



The GHG-CCI Project to Deliver the Essential Climate Variable Greenhouse Gases: Current status

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The GHG-CCI project (<http://www.esa-ghg-cci.org>) is one of several projects of ESA's Climate Change Initiative (CCI), which will deliver various Essential Climate Variables (ECVs). The goal of GHG-CCI is to deliver global satellite-derived data sets of the two most important anthropogenic greenhouse gases (GHGs) carbon dioxide (CO₂) and methane (CH₄) suitable to obtain information on regional CO₂ and CH₄ surface sources and sinks as needed for better climate prediction. The GHG-CCI core ECV data products are column-averaged mole fractions of CO₂ and CH₄, XCO₂ and XCH₄, retrieved from SCIAMACHY on ENVISAT and TANSO on GOSAT. Other satellite instruments will be used to provide constraints in upper layers such as IASI, MIPAS, and ACE-FTS. Which of the advanced algorithms, which are under development, will be the best for a given data product still needs to be determined. For each of the 4 GHG-CCI core data products - XCO₂ and XCH₄ from SCIAMACHY and GOSAT - several algorithms are being further developed and the corresponding data products are inter-compared to identify which data product is the most appropriate. This includes comparisons with corresponding data products generated elsewhere, most notably with the operational data products of GOSAT generated at NIES and the NASA/ACOS GOSAT XCO₂ product. This activity, the so-called "Round Robin exercise", will be performed in the first two years of this project. At the end of the 2 year Round Robin phase (end of August 2012) a decision will be made which of the algorithms performs best. The selected algorithms will be used to generate the first version of the ECV GHG. In the last six months of this 3 year project the resulting data products will be validated and made available to all interested users. In the presentation and overview about this project will be given focussing on the latest results.