Register and Abstract submission form

OBSERVATIONS WITHIN THE GLOBAL GREENHOUSE GAS WATCH, 3-5 October, Geneva, WMO HQ

1. Please provide your name and surname *

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2. Your affiliation *

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4. Please provide your preferred type of participation *

- (●) In person
- ( ) Virtual
- ( ) Not decided yet

5. Would you like to make a presentation at the meeting? *

- (●) Yes
- ( ) No
- ( ) Maybe

6. Please provide your preferred type of presentation

- (●) Oral

- ○ Poster
- ○ No preference

7. Please provide the title of your abstract

Fiducial Reference Measurements for Ground-Based Infrared Greenhouse Gas Observations

8. Please provide your abstract text

In the framework of ESA's Fiducial Reference Measurements for Ground-Based Infrared Greenhouse Gas Observations (FRM4GHG, https://frm4ghg.aeronomie.be) project, several portable low-resolution Fourier transform infrared spectrometers (FTIR) and a laser heterodyne Spectroradiometer (LHR) have been extensively tested, improved and characterized in comparison to reference measurements performed with Total Carbon Column Observing Network (TCCON) and AirCore. The low-resolution FTIR spectrometers, namely EM27/SUN, Vertex70 and IRcube showed excellent performance and demonstrated their ability of providing high quality data comparable to that of TCCON. These low-resolution spectrometers are useful to achieve a denser distribution of the ground-based stations, cover geographical gaps for various atmospheric conditions, source regions of special interest, and to create a large latitudinal distribution of stations. They form the basis of the Collaborative Carbon Column Observing Network (COCCON) and complement TCCON, thereby serving as the validation source for Nadir looking satellites measuring greenhouse gases and other climate relevant gases. In this presentation, we will present the low-resolution FTIR spectrometers, discuss further improvements planned, present an enclosure for automated operation, and discuss the use as a traveling standard instrument. The lessons learned from the FRM4GHG project, and its outcome will add to the existing observing systems of greenhouse gases and contribute to the comprehensive integrated observing system to support the implementation of the Global Greenhouse Gas Watch (GGGW).

9. And co-author(s)' name(s) (if have)

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