Osservazioni sui rate dei telescopi POLA

Francesco Ombretta Rosario dicembre 2021 - aprile 2022

Rate (Hz) POLA-1/2/3/4 (NyA period)

All rates are corrected for atmospheric pressure effects



After September2021 intervention



23-27 Sept. network outlet problem GPS driver problem general network problem

Seasonal trend (rate)



Seasonal trend (relative difference)



"Cannibal CME" 3rd-4th november 2021

Coronal Mass Ejections (CMEs) are clouds of electrified, magnetic gas weighing billions of tons ejected from the Sun and hurled into space with speeds ranging from 20 to 2,000 kilometers per second.

Beginning of November 2021, a "Cannibal CME" hit Earth, sparking a strong G3-class geomagnetic storm and auroras, visible at mid latitudes. During the storm on Nov. 3rd and 4th all detectors showed that the radiation in the stratosphere plummeted.

"Forbush decrease": the coronal mass ejection (CME) sweeps past Earth and pushes galactic cosmic rays away from our planet. Radiation from deep space that would normally pepper Earth's upper atmosphere is briefly wiped out.

The Forbush decrease of Nov. 3-4, 2021, was the deepest in 7-years.

Radiation levels in the stratosphere over California dropped nearly 20%.



Relative differences for POLA-1-3-4 and OULU (%) (corrected rates)



POLA-02 in Bologna

25.0 POLA-2 (Bologna) 24.5 24.0 23.5 23.0 22.5 22.0 21.5 : 21.0 2021-10-29 2021-10-32021-11-01 2021-11-03 2021-11-05 2021-11-07 2021-11-09

POLA 2 rate (Hz) - Forbush 4/11/2021

More Forbush candidates in March 2022



Correlation studies with meteo data

atmospheric pressure



Correlation studies with meteo data

relative humidity



Correlation studies with meteo data

temperature at CCT (5 m)



BACKUP slide GPS and network problems in nya

