ASTROPHYSICAL INSIGHTS
AGE AND DISTANCE ANALYSIS OF NGC 4815

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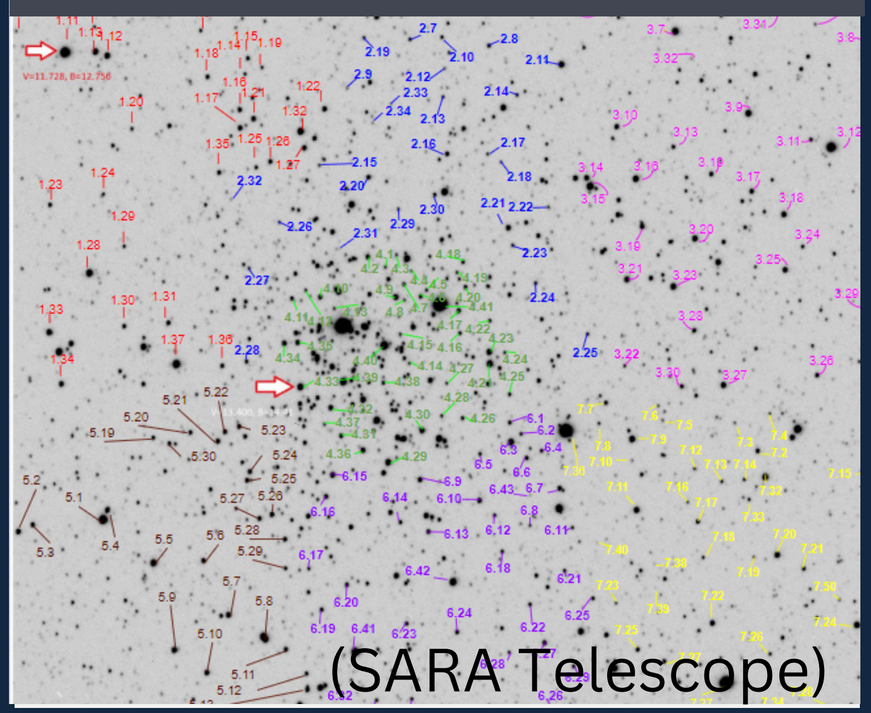
Introduction & Purpose

Open clusters are groups of stars that were born from the same cloud of gas and dust in space, a molecular cloud. Astronomers study open clusters to gain insight into stellar formation, evolution, and galactic structure. Open Cluster NGC 4815 is an open star cluster in the Musca Constellation, visible from Earth in the Southern hemisphere with use of a telescope. The most recent scholarly information about it was published around 30 years ago. This team determined the age and distance to this cluster from Earth using technology more advanced than what was available the last time this cluster was observed.

Open Cluster NGC 4815



(SARA Telescope)

Photometry, Filters, & Reddening

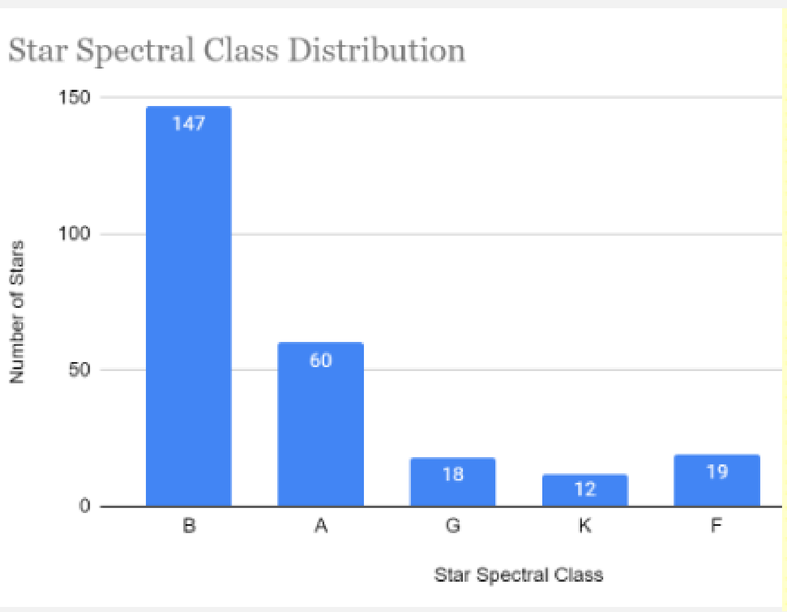
Photometry is the measurement of the brightness of stars or other objects.
Filters affect how we see images. We used blue (B) and green/visual (V) filters to see NGC 4815.
Reddening: starlight appears more red due to the scattering of light. 0.808 was our value.
Corrections:

