



## **Global satellite retrievals of the greenhouse gases carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>)**

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Carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) are the two most important anthropogenic greenhouse gases (GHG). Increasing atmospheric concentrations result in global warming. Despite their importance, our current knowledge with respect to their various natural and anthropogenic sources and sinks has significant gaps. This limits the reliability of climate predictions. The University of Bremen is leading two European projects aiming at the generation of high-quality satellite-derived atmospheric CO<sub>2</sub> and CH<sub>4</sub> data products. One is the GHG-CCI project of the European Space Agency (ESA) Climate Change Initiative (CCI, <http://www.esa-ghg-cci.org/>) and the other is a sub-project of the Copernicus Climate Change Service (C3S, <https://climate.copernicus.eu/>). The resulting satellite data sets start in 2003 with the SCIAMACHY instrument onboard ESA's ENVISAT satellite and they are available free of charge for all interested users. In this presentation and overview about these activities and the data products will be given focusing on CO<sub>2</sub> and on selected scientific achievements based on the use of these data products.