



Analysis of the day to day correlation of mid-latitude foF2 and solar proxies

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The upper ionosphere electron density characterized by the critical frequency foF2 is known to be positively correlated with the solar activity given by different proxies (e.g. Rz, F10.7, MgII) using medians or averages from longer intervals. In the day to day correlation some days delay of the correlation maximum and the quasi 27-day period appears.

The delays at mid-latitude stations at both hemispheres at different geographic longitudes are compared using the 1967-2008 winter noon data. At which longitude the reaction of foF2 to changes in solar activity appears sooner seems to depend on the position of the interval studied in the 22-year solar cycle, but existence of an 18-year periodicity can be possible as well.

Three cases of a strong negative correlation seem to be connected with conditions below the ionosphere characterized by the indices connected with the volcanic activity. As the main solar proxy F10.7 was used and compared with other proxies.