

Performance Indicator Application Development To Address The Impact Of Space Weather On GNSS

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Abstract

Within the ESA Space Weather Service Network, the development of Global Navigation Satellite System (GNSS) performance indicators is deemed crucial to meet the increasing end-user needs for space weather information in the navigation domain. Hence, a dedicated analysis of space weather-related disturbances of technical systems and services in the field of satellite-based navigation is required, taking the different user domains in this field into account. In the SWIGPAD project an application to provide GNSS performance indicators for different use cases are implemented, based on existing data made available by various European research institutes through the ESA Space Weather Service Portal (available at <https://swe.ssa.esa.int>). The representative use cases have been designed by industry and government experts in dedicated user sessions. The application provides users with information on current and expected impacts of space weather on positioning at their particular location. It also presents end users in the various GNSS application domains with a comprehensive numerical and graphical representation of the estimate of position uncertainty resulting from ionospheric conditions and its evolution over time. This talk presents the results of the SWIGPAD project.