

IAF EARTH OBSERVATION SYMPOSIUM (B1)  
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Dr. Michael Buchwitz  
University of Bremen, Germany, buchwitz@uni-bremen.de

COPERNICUS CLIMATE CHANGE SERVICE (C3S) GLOBAL SATELLITE OBSERVATIONS OF  
ATMOSPHERIC CARBON DIOXIDE AND METHANE**Abstract**

Carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) are important atmospheric greenhouse gases (GHG) and, therefore, classified as Essential Climate Variables (ECVs). Previously, satellite-derived atmospheric CO<sub>2</sub> and methane CH<sub>4</sub> ECV data sets have been generated and made available via the GHG-CCI project of the European Space Agency's (ESA) Climate Change Initiative (CCI, <http://www.esa-ghg-cci.org/>). The latest GHG-CCI data set, Climate Research Data Package No. 4 (CRDP 4), covers the time period 2003-2015 and is available since February 2017. Currently, the production and provision of these data sets is being continued operationally via the Copernicus Climate Change Service (C3S, <https://climate.copernicus.eu/>), which is implemented by the European Centre for Medium-Range Weather Forecasts (ECMWF) on behalf of the European Commission. The C3S satellite greenhouse gas (GHG) sub-project is led by University of Bremen supported by University of Leicester (UK), SRON (The Netherlands) and CNRS-LMD (France). The first Climate Data Record (CDR) data set produced and delivered within the C3S framework covers the time period 2003-2016 and consists of column-average dry-air mole fraction CO<sub>2</sub> and CH<sub>4</sub> products, i.e., XCO<sub>2</sub> and XCH<sub>4</sub>, from SCIAMACHY/ENVISAT and TANSO-FTS/GOSAT. Furthermore, mid-tropospheric CO<sub>2</sub> and CH<sub>4</sub> mixing ratios from IASI Metop-A and Metop-B are part of this data set and mid-tropospheric CO<sub>2</sub> from AIRS. These data products will be made available in April/May 2018 via the Climate Data Store (CDS) of C3S. An overview about this new Earth Observation data set will be presented.