

## **AURORA H2020 project: Advanced Ultraviolet Radiation and Ozone Retrieval for Applications**

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AURORA is a three-year project funded by the European Union under the Call EO-2-2015, "*Stimulating wider research use of Copernicus Sentinel Data*", of the Horizon 2020 framework program.

The primary objective of the project is to exploit the complementary measurement capabilities of atmospheric ozone profile of the payloads of Sentinel-4 in geostationary orbit and of Sentinel-5 in Low Earth Orbit of the Copernicus program.

The AURORA activities will be based on simulated measurements of the atmospheric Sentinel missions. An innovative scientific approach and state-of-the-art technological solutions are currently under development to derive a unique geophysical product from operational ozone data from independent measurements of the same air masses simultaneously acquired in different spectral regions and with different observation geometries. New data fusion techniques will combine the information associated to the operational products of Sentinel-4 and Sentinel-5 instruments. Assimilation models will assimilate the ozone profile resulting from the fusion, in particular with the aim to combine the LEO and GEO products in a short-term forecasting model for ozone concentration. The project will focus on the lowermost layers of the atmosphere to determine ozone partial columns in the lower troposphere and the ultraviolet surface radiation.

A technological infrastructure, exploiting virtual machines and cloud data sharing, is created to implement the data processing chain with a geo-database and web-services for data access. The infrastructure aims to ensure the easiest access to the final products to stimulate a wider use of the vast amount of data expected from the atmospheric Sentinels from 2021.

For demonstration purposes, the AURORA project finally provides for the development of two downstream applications exploiting products derived from the fused and assimilated ozone profiles: parameters associated to the amount of ultraviolet surface radiation for personal UV dosimetry and lower tropospheric ozone for forecast and monitoring of air quality at metropolitan and regional scale.