

The Carrington Event and Comet Biela.

German*, B. R., *Independent researcher, 79111 Freiburg,
borisgerman@hotmail.com.

The historical Carrington Event occurred in August/September 1859, and was characterised by strong geomagnetic disturbances, low-latitude aurorae, and fires on long telegraph lines.

The hypothesis based on the observation of a solar white-light flare on 1 September 1859, faces issues: (a) the expected impact of an ICME on Earth, as well as the associated SEP event, is not supported by terrestrial deposits dating back to 1859, specifically the absence of significantly traces of nitrate and cosmogenic isotopes such as ^{10}Be , ^{36}Cl , and ^{14}C [1–4]; (b) the brightness, colors, and isolated of the low-latitude aurorae in San Salvador, lack adequate explanation [4]

Thus, the prevailing paradigm, postulating ICMEs, cannot explain the Carrington Event. At the same time, in 1859, astronomers expected to observe two secondary comets and Andromedids meteors, resulting from Comet Biela's disintegration in 1840s. The interpretation of the Carrington Event based on the collision of the Biela secondary comets/meteors with Earth successfully solves the problems [4].

[1] Wolff, E. et al. (2012), 10.1029/2012GL051603

[2] Usoskin, I. & Kovaltsov, G. (2012) ApJ 757 92–98

[3] Uusitalo, J. et al. (2024), 10.1029/2023GL106632

[4] German, B. R. <https://doi.org/10.5194/epsc-dps2025-12>