

Influence of Solar Activity on Earth's Climate

Predrag Jovanović^{1*}, Vesna Borka Jovanović², Salvatore Capozziello^{3,4,5}
and Duško Borka²

¹Astronomical Observatory, Volgina 7, P.O. Box 74, 11060 Belgrade, Serbia

²Department of Theoretical Physics and Condensed Matter Physics (O20), Vinča Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia

³Scuola Superiore Meridionale, Largo San Marcellino 10, 80138 Napoli, Italy

⁴Istituto Nazionale di Fisica Nucleare, Sez. di Napoli, Via Cinthia 21, 80126 Napoli, Italy

⁵Dipartimento di Fisica "E. Pancini", Università di Napoli "Federico II", Via Cinthia 21, 80126 Napoli, Italy

*Correspondence: Predrag Jovanović, pjovanovic@aob.rs

Abstract: Here we reconsider some astrophysical, geophysical and meteorological indicators about the possible influence of solar activity on space and terrestrial weather. We used wavelet transforms to perform spectral analysis of several solar activity and geophysical data in order to detect their common oscillations, and to study the temporal stability and statistical significance of such oscillations. Besides, we also calculated the cross-correlation functions between the solar activity and geophysical time series. The obtained results indicate that solar activity may have a significant influence on weather on Earth by perturbing the global atmospheric circulations and geomagnetic field, as well as by affecting Earth's albedo and cloud formation.

Several possible physical mechanisms which explain that influence is also suggested.

Keywords: solar activity, Earth's climate, space weather, terrestrial weather

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