

SOLAR ACTIVITY AND IONOSPHERIC WEATHER

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ABSTRACT

Solar electromagnetic and corpuscular radiation is the main driver of weather and space weather in the Geospace system. The investigation of relationships between Sun and Earth has a long history which also has a special emphasis in Neustrelitz. This presentation will focus on the coupling between solar activity and the Earth's ionosphere, as well as, its impact on radio wave propagation, a topic that has been explored in Neustrelitz for more than 100 years. Ionospheric processes are an essential part of the complex space weather scenario. Their understanding and modelling are important for mitigating space weather impact on modern technological infrastructures. This concerns primarily the dependence of ionospheric ionization on solar radiation and solar wind dynamics at a broad temporal scale from seconds to several decades including impact on terrestrial as well as trans-ionospheric radio wave propagation. Current knowledge of these relationships provides an excellent platform to ask right scientific questions and to find conclusive answers when solar activity goes into a next maximum. The International Space Weather Initiative (ISWI), a United Nations initiative launched during the International Heliophysical Year (IHY), is an important part of this platform enabling new opportunities concerning a better understanding of solar-terrestrial relationships and space weather impact on our everyday lives.

KEYWORDS: Space weather, ionosphere, coupling processes