

RADIO OCCULTATION IONOSPHERIC PRODUCTS FROM GRAS ON BOARD METOP EPS SATELLITES: OVERVIEW AND VALIDATION

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Main objective of EUMETSAT is to monitor weather, climate and climate changes from space. In the last few years there has been also an increased interest in EUMETSAT's user community for ionospheric monitoring and space weather.

In the framework of the Metop-A end-of-life technology test campaign, EUMETSAT approved the extension of the GRAS vertical measurement's range into the lower and mid ionosphere (up to 300 km and up to 600 km) for a two months period experiment, during summer 2020. The experiment was successful. GRAS was able to provide a good set of ionospheric occultations without impacting the provision of occultation data to NWP centres and to users.

Metop-A reached its end-of-life and was deorbited in November 2021 but, thanks to the good results achieved, both the GRAS receivers on-board Metop-B and C have been configured on February 2022 to collect operationally data up to 300 km. There are also plans to provide operationally ionospheric occultation data to the users, starting from the end of 2022.

This contribution presents an overview of the ionospheric monitoring activities at EUMETSAT in the framework of its current and future radio occultation missions. In particular, it will provide details about the ionospheric products (ionospheric bending angles profiles, amplitude and phase scintillation indexes profiles and topside TEC) that EUMETSAT plans to generate and to make available to the users. Moreover, during 2021/2022 EUMETSAT funded a study (GIMA: Assessment of GRAS Ionospheric measurements for Ionospheric model assimilation), with the purpose of complementing the GRAS instrument assessment with an ionospheric data assessment, including processing of relevant ionospheric data for their future assimilation into ionospheric models. This contribution will also provide a summary of the results obtained within this study.