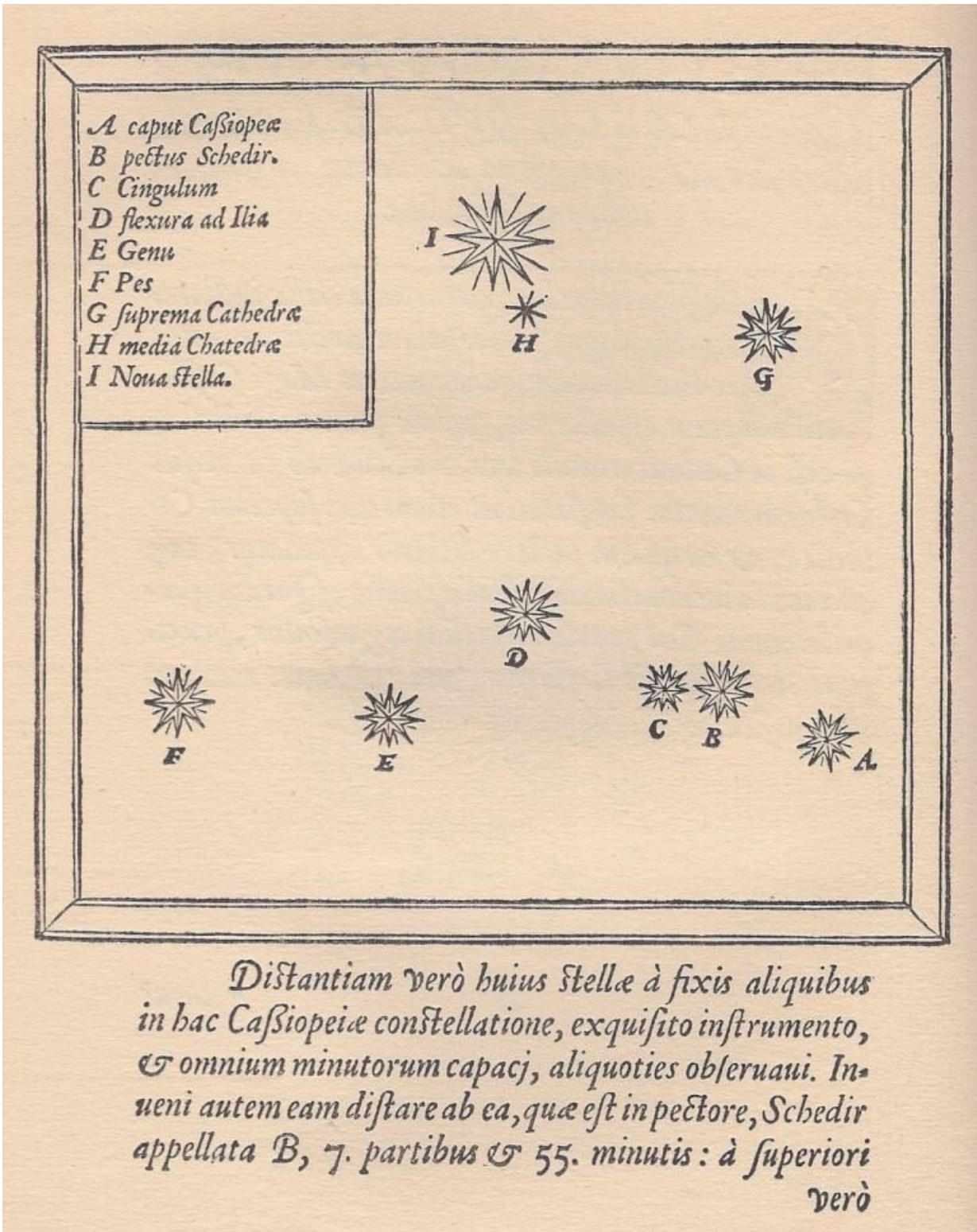
A 'true view' (versus inverted) 10 degree finder chart, centered on Nova Cas 2021. Credit: The AAVSO

NOVAE GREATER THAN +5 MAGNITUDE OF THE TWENTIETH AND TWENTY-FIRST CENTURIES

NAME	YEAR	MAX BRIGHTNESS
GK Persei	1901	+0.2
DM Geminorum	1903	+4.8
DN Geminorum	1912	+3.5
V603 Aquilae	1918	-0.5
V476 Cygni	1920	+2.0
T Pyxidis	1920	+2.0
RR Pictoris	1925	+1.2
RS Ophiuchi	1933	+4.3
DQ Herculis	1934	+1.4
CP Lacertae	1936	+2.1
BT Monocerotis	1939	+4.5
CP Puppis	1942	+0.3
T Coronae Borealis	1946	+3.0
V446 Herculis	1960	+2.8
HR Delphini	1967	+3.7
FH Serpentis	1970	+4.4
V1500 Cygni	1975	+1.7
V842 Centauri	1986	+4.6
V1975 Cygni	1992	+4.2
V382 Velorum	1999	+2.6
V1494 Aquilae	1999	+4.0
RS Ophiuchi	2006	+4.5
V1280 Scorpii	2007	+3.9
V339 Delphini	2013	+4.3
V1369 Centauri	2013	+3.3
V5668 Sagittarii	2015	+4.0

Astronomer's Field Guide

20th and 21st century naked eye novae. Adapted from our latest Deep-Sky Field Guide. Credit: Dave Dickinson



Tycho's Star, seen in 1572. Credit: Wikimedia Commons/Public Domain

The last good naked eye nova for the northern hemisphere was Nova Delphini 2013 in the tiny cetacean constellation of Delphinus the Dolphin about eight years ago. On average, we get a good naked eye galactic nova about roughly once per decade or so.

If the patch of sky currently hosting Nova Cas 2021 seems familiar, it might be because it's only six degrees from the site of Tycho's supernova, noted by astronomer Tycho Brahe in 1572.

Unfortunately, galactic supernovae are much rarer cosmic beasts. Though we see several per year in distant galaxies, we haven't had a good one in our own galactic neighborhood since the advent of telescopic astronomy four centuries ago. Spica (Alpha Virginis) and Betelgeuse are good nearby candidates, though both are far beyond the 50 light-year "kill zone," and will simply put on a good show. Betelgeuse gave us all pause in late 2019 through early 2020 when it dimmed markedly, but seems to be back to its old self for now.

If skies are clear, be sure to track down Nova Cas 2021 tonight—it might just be the "cosmic [nova](#) show" for this decade.

Provided by Universe Today

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