

6.197 Estimation of global methane fluxes using satellites, moving from GOSAT to TROPOMI.

Presenting Author:

Sander Houweling, SRON Netherlands Institute for Space Research, Earth Division, Utrecht, The Netherlands, s.houweling@sron.nl

Co-Authors:

Sudhanshu Pandey, SRON Netherlands Institute for Space Research, Earth Division, Utrecht, The Netherlands

Rob Detmers, SRON Netherlands Institute for Space Research, Earth Division, Utrecht, The Netherlands

Jochen Landgraf, SRON Netherlands Institute for Space Research, Earth Division, Utrecht, The Netherlands

Maarten Krol, Meteorology and Air Quality, Wageningen University, Wageningen, The Netherlands

Thomas Röckmann, Institute for Marine and Atmospheric Research Utrecht (IMAU), Utrecht University, Utrecht, The Netherlands

Ilse Aben, SRON Netherlands Institute for Space Research, Earth Division, Utrecht, The Netherlands

Abstract:

In the past years, there has been a large international scientific effort to develop instrumentation and data processing tools for estimating greenhouse gas emissions from satellite measurements. For methane these efforts concentrate currently on the use of data from the Japanese GOSAT instrument, which has been in orbit since 2009. Its value increases with each new year of data that is added to the record, covering most of the new phase of global methane increase, as well as important climatological disturbances in midlatitudes (e.g. the 2010 Moscow drought) and the Tropics (the 2010 Amazon drought, and ENSO). The interpretation of the data using models contributed strongly to the ongoing and sometimes heated discussions about the drivers of the renewed increase in global methane. We will discuss the main findings and limitations using GOSAT data. Meanwhile the community is preparing for the launch of Sentinel 5 precursor TROPOMI, which will complement GOSAT in the end of the year with a considerable improvement in measurement coverage. We will discuss the prospects of this new measurement capability for the quantification of methane emissions across a range of scales, and developments on the data processing side that will be needed to explore its full potential.