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ASTAREON: MEDOC LEO RADAR CAPABILITY FOR CATALOGUING AND SERVICES – PERFORMANCES AND PERSPECTIVES AFTER SIX MONTHS OF CONTINUOUS OPERATION

Abstract

ASTAREON is a French NewSpace company created in May 2023 dedicated to space safety and sustainability by providing LEO SSA data and services, based on its own radar capability. ASTAREON is based on an experienced core team of longtime SSA experts coming from ONERA and having all worked on GRAVES, the French operational military SSA radar system.

Associated to ONERA teams, ASTAREON has developed, qualified and now operates its own radar system MEDOC. It is a passive VHF reception station generating measurements on LEO objects by using GRAVES transmitted signal. Working in a Track While Scan mode, it generates a massive flux of survey data. This data is transferred to a processing station performing tracking and cataloguing. The orbital data enables to autonomously create all the SSA products and services that will enable to secure space operations over all the lifespan of objects.

The first MEDOC station already provides orbital data on a 24/7 base. Preliminary settings show the generation of several hundred thousand measurements per day over more than nine thousand different objects.

The presentation will provide an overview of the first six months of operation of the station. After presenting the station itself, the associated performances obtained on the measurements and associated orbital data will be detailed, especially the coverage of the detected and catalogued population of LEO RSOs, associated to different use cases over the whole lifespan of objects. A focus will be made on timeliness of data and services accessible thanks to the pure survey capability, update rate of data and products being a key element for the support to space operations.

The incremental development of the services based on the development of the network of additional MEDOC stations will be presented, with an updated roadmap and forecasts of performances based on the feedback from the first station, as well as forecasts of possible additional functions and services linked to multistatic observations permitted by such new stations.