

---

# Measurement of greenhouse gases using in-situ and FTIR remote sensing at the Ile de la Réunion

Christian Hermans<sup>\*1</sup>, Mahesh Sha<sup>1</sup>, Martine De Mazière<sup>1</sup>, Francis Scolas<sup>1</sup>, Nicolas Kumps<sup>1</sup>, Jean-Marc Metzger<sup>2</sup>, Valentin Duflot<sup>2</sup>, Jean-Pierre Cammas<sup>2</sup>, Michel Ramonet<sup>3</sup>, and Delphine Combaz<sup>3</sup>

<sup>1</sup>Belgian Institute for Space Aeronomy / Institut d'Aéronomie Spatiale de Belgique (BIRA-IASB) – Institute for Space Aeronomy Ringlaan-3-Avenue Circulaire B-1180 Brussels, Belgique

<sup>2</sup>Observatoire des Sciences de l'Univers de La Réunion (OSU-Réunion) – Université de la Réunion, INSU, CNRS : UMS3365 – Université de La Réunion Bâtiment S4B 15 avenue René Cassin CS 92003 97744 Saint-Denis Cedex9, France

<sup>3</sup>Laboratoire des Sciences du Climat et de l'Environnement [Gif-sur-Yvette] (LSCE - UMR 8212) – Université de Versailles Saint-Quentin-en-Yvelines (UVSQ), CEA, CNRS : UMR8212 – France

## Résumé

Ile de la Réunion (21° S, 55° E) is a unique atmospheric observatory situated in the Indian Ocean in the southern Hemisphere which provides the possibility to measure the background atmospheric state as well as the influence of biomass burning in Madagascar, South Africa and South America depending on the wind direction. We perform in-situ surface measurements of greenhouse gas concentrations using Picarro instruments at Maïdo (2157 m a.s.l) and St. Denis (85 m a.s.l), as well as total column measurements using a Fourier-transform infrared solar absorption spectrometer of the type Bruker IFS 125HR at St. Denis. These latter measurements are performed within the framework of the Total Carbon Column Observing Network (TCCON) which aims at precise and accurate measurements of total column abundances of greenhouse gases. Our TCCON site is one of the few (5) sites operated in the southern hemisphere. The data from our site are very valuable for satellite validation. For example, Reunion Island is often targeted by the ongoing OCO-2 mission. This talk will focus on the observations, the rapid data delivery of the St. Denis TCCON data that has been developed in the framework of the ICOS-INWIRE project and the calibration of the remote sensing data.

---

\*Intervenant