The Multi-Angle Polarimeter product and its co-registration in context of the Copernicus Anthropogenic CO2 Monitoring (CO2M) Mission product processing

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As part of the Copernicus Programme of the European Commission, the European Space Agency (ESA) and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) are expanding the Copernicus Space Component to include measurements for anthropogenic CO2 emission monitoring. CO2M will support well-informed policy decisions for assessing the effectiveness of strategies for CO2 emission reduction, as well as the reduction of uncertainties associated with current anthropogenic emission estimates at national and regional scales. Satellite measurements of atmospheric CO2, complemented by in-situ measurements and bottom-up inventories, will enable the transparent and consistent quantitative assessment of CO2 emissions and their trends at the scale of megacities, countries, and at global scale, by using advanced (inverse) modelling capabilities.

This presentation will show first results from the CO2M operational processing system developments ongoing at EUMETSAT. In particular we present the latest status on the centralised processing approach of Multi-Angle Polarimater (MAP), Cloud Imager (CLIM) and auxiliary data, co-located, co-registrated, and/or aggregated to the main CO2I/NO2I spectrometer footprint, and by this facilitating the creation of a three-sensor hyper-instrument for use in the downstream operational retrieval of GHG and NO2 total column concentrations. The MAP co-registration level-1C processor is a central part in the processing system and we will show first results of its perfromance along-side the central processing of auxiliary information.

Preferred mode of presentation: Invited