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The Impacts of Halo-CMEs on the Ionospheric Critical Frequency

foF2 RAMY MAWAD, Astronomy Meteorology Department, Faculty of Science, A I-Azhar University., HUSSEIN M. FARID, Astronomy, Space Science and Meteorology Department, Faculty of Science, Cairo University, SHAHINAZ YOUSEF, Astronomy Meteorology Department, Faculty of Science, A I-Azhar University. — We have studied the impact of Halo-CMEs on the ionospheric critical frequency foF2 during the period 1996-2013. We have correlated the monthly maximum values of foF2 with monthly averages of Halo-CME's energy, mass and speed; we found that the correlation coefficient R is 74%, 52% and 65% respectively. This indicates that the energetic, massive and fast Halo-CMEs can affect the ionospheric critical frequency foF2 more efficiently. In addition, the monthly average Halo-CME's width correlates with the monthly maximum foF2 with $R \sim 57\%$. This implies that as the width of the Halo-CME increases, the possibility of this event to hit the Earth increases and the ionospheric-targeted area increases, thus the foF2 values; as an implication of increasing the ionization of the ionosphere; subsequently increases.

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