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The European Ionosonde Service: current status, performance assessment and development needs

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The European Ionosonde Service (EIS) is a federated service belonging to the Expert Service Center Ionospheric Weather (I-ESC) of the Space Situational Awareness (SSA) Programme - Space Weather segment of ESA. EIS operates since 2014 and releases a set of products to characterize the bottomside and topside ionosphere over Europe. EIS is based on a set of prediction models driven by data from ground based DPS4 and DPS4D ionosondes and supportive data from GNSS satellites and the ACE spacecraft. The service monitors the critical frequency foF2 and the bottomside electron density, extrapolates the electron density profile up to the height of the Global Navigation Satellite System (GNSS) at European middle and high latitudes. EIS releases maps for nowcasting, forecasting and long-term planning purposes and provides estimates for forthcoming disturbances mainly triggered by geo-effective Coronal Mass Ejections (CMEs). The performance of models implemented by EIS has been validated and based on these results, it was possible to issue together with the products, quality metrics characterizing the product's reliability. The EIS products meet the requirements of various SSA service domains, especially the transionospheric radio link and the spacecraft operations. In this contribution we present an assessment of the EIS performance and an outlook for improving existing products and developing new ones.