Overview of ESA initiative to couple TROPOMI CAL/VAL experience with new Copernicus Contributing Missions (CCM) measuring CH4 emission with very high spatial resolution

Deborah
Stein Zweers
KNMI, Royal Netherlands Meteorological Institute
Mahesh Kumar Sha, BIRA-IASB
Bavo Langerock, BIRA-IASB
Günther Lichtenberg, DLR
Angelika Dehn, ESA-ESRIN

Poster

As part of a recently launched European Space Agency (ESA) initiative, the expertise of the Copernicus Atmospheric Mission Performance Cluster (ATM-MPC) consisting of the core Sentinel 5-P Tropospheric Monitoring Instrument (S5P/TROPOMI) development team, is being coupled with relatively new commercial party missions aimed at measuring methane (CH4) emissions with very high spatial resolution. These new “small satellite” missions identified by ESA are the so-called Copernicus Contributing Missions (CCMs) and provide commercial Earth Observation data which complement the Sentinel missions.

Here, we give an overview of the primary aims of this collaboration namely to support CCMs with tailored data quality assessment and guidance while meeting new scientific challenges in developing methodologies to define metrics for high spatial resolution CH4 emission data. The main technical tasks for the ATM-MPC include development of best practices to address radiance validation, quality assessment of CCM data processing and (intermediate) data products, as well as guidance for field-based and routine validation. We will present case examples from the two parties currently in collaboration with the ATM-MPC. The GEISAT is the first in a series of microsatellite instruments launched by SATLANTIS which recently completed a commissioning phase. Absolut Sensing is another company currently preparing for launch of their first microsatellite scheduled for the end of 2024.

Lastly, we will present the broader goals of this Copernicus-based initiative where, the overall, long-term goal is to bring together a wide net of related activities including the forecasting and assimilation capabilities of the Copernicus Atmospheric Monitoring Service (CAMS). Since CAMS is an end user of validated TROPOMI data they will also develop methodologies in parallel to incorporate CCM data.

Poster PDF
stein-zweers-poster.pdf
Meeting homepage
IWGGMS-20 Workshop
IWGGMS-20 Category:
Calibration and validation
Download to PDF