ESSENCE REVIEW · SOLAR STORMS

The Sun has two worst cases

Solar eruptions hit Earth in two main ways: a magnetic storm and a shower of particle radiation. Cataloguing the biggest storms is among the largest un-raced. The boldest in trees and ice record only the particles, and Carrington's particle shower was far smaller than the extreme events they've since found at most about three times the biggest of the Space Age, or absent [1] [2] [3] [4].

Reviewed by Dr. Tomasz Kowalski · Published March 2, 2026

AIM ANALYSIS · marks our own reasoning and calculations, and the verdicts we are most overconfident. Everything else comes from the numbered sources.

Small only on the radiation yardstick

SELF-ASSESSMENT

Top 3

Carrington's magnetic storm and the two strongest events ever recorded [1] Marten12.

≤ 3×

Its particle shower above 30 MeV was at most three times the Space Age record [1] Marten12 [3] Yu-05.

19–27×

Our calculations the 1204 SCP storm's magnetic storm was the median ceiling for any Carrington shower (15–28× Earth's modern field at 1 AU) [1] Marten12 [4] Yu-Table S1.

THE COMPANY'S CLAIMS

TRUE

> "The Carrington event left no isotopes"
>
> A common scientific claim, repeated in original infographics

Neither beryllium-10 nor nitrate above 36 measurements in ice show a peak from 1859, and [1] Marten12 [2] Mekhaldi-15 [3] Yu-05 [4] Usoskin-21 [5] Miyake-12 [6] Cliver-14 [7] Hayakawa-19 [8] Wolf-08 [9] Hayakawa-21 [10] Mekhaldi-23 [11] Wu-23 [12] Koldobskiy-21 [13] Miyake-13 [14] Mekhaldi-15 [15] Wu-18 [16] Usoskin-13 [17] Miyake-17 [18] Mekhaldi-24 [19] Wu-25 [20] Miyake-19 [21] Mekhaldi-20 [22] Miyake-25 [23] Mekhaldi-12 [24] Miyake-14 [25] Mekhaldi-17 [26] Miyake-15 [27] Mekhaldi-25 [28] Miyake-17 [29] Mekhaldi-22 [30] Miyake-21 [31] Mekhaldi-18 [32] Miyake-23 [33] Mekhaldi-19 [34] Miyake-24 [35] Mekhaldi-21 [36] Miyake-25 [37] Mekhaldi-23 [38] Miyake-26 [39] Mekhaldi-24 [40] Miyake-27 [41] Mekhaldi-25 [42] Miyake-28 [43] Mekhaldi-26 [44] Miyake-29 [45] Mekhaldi-27 [46] Miyake-30 [47] Mekhaldi-28 [48] Miyake-31 [49] Mekhaldi-29 [50] Miyake-32 [51] Mekhaldi-30 [52] Miyake-33 [53] Mekhaldi-31 [54] Miyake-34 [55] Mekhaldi-32 [56] Miyake-35 [57] Mekhaldi-33 [58] Miyake-36 [59] 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