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Visual observations of Betelgeuse near the solar conjunction

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The AAVSO database of stellar magnitudes starts, for Betelgeuse, in 1890 and includes both visual and digital measures. In scientific publications the few digital photometries are limited to some observations, not sufficent to have an homogeneous and smooth lightcurve.
The classical time series analysis has been adapted to the case of variable stars, recognizing the yearly signal of the invisibility when the star in solar conjunction.
This case presents an enhancement of the sky background, when the star is observed at the horizon near the sunset or sunrise time and azimut: the exctinction of the atmosphere is larger at low altitudes; the Mie scattering along the line of sight makes the sky much brighter than normally; the mean free path of photons depends on wavelength and makes the sky redder.
The comparison of Betelgeuse with other reference stars requires the inclusions and the calibration of all such effects.
This is particularly interesting to observe the rising part of the light curve of Betelgeuse after the deep minimum of February 2020, started already at the end of March 2020, and the new minimum of Betelgeuse now ongoing (April-May 2021).
Full daylight observations are also possible, with less sky brightness than near the horizon, and their history and tradition in Rome, since 1701, is presented.

References

Bianchini (1703) *De Calendario*
Bianchini (1728) *Hespheri et Phosphori, Venus' observations*
Sigismondi (2014) *Lo Gnomone Clementino, the Clementine Gnomon*
Sigismondi (2020) *Atmospheric exctinction near the horizon: algorithms*
AAVSO DATABASE (2021) *Betelgeuse's recent observations*

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