

### WHAT'S HAPPENING WITH THE STAR BETELGEUSE?



The star Betelgeuse has fainted a lot in the last few months, dropping from the 10<sup>th</sup> to the 21<sup>st</sup> position of the brightest stars in our sky.

This drastic change intrigued astronomers and many were wondering if it was linked to the star reaching the final stages of its evolution.





Credit: Claude Duplessis http://claudeduplessis.com/

#### Betelgeuse is a red supergiant star.



Betelgeuse captured by the radio telescope ALMA in Chile Credit: ALMA (ESO/NAOJ/NRAO)/E. O'Gorman/P. Kervella <u>https://www.eso.org/public/images/potw1726a/?lang</u> Betelgeuse is a red supergiant star.

If it replaced the Sun at the centre of the solar system, it would engulf planets all the way to Jupiter. That's big!



DISCOVER X Å LA DÉCOUVERTE The Universe X de L'Univers Betelgeuse captured by the radio telescope ALMA in Chile Credit: ALMA (ESO/NAOJ/NRAO)/E. O'Gorman/P. Kervella <u>https://www.eso.org/public/images/potw1726b/</u>

The next step in its stellar evolution will be to explode: that's what we call a supernova. It's impossible to predict when this will happen. It could be tomorrow or in 100,000 years!



Animation (artist rendition) of a supernova Credit: NASA, ESA, and the Hubble SM4 ERO Team <u>https://hubblesite.org/contents/media/videos/2009/25/620-Video.html</u> Observations of Betelgeuse in early and late 2019. We can see its brightness has changed, as well as its shape. Many scientists are now studying Betelgeuse to better understand red supergiant stars.





Credit: ESO/M. Montargès et al. https://www.eso.org/public/news/eso2003/?lang Betelgeuse is also a variable star, meaning its brightness varies with time. Usually, the dips in brightness are not as extreme as the one right now.

Since the end of February, Betelgeuse has started brightening again. It will most likely not explode soon.



Observe it in the sky and compare it to the stars Bellatrix and Rigel.

Betelgeuse is usually similar to Rigel in terms of brightness but it's now much more similar to fainter Bellatrix.





Credit: Claude Duplessis http://claudeduplessis.com/



The sky at the beginning of March, around 7pm.

Orion is visible to the south after sunset.

Image created with Stellarium <u>http://stellarium.org/</u>



## TO GO FURTHER...



Hertzsprung-Russel diagram, showing the different types of stars. Luminosity is on the vertical axis while temperature (and colour) is on the horizontal axis.

The hottest and very luminous stars are blue giants at the top left, while faint and red stars are at the bottom right. Betelgeuse is a red supergiant (very luminous but less hot than blue stars).



![](_page_10_Picture_3.jpeg)

#### LIFE CYCLE OF STARS

![](_page_11_Figure_1.jpeg)

THE UNIVER

![](_page_12_Picture_0.jpeg)

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![](_page_12_Picture_4.jpeg)

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![](_page_12_Picture_8.jpeg)

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