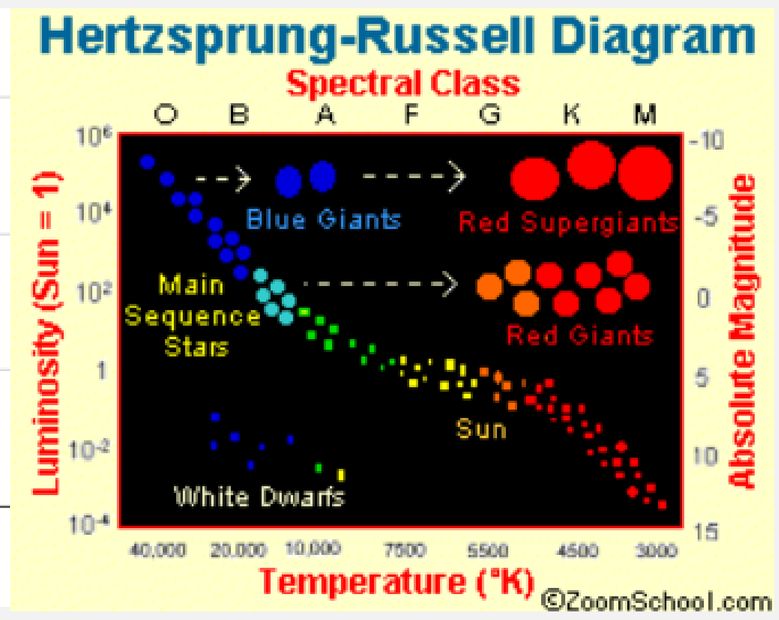
True Color Index	Magnitude
B-V - 0.808	V- (0.808 x 3.2)

References

Hubble's Star Clusters - NASA Science. (n.d.).
NGC 4815 - Open Cluster in Musca | TheSkyLive.com. (n.d.). Theskylive.com.
The Remote Observatories of the Southeastern Association for Research in Astronomy (SARA)" by W. Keel et al.
Hertzsprung-Russell Diagram | National Schools' Observatory. (n.d.).
Zoom School. (n.d.). Star Spectral Classes. In Enchanted Learning.

Star Spectral Class & HR Diagram





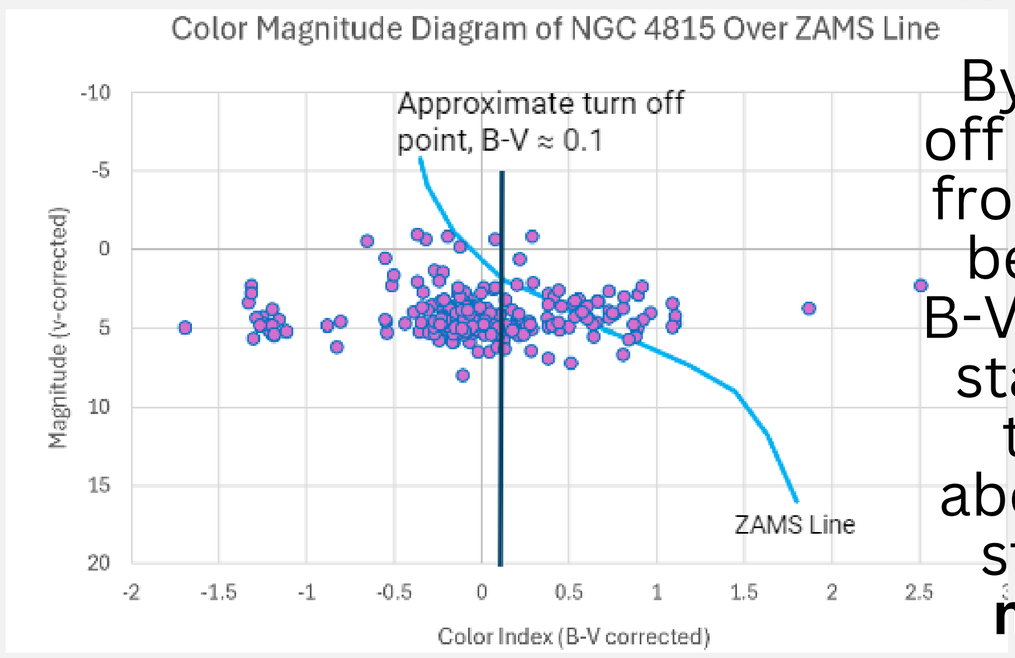
The HR Diagram measures a star's luminosity in relation to temperature, spectral class, or color. We measured a star's B-V color magnitude. Stars are classified into their star spectral type, O having the highest luminosity and M having the lowest.

Data & Results

Distance Modulus Equation:

$$d = 10^{((m-M+5)/5)}$$

By averaging this equation's results for all found G stars (m=G star corrected V, M=sun's absolute magnitude), we found that NGC 4815 is approx. **426.654 parsecs (1,390.892 light years) from Earth**



By locating the turn off point of most stars from the ZAMS line to be at B-V ≈ 0.1, the B-V value of an A class star, we determined that NGC 4815 is about the age of an A star, or about **400 million years old.**

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