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CORRELATION BETWEEN THE JUPITER-IO OBSERVATIONS AND THE SOLAR RADIO
BURSTS USING THE SHARJAH DECAMETRIC RADIO TELESCOPE (SDRT)

Abstract

This paper will look into the factors that affect the correlation between the Jupiter-Io observed radio events and the Sun radio bursts using the Sharjah Decametric Radio Telescope (SDRT) located at the Sharjah Academy for Astronomy, Space Sciences, and Technology in the United Arab Emirates. The SDRT has been operational since 2019 and is sponsored by the UAE Space Agency. We analyze the number of Jupiter and Sun events to the Sun cycle's predicted events from 2019 to 2020 related to Solar Cycle 24 and 25. One factor that affected our Jovian-Io observations is the apparent angle between the Sun and Jupiter. We have noticed that these events are at maximum during opposition and minimum during the conjunction. Some Jovian events were predicted by the Radio-Jupiter Pro III software but were not detected by the SDRT. We show a modest correlation between the observed solar flares and the trapped particle flux at Io's orbit responsible for Jupiter's radio L- and S-bursts. These observations are essential to understand the Jupiter-Io exchange of particles due to its moon Io volcanic nature and Jupiter's intense magnetic field enhanced by the solar radio bursts observed by the SDRT.