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AURORA project: A challenge for synergistic exploitation of Sentinel-4/-5 ozone operational products

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An unprecedented quantity and quality of data on the Earth's atmosphere will become available with the launch of the Sentinel-4 and Sentinel-5 operational missions of the Copernicus Program by the early 2020. The extraordinary amount of information associated to the geostationary (S-4) and Low Earth Orbit (S-5) measurements will shed new light into our understanding of air quality, climate, ozone and solar radiation. The envisaged advancement in atmospheric monitoring capability and the need to manage the volume and complexity of the data stimulated the investigation of an innovative approach to synergistic exploitation of measurement products. The AURORA H2020 project (2016-2019) is currently developing, implementing and testing a new concept based on combined use of data fusion techniques and data assimilation models to derive advanced quality products for vertical profiling of ozone from the surface to the top of the atmosphere. The ultimate goal of the scientific and technological effort of the project is to demonstrate the comparative advantages of the assimilation of fused products versus assimilation of standard operational products. Advanced quality ozone profiles will then be used to calculate tropospheric partial columns and UV surface radiation products, which might foster the development of pre-market applications, for instance in the health sector. Along with the scientific background and core elements of AURORA, a synthetic insight will be offered into the technological infrastructure constituting at the same time the set of tools for building the system and the overall assembly as final product of the project in itself. The focus on applications will aim to describe their relevance for demonstration purposes, as well as in the perspective to possible follow-up of the concept extended to a variety of atmospheric targets and application sectors.

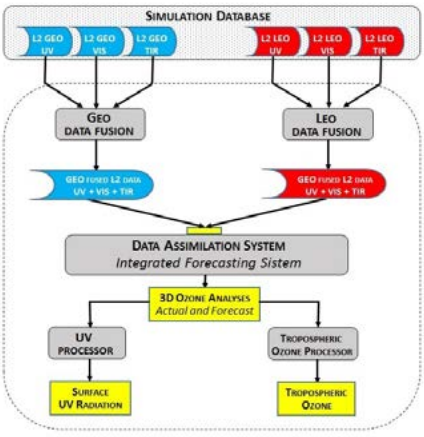

Figure 1 – The AURORA data processing chain

Biography

Ugo Cortesi is a Research Scientist with 25-years of experience in the field of Earth Observation and, in particular, in Remote Sounding of the Earth's Atmosphere. His activity is focused on a variety of subjects: "From design and development of atmospheric emission sounders, to engineering and scientific campaigns on-board high altitude platforms, to atmospheric data validation, to radiative transfer applied to forward and inverse modeling, to development and application of data fusion techniques". He is currently a member of the Mission Advisory Group of Sentinel-4 and Sentinel-5 and is acting as the Scientific Coordinator of the AURORA project funded by the European Commission in the Horizon 2020 Framework Program.

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