

GHG-CCI QSR January-March 2016

1. Overall progress

During the reporting period the project proceeded as planned. No major issues have been identified. Focus of the reporting period was on generating all remaining documents (e.g., CECRs, PVIR) for the new data set Climate Research Data Package No. 3 (CRDP#3). As planned, CRDP#3 along with the relevant documents (e.g., ATBDs, PUGs, CECRs, PVIR) has been released in February 2016. The data set and its documents are publicly available via the GHG-CCI website (<http://www.esa-ghg-cci.org/> -> CRDP (Data)). An ongoing activity is to finish the “Climate Assessment Report” CAR using CRDP#3, which is a document written by the GHG-CCI Climate Research Group (CRG), which consists of 7 European institutions. The final draft of CARv3 is available for project internal final review. CRDP#3 and its documents incl. The draft CAR will be presented at the GHG-CCI 2nd Annual Review Meeting (ARM2), which will be held at ESRIN on 14-15 April 2016. The final version of CARv3 will be released shortly after ARM2.

2. Outreach / impact

During the reporting period the data set has been promoted at various conferences and workshops, e.g., at the “3rd Carbon from Space Workshop” (26-28 January 2016, University of Exeter, UK) and at the GCOS conference “Global Climate Observation – The road to the future” (2-4 March 2016, Amsterdam). The GHG-CCI data sets are used by many users (see below) and have been used in several new publications (see below).

3. Additional data applications

So far the GHG-CCI data products have been primarily used to obtain information on CO₂ and CH₄ sources and sinks. Other applications are comparisons with / improvements of climate models. The GHG-CCI team therefore started generating products in Obs4MIPs format. A first test XCO₂ data set has been generated and made available to DLR (to Dr. Veronika Eyring, Chair of the Coupled Model Intercomparison Project (CMIP) Panel). The GHG-CCI team started iterating with DLR on the exact product content and how to optimally use this product for climate model comparisons. DLR presented first comparison results at the 6th CCI CMUG Meeting (14-16 March 2016, LMU, Munich).

4. Technical information

4.1 Publications since last QSR

Feng, L., P. I. Palmer, R. J. Parker, N. M. Deutscher, D. G. Feist, R. Kivi, I. Morino, and R. Sussmann, Estimates of European uptake of CO₂ inferred from GOSAT XCO₂ retrievals: sensitivity to measurement bias inside and outside Europe, *Atmos. Chem. Phys.*, 16, 1289-1302, doi:10.5194/acp-16-1289-2016, 2016.

Kulawik, S., D. Wunch, C. O'Dell, C. Frankenberg, M. Reuter, T. Oda, F. Chevallier, V. Sherlock, M. Buchwitz, G. Osterman, C. E. Miller, P. O. Wennberg, D. Griffith, I. Morino, M. K. Dubey, N. M. Deutscher, J. Notholt, F. Hase, T. Warneke, R. Sussmann, J. Robinson, K. Strong, M. Schneider, M. De Maziere, K. Shiomi, D. G. Feist, L. T. Iraci, J. Wolf, Consistent evaluation of ACOS-GOSAT, BESD-SCIAMACHY, CarbonTracker, and MACC through comparisons to TCCON, *Atmos. Meas. Tech.*, 9, 683-709, doi:10.5194/amt-9-683-2016, 2016.

Massart, S., A. Agustí-Panareda, J. Heymann, M. Buchwitz, F. Chevallier, M. Reuter, M. Hilker, J. P. Burrows, N. M. Deutscher, D. G. Feist, F. Hase, R. Sussmann, F. Desmet, M. K. Dubey, D. W. T. Griffith, R. Kivi, C. Petri, M. Schneider, V. A. Velasco, Ability of the 4-D-Var analysis of the GOSAT BESD XCO₂ retrievals to characterize atmospheric CO₂ at large and synoptic scales, *Atmos. Chem. Phys.*, 16, 1653-1671, doi:10.5194/acp-16-1653-2016, 2016.

Full publication list please see: <http://www.esa-ghg-cci.org/> -> Publications (note that publications with GHG-CCI funding explicitly acknowledged are marked with (*) on that website).

4.2 Number of users

Since mid 2011 GHG-CCI is recording the number of users of the GHG-CCI core (ECA) data products. This includes users who registered via the GHG-CCI website and some other websites (maintained historical websites and CCI Open Data Portal). The number of users is (status 31-March-2016): 443 (during reporting period: GHG-CCI website: 17; CCI Portal: 8).

*** End of Report ***