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GHG-CCI Quarterly Status Report (QSR) #23

Reporting period: April-June 2016; Version: 6 July 2016

GHG-CCI QSR April-June 2016

1. Overall progress

During the reporting period the project proceeded as planned. No major issues have been identified. The second Annual Review Meeting (ARM2) has been successfully held at ESRIN mid of April 2016. Shortly after that meeting the final version of the GHG-CCI Climate Assessment Report version 3 (CARv3, http://www.esa-ghg-cci.org/?q=webfm_send/318) based on GHG-CCI Climate Research Data Package No. 3 (CRDP3; released in Feb. 2016) has been released. Focus of the reporting period was on generating the first versions of the GHG-CCI XCO_2 and XCH_4 data products in Obs4MIPs (https://www.earthsystemcog.org/projects/obs4mips/) format (gridded (Level 3), monthly, 5^ox5^o) based on CRDP3. These new products and the corresponding TechNotes are available from the GHG-CCI website (http://www.esa-ghg-cci.org/ -> CRDP (Data)). These products and their documentation have been officially approved by the Obs4MIPs panel. Aspects such as DOIs and transfer to ESGF are being dealt with by the ESA CCI Open Data Portal project. Other ongoing activities are algorithm improvements in the context of generating the next version of the CRDP (CRDP4). During the reporting period the GHG-CCI data sets have been promoted at various conferences and workshops, e.g., at EGU (17-22 April 2016, Vienna, Austria), at the ESA LPS in Prague (9-13 May 2016) and at IWGGMS-12 (7-9 June 2016, Kyoto, Japan). Based on results shown by M. Buchwitz at ESA's LPS, ESA has compiled an interesting webstory, see http://m.esa.int/Our_Activities/Observing_the_Earth/Methane_and_carbon_dioxide_on_the_rise.

2. Final achievements

The current project (GHG-CCI Phase 2) ends end of February 2017. The final achievement in terms of product generation will be Climate Research Data Package No. 4 (CRDP4) covering the time period (end of) 2002 to end of 2015. As for previous CRDP versions it is expected that also this final data set will be used for many scientific assessments and publications related to the sources and sinks of atmospheric CO_2 and CH_4 (see http://www.esa-ghg-cci.org/ -> Publications). GHG-CCI team members have submitted a proposal for the operational generation of satellite-derived CO_2 and CH_4 ECV products within C3S. Nevertheless, also in the future it is mandatory to continue with R&D activities to further improve the product quality (not all user requirements are met yet (see user assessment in CARv3)), to deal with instrument degradation and to consider other existing (e.g., OCO-2) and future (e.g., TanSat, S5P) sensors.

3. Technical information

3.1 Peer-reviewed publications since last QSR:

Pandey, S., S. Houweling, M. Krol, I. Aben, F. Chevallier, E. J. Dlugokencky, L. V. Gatti, E. Gloor, J. B. Miller, R. Detmers, T. Machida, T. Roeckmann, Inverse modeling of GOSAT-retrieved ratios of total column CH_4 and CO_2 for 2009 and 2010, Atmos. Chem. Phys., 16, 5043–5062, doi:10.5194/acp-16-5043-2016, 2016.

Turner, A. J., D. J. Jacob, J. Benmergui, S. C. Wofsy, J. D. Maasakkers, A. Butz, O. Hasekamp, and S. C. Biraud, A large increase in U.S. methane emissions over the past decade inferred from satellite data and surface observations, Geophys. Res. Lett., 43, 2218–2224, doi:10.1002/2016GL067987, 2016.

Zhou, M., B. Dils, P. Wang, R. G. Detmers, Y. Yoshida, C. W. O'Dell, D. G. Feist, V. Velazco, M. Schneider, M. De Mazière, Validation of TANSO-FTS/GOSAT XCO_2 and XCH_4 glint mode retrievals using TCCON data from near-ocean sites, Atmos. Meas. Tech., 9, 1415-1430, 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).

3.2 Number of users

The number of users since mid 2011 is (status 30-June-2016): 469 (during reporting period: access via GHG-CCI website: 21, via CCI Open Data Portal: 5).

*** End of Report ***