SCIAMACHY Quality Working Group (SQWG-3)

Progress Meeting 5

SRON, Bleeker zaal

24 November 2015, 14:00 – 18:00
25 November 2015, 09:00 – 11:15

Minutes

Participants:
K. Bramstedt, S. Noël, P. Liebing (IUP)
A. Dehn, G. Brizzi (ESA)
A. Keppens (BIRA-IASB)
G. Lichtenberg (DLR Oberpfaffenhofen)
R. Snel (SRON)

The draft agenda (see `00_SQWG3_PM5_Agenda_v1.pdf)` was accepted.

1 Project Status

1.1 General/contractual issues

1.1.1 CCN

- A draft version of the Statement of Work (SoW) regarding the extension of the project to include verification/validation of reprocessed products has been sent out to IUP and BIRA, comments shall be sent to A. Dehn.
- It is recommended that also some additional funding is foreseen for the SQWG partners to look into the quality of the reprocessed data products, to support the validation activities and to provide feedback on the validation results.
- The data sets to be validated will be:
  - L2v6 reprocessed
  - L2v7 DDS
  - L2v7 reprocessed
- Some new data products (like CH4) require a full month for verification.

AI-PM5-01 IUP & BIRA: Check if it is required to extend the current verification data set to include new products (limb clouds, tropospheric BrO, nadir CH_4) and to consider their validation in the context of the CCN.

- All data will be provided in the old format except for the final reprocessed data set, which will be in the new NetCDF-4 format.
- Estimated time to reprocess the full L2v7 data set will be 3-4 months; even the DDS generation will take a significant time. A possible option to have earlier data could be to use the L2V6 data base for the generation of the L2V7 DDS. This depends on the L1 changes and needs to be checked.

- The final list of products to be validated shall be sent to DLR.
- A common proposal from Bremen with BIRA inputs shall be submitted after agreement on the SoW. The goal is to have a first proposal until Christmas.

1.1.2 (National) funding status

- SRON status:
  No additional funding, a cost neutral extension maybe possible, but since only few work after MTR is planned no large impact on the project is foreseen.
- IUP status:
  IUP has asked for an extension of the national funding by one year, waiting for response. Without additional funding the baseline activities will still be possible, but scientific products and consolidation/documentation of errors will be affected.
- DLR-IMF status:
  Internal payment procedures have changed, such that extra work and outreach activities may not be possible. However, no current work packages are affected. The sub-contract between IUP and DLR is still not in place due to liability clause discussions, but will hopefully be signed by the end of this year.

1.2 Status reprocessing L1V8, L2V6

Presentations by G. Brizzi & G. Lichtenberg
(see: `01_SQWG3-PM5_ESA_on_reprocessing.pptx`, `02_sgp-l01-status-pm27.pdf`)

- The new baseline has been developed and tested, FAT was successful.
- Delta reprocessing will be done at DLR-IMF and D-PAC. It will start soon and take about 6 days (plus about 1 week for quality checks). There will be a new stage counter 0002. Total amount of new data will be < 2 TB.
- Corrupted states will be skipped; especially 3 products have been removed from the cL0 data set (wrong state ID, duplicated states).
- Also orbits between 18 June 2002 and 2 Aug 2002 will be processed (using the 1st m-factors by extending their validity time),
- ESA will provide a list of the complete valid L1V8 data such that local archive can be verified.
- Known issues will be included in the README file.
- L2 reprocessing is currently on hold, it will start after the complete L1 data set is available. About 4 month processing time is expected, total L2 data set will be about 2 TB. An early access to L2 data by the team (e.g. after one year is processed) will be possible.

2 Level 1 Results

Presentation by G. Lichtenberg
(see: `02_sgp-l01-status-pm27.pdf`)

2.1 WP2160: Individual pixel characterization for DBPM chsaracterization

- Implementation and verification have been successfully done.

2.2 WP2220: Investigate/improve dark correction

- Everything is technically implemented.

- Open: Update of the SRON DB, to be delivered after ESM diffuser investigations (probably by end of this year)
- An additional final test (apply dark correction on dark measurements) is planned .

2.3 WP2240: Investigate/improve spectral calibration ch 6+

- Unlikely to be implemented before MTR.

2.4 WP2250: Investigate/improve spectral calibration ch 8

- Corresponding keydata have been exchanged, implementation completed.

2.5 WP2270: Investigate/improve pointing

- Expected to be implemented before MTR.
- For verification a comparison between IUP and DLR results will be performed
- An additional check of the mispointing angles (nadir polarization effect) will be done independently by IUP.

2.6 WP2120: Investigate/improve ESM diffuser solar reference spectra

- Will be included in the update of the degradation/mirror model, expected inputs until end 2015.

2.7 WP2140: Investigate/improve degradation correction

- Planned start of implementation January 2016, to be done until MTR (some schedule risk).

