

A Wavelet Approach to the long-term Data of the green coronal Brightness

A. Ajabshirizadeh (1), Z. Kobylinski (2), A. Wysokinski (3)

(1) Dept. of Theoretical Physics and Astrophysics, Tabriz University, Tabriz, Iran, (E-mail: a-adjab@tabrizu.ac.ir), (2) Faculty of Economics and Computer Science, University of Humanities and Economics, Wloclawek, Poland (E-mail: zbigniewkobylinski@yahoo.com), (3) Dept. of Renewable Energies, University of Podlasie, Siedlce, Poland (E-mail: arekwys@ap.siedlce.pl)

As the solar corona is the source of solar wind, the green coronal line brightness (Fe XIV, 530.3 nm) observed during the last and a half solar cycles would be a good indicator of various processes in the interplanetary space, geomagnetic field and the Earth's atmosphere, and would be a proper factor in forecasting of the solar and geomagnetic activity changes. However, there are considerable discrepancies between the observational long-term databases of this coronal line detected by different group of observers as we have pointed out in our paper presented on previous COSPAR Assembly. Now we use the discrete and continuous wavelet transform to compare four existing databases of monthly means of the whole disc green coronal brightness from (1) Norikura Observatory, (2) Kislovodsk Observatory, intensities registered by several coronagraphs and converted to the common photometric scales of the Pic du Midi (3) and Lomnitsky Stit (4) observatories and other solar indices as sunspot number and Ottawa radio flux data. These analyses show that variability of the Kislovodsk data set(2) are closest to the variations of the sunspot number and radio flux time series.