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# Geophysical effects caused by the flyby and explosive destruction of the fireball on September 02, 2023

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The geophysical effects caused by the flyby and explosive destruction of the fireball on September 02, 2023 are considered. The fireball appeared upon entry into the Earth's atmosphere with a glow at 17:07:46 UTC and was observed for ~5 s. The main destruction of the cosmic body occurred over the southeastern outskirts of Turkey (approximately above the city of Malatya). According to available video recordings, the flyby was accompanied by three well-defined flares, which are most likely associated with the destruction of the main cosmic body, and then its two largest fragments.

As the initial data in research, we used the data of instrumental observations carried out at the Center for Geophysical Monitoring in Moscow of Sadovsky Institute of Geosphere Dynamics of Russian Academy of Sciences and at the Mikhnevo Geophysical Observatory of the Sadovsky Institute of Geosphere Dynamics of Russian Academy of Sciences, as well as the results of magnetic measurements carried out in a number of INTERMAGNET network observatories actively operating during this period. To describe the response of the ionosphere on the bolide fall, we estimated the critical frequency of the F2 layer on the basis of the analysis of ionograms after the high-frequency sounding of the ionosphere.

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