ON DEVELOPING A NEW IONOSPHERIC PERTURBATION INDEX FOR SPACE WEATHER OPERATIONS

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The ionosphere plays an active role in the complex SunEarth relationship and the space weather manifestation. Hence, permanent monitoring of the ionosphere state is required for reliably managing radio systems using ionospheric or transionospheric propagation. In order to efficiently operate and further improve the functionality of such systems, key information on the ionosphere condition is needed, most of all the level of ionosphere perturbation. Presented here is the analysis of selected events of strong disturbances observed with techniques using Global Navigation Satellite Systems (GNSS). As a result of this analysis, proposed is a new ionospheric perturbation index for possible use in the satellitebased navigation and positioning. Discussed are potential applications of the index and its relation to the traditional geomagnetic activity indices. It is believed that the standardisation and usage of the proposed perturbation index together with other indices of similar nature can prove helpful in reducing the space weather impact on the GNSS-based navigation and positioning.