2.8 WP2150: Investigate/improve polarisation key data

- No new keydata foreseen, therefore completed.

2.9 WP2260: Investigate/improve polarisation determination and correction

- GOME-CHEOPS implementation is ongoing, planned to be finished this year.
- Other changes can most likely not be implemented before MTR.
- Several open issues need to be clarified, especially the following is required:
  - A proper justification for the change. This should be done by showing the impact of the new procedure on the limb radiance (e.g. 350 nm feature).
  - A recommended procedure for the implementation without options. This should also include the limb UV polarization part (with reference to corresponding TN).

AI-PM5-02 IUP(PL): Update the polarisation TN (add sections on justification and implementation), due date: **10 December 2015**

- A decision about the implementation will be made at the MTR.

2.10 Implementation Schedule:

- Currently, earliest date for MTR would be 3 February 2016; any delay may change this date.
- An implementation of the new polarization algorithms would take about 1.5 months (starting at MTR) – TBC.

3 Level 2 Results

3.1 WP3140: Limb cloud flagging

- The corresponding TN will be checked by DLR, possible changes (e.g. additional error on reflectance) shall be communicated to DLR until mid January 2016 via an update of the TN.

3.2 WP3240: Tropospheric BrO

Presentation by G. Lichtenberg
(see: `03_SQWG3_PM5_BrOtropo_25nov2015.pdf`)

- Major problem is still that snow/ice pixels are identified as clouds by SPICI.
- Modified filters/checks have been implemented to identify ice. This is mainly to get results closer to the BIRA results (which use FRESCO).
- Checks should also be performed for an additional day (early date, before larger degradation effects occur).

3.3 Nadir Methane L2v6 verification results

Presentation by G. Lichtenberg
(see: `04_L2proc_CH4.pptx`)

- First L2v6 CH_4 products are available, they look reasonable compared to SRON and IUP results and GMD stations.

4 General

4.1 New product format

- The new product format will only be used for the final data sets.
- The new L1 format is along the line with the GOME1 product, the new L2 format will orient on the S5p product.
- Documentation describing the new formats will be provided until end of the year.
- The format should to be fixed at MTR.
- It is planned to use updated CFIs for the processing (multi-threading capability).

AI-PM5-03 DLR: Check if test products (L1 and L2) can be provided.

AI-PM5-04 DLR: Check if complete geolocation information for moon measurements (as for limb) can be included in the new L1 products.

4.2 Status of AIs

Presentation S. Noël
(see: `05_SQWG3_PM5_AIs_Schedule.pptx`)

(Note: naming of AIs in table is wrong, all open AIs are from PM4, not PM3)

- AI PM4-3 still open, to be closed by delivery of updated SRON dark data base.
- AI PM4-3 closed (draft TN delivered).

- AI PM4-9 (MTR doodle) still open.
- AI PM4-10 (value of ozone drift) still open (requires reprocessed L2 data).

4.3 Schedule / Work Plan

Presentation S. Noël
(see: `05_SQWG3_PM5_AIs_Schedule.pptx)`

- For L1, all planned changes (except polarisation and ch. 6+ wavelength calibration, see above) can be implemented until MTR.
- Some WPs which were originally planned to start before MTR can only start after MTR, because they depend on the new baseline.
- Some WPs are endangered by missing national funding (see above).

4.4 Preparation of MTR (ESRIN)

- Based on the current schedule for the implementation activities (see above) it has been decided to have the MTR end of February 2016; AD will set up a doodle (AI PM4-9).
- Possibly additional people from ESRIN may participate
- The draft agenda (see `06_SQWG3_MTR_Agenda_draft0.pdf)` was discussed and generally agreed.
  Specific comments:
  - A summary of L2V6 validation results will be given by BIRA (under point 3).
  - Implementation status will be presented by DLR (with inputs from the team).
  - L1 verification results will be included in the L1 WP presentations by DLR.
  - Phase 2 planning should be done before the MTR and then mainly presented there.

- Begin of February a telecon is planned to discuss the strategy for Phase 2.
- Draft versions of the MTR presentations (esp. those related to schedule/planning) should be available beginning of February as input for this telecon.

4.5 AOB

- ESA plans an initiative to continue improving historic data sets (to be proposed for the ministerial conference end of 2016). In this context, a limb/occultation expert meeting is planned. Outcome of this meeting should be recommendations on future working areas using a combination of instrument teams. Participants from SCIAMACHY/SQWG side need to be clarified.
- Additional conferences relevant for SQWG in 2016 are the Living Planet Symposium and ACVE.
- An SSAG meeting is planned for 2016. This should be after the MTR and possibly also after the limb/occultation expert meeting.
- Quality of Nadir CO:
  The SRON CO algorithm is more complex than the current operational algorithm and produces better results. A change of the operational algorithm is currently out of scope, but may be discussed after the MTR depending on schedule/resources.