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SPACE WEATHER RESEARCH FROM BULGARIAN ANTARCTIC BASE

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ABSTRACT

The work presents a high-performance system for investigating processes related to space weather: accurate classification of solar bursts and solar flares, their influence on the Ionosphere over Antarctica, and their relationship with changes in the Earth's magnetic field.

The proposed system was installed on Livingston Island, Antarctica. Results from 2025 and early 2026 are presented - the period of maximum solar activity in the 11-year solar cycle. The system is installed on the territory of the Bulgarian Antarctic Base - St. Kliment Ohridski (62.6406°S, 60.3594°W), located on Livingston Island, part of the South Shetland Islands group. These observation sites were chosen for their lack of jammers, quiet radio frequencies, and long polar summer days, factors that increase the efficiency and sensitivity of the measurements.

The results obtained are verified by correlation with satellite X-ray, and this type of scientific research in polar regions is discussed in the current presentation. Capturing these processes in solar-terrestrial physics improves the reliability of space weather research.