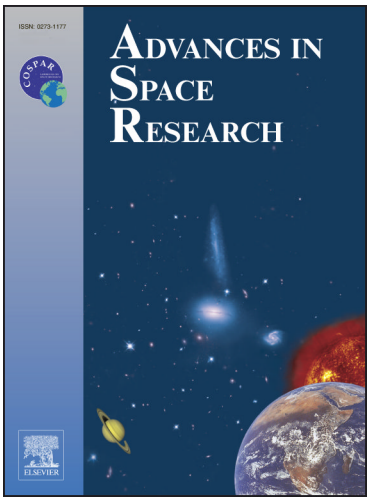

NON-STATIONARITY AND CROSS-CORRELATION EFFECTS IN THE MHD SOLAR ACTIVITY

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PII: S0273-1177(17)30493-3
DOI: http://dx.doi.org/10.1016/j.asr.2017.06.055
Reference: JASR 13309

To appear in: *Advances in Space Research*

Received Date: 28 February 2017
Revised Date: 23 May 2017
Accepted Date: 29 June 2017

Please cite this article as: Demin, S.A., Nefedyev, Y.A., Andreev, A.O., Demina, N.Y., Timashev, S.F., NON-STATIONARITY AND CROSS-CORRELATION EFFECTS IN THE MHD SOLAR ACTIVITY, *Advances in Space Research* (2017), doi: http://dx.doi.org/10.1016/j.asr.2017.06.055

NON-STATIONARITY AND CROSS-CORRELATION EFFECTS IN THE MHD SOLAR ACTIVITY

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Abstract.

The analysis of turbulent processes in sunspots and pores which are self-organizing long-lived magnetic structures is a complicated and not yet solved problem. The present work focuses on studying such magneto-hydrodynamic (MHD) formations on the basis of flicker-noise spectroscopy using a new method of multi-parametric analysis. The non-stationarity and cross-correlation effects taking place in solar activity dynamics are considered. The calculated maximum values of non-stationarity factor may become precursors of significant restructuring in solar magnetic activity. The introduced cross-correlation functions enable us to judge synchronization effects between the signals of various solar activity indicators registered simultaneously.

Keywords: *solar activity, Sun: magnetic fields, sunspots; methods: multi-parametric analysis, non-stationarity and cross-correlation effects.*