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Investigation of Ionospheric and Ground Level Signatures of Geomagnetic Storms over Turkey

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We study the ionospheric and ground signatures of geomagnetic activity over Marmara region in Turkey. In our study, we use ionospheric electron density measurements using Dynasonde measured in ITU Campus, Istanbul (41°N, 29°E), magnetic field measurements in İznik (40.43°N, 29.72°E) and magnetotelluric measurements of magnetic field and electric field in Bozcaada (37.5°N, 106°E). Combined measurements are utilized in search of the geomagnetically induced currents (GICs) and their connection to ionospheric variations for the selected geomagnetic storms. Variations in dB/dt which are used to refer to the GICs are determined and quantified. Accompanying variations in electron density and electric field will be revealed and the deviations from the quiet day will be presented. Although strong GICs are mostly reported to exist over high latitudes, depicted based on the dB/dt variations, we show that they are also present over mid-latitudes where Turkey is located at. At the meeting, we will present our first results based on our measurements and discuss the physical causes of the variations observed.