

## A SEARCH FOR PERIODICITIES IN F10.7 SOLAR RADIO FLUX DATA<sup>1</sup>

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Received January 22, 2018; revised December 18, 2018; accepted January 3, 2019

The radio frequency emission at 10.7 cm (or 2800 MHz) wavelength (considered as solar flux density) out of different possible wavelengths is usually selected to identify periodicities because of its high correlation with solar extreme ultraviolet radiation as well as its complete and long observational record other than sunspot related indices. The solar radio flux at 10.7 cm wavelength plays a very valuable role for forecasting the space weather because it is originated from lower corona and chromospheres region of the Sun. Also, solar radio flux is a magnificent indicator of major solar activity. Here in the present work the solar radio flux data from 1965 to 2014 observed at the Dominion Radio Astrophysical Observatory in Penticton, British Columbia has been processed using Date Compensated Discrete Fourier Transform (DCDFT) to identify predominant periods within the data along with their confidence levels. Also, the multi-taper method (MTM) for periodicity analysis is used to validate the observed periods. Present investigation exhibits multi-periodicity of the time series F10.7 solar radio flux data around 27, 57, 78, 127, 157, 4096 days etc. The observed periods are also compared with the periods of MgII Index data using same algorithm as MgII Index data has 99.9% correlation with F10.7 Solar Radio Flux data. It can be observed that the MgII index data exhibits similar periodicities with very high confidence levels. Present investigation also clearly indicates that the computed results are very much confining with the results obtained in different communications for the similar data of 10.7 cm Solar Radio Flux as well as for the other solar activities.

DOI: 10.1134/S0320930X1903006X

**Keywords:** Periodicity, F10.7Solar Radio Flux, MgII Index, Date Compensated Discrete Fourier Transform, Multi-Taper Method, Ferraz-Mello and Quast Method, Solar Activity

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<sup>1</sup> Полная версия статьи будет опубликована в Solar System Research, 2019, № 3.