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Session 4

Task Team on Ancillary Measurements (TTAM) progress report for Feb. 2014

(Submitted by Tony Reale & Thierry Leblanc)

Summary and Purpose of Document

Progress report from the task team Ancillary Measurements.

Task Team on Ancillary Measurements (TTAM) progress report for Feb. 2014

SUMMARY

The task team on ancillary measurements oversee the production and integration of ancillary measurements in compliance with GRUAN best measurement practices. These are defined respectively for MWR, FTIR and lidar ground measurements. Satellite observations also provide a source of ancillary measurement and their integration for use in overall validation, weather and climate applications is facilitated by the team.

During the last year, there has been slow progress in several areas assigned to the Task team: as part of the future GRUAN Lidar data stream, a beta-version of LidarRunClient utility was developed and tested for the Payerne lidar. This utility is the lidar-equivalent of the already operational RsLaunchClient used by GRUAN for radiosonde data. Still on the lidar side, a comprehensive review of measurement and algorithm uncertainties is now nearly completed (final report under revision by ISSI Team), and three AMT papers are in preparation. The outcome of the ISSI Team will be used to update and finalize the GRUAN Best Measurement Practices and Lidar Guidelines document untouched since spring 2013. On the Microwave and FTIR sides, similar Best Measurement Practices and Guidelines documents are being written, with a potential submission date to GRUAN-WG matching that of the Lidar document, i.e., Fall 2014. A comprehensive review of the FTIR uncertainty budget is nearly completed, and will be used for the GRUAN FTIR Guidelines. The TT-AM members have confirmed the appropriateness of including an AERI representative in to TT-AM (namely J. Gero) to work on the development of a potential GRUAN AERI Product. On the satellite side, the integration of hyper-spectral and microwave satellite based radiances into the ground/satellite collocation datasets and specific use of "uncertainty" in satellite product analysis were completed including infrastructure to append ancillary measurements as available. Advances in the computation of site atmospheric state best estimates (SASBE) were achieved.

The composition of the task team has changed as follows:

Martine de Mazière, co-Chair of the NDACC, has joined the TT-AM to enhance NDACC-GRUAN collaborations, and to bring her long-time expertise in FTIR measurements. Jonathan Gero (U.Wisc.) has been invited to join the Task Team to work on the development of a GRUAN AERI product.

Progress on Current Tasks:

(task numbers listed according to Master Action Item List available at:

<https://docs.google.com/spreadsheet/ccc?key=0Aq9hAcrcg9GtdEJDZkRWdGtUQXZ1YjZQNjJTLUUyYUE&usp=sharing>)

Task (0); Product / Sensor Inventory: Survey current and legacy satellites, sensors and associated nrt (weather) and post processed (climate) derived satellite products for atmospheric temperature and moisture profiling suitable for validation and application in determining atmospheric column at a given GRUAN site.

Main Contact:	Reale / Schroder	Due Date:		Status:	Ongoing
Milestone:	Spread sheet of satellites, sensors and products suitable for site bases analysis				
Progress:	Coordination with 2 nd Workshop GEWEX water vapor assessment (G-VAP)				
Issues:	Restore to Master Action List?				

Task (5): Retain Collocated Radiances: Retain radiances associated with satellite products collocated with GRUAN reference (NPROVS+)

Main Contact: T. Reale **Due Date:** Feb 2013 **Status:** Ongoing
Milestone: Complete satellite collocation data record containing derived profiles and "all" associated radiance data within 500km of ground target for selected sat/sensor combination
Progress: Data now routinely stored for CrIS, ATMS onboard S-NPP with infrastructures in place for VIIRS, MetOp (IASI, ATMS, AVHRR) and EOS Aqua (AIRS, AMSU, MODIS)
Issues:

Task (7): SASBE at Satellite Overpass

Main Contact: Dykema /Reale **Due Date:** April, 2014 **Status:** Ongoing
Milestone: Routine SASBE in at each site at time of satellite overpass for T and H2O vapor for use in satellite product validation; weather
Progress: SASBE (from Tobin) compared to various RAOB combinations and differences analysed using satellite averaging kernels computed for 6 month test data set from SGP
Issues:

Task (8): Generic SASBE

Main Contact: Dykema **Due Date:** Dec 2016 **Status:**
Milestone: Routine SASBE at each site for climate monitoring
Progress: Defined as routine SASBE any time RAOB in launched for use in climate monitoring, focused on temperature and H2O vapor profile
Issues: Reference processing of dedicated sonde desired

Task (10): Feedback to LC on RS92 storage, performance

Main Contact: Sommer / Reale **Due Date:** Feb, 2013 **Status:** Ongoing
Milestone: Set up mechanism for routine feedback to LC
Progress: Interaction among LC and NOAA STAR staff established, issues identified, routine program under development
Issues: Various sources of data from ARM sites, ie synoptic vs dedicated RAOB, are ambiguous

Task (36): FTIR best measurement practices and suitability of equipment (FTIR Guidelines)

Main Contact: J. Hannigan **Due Date:** ICM-5 **Status:** Ongoing
Milestone: When first draft submitted
Progress: TT5 FTIR experts will work on a first draft following principles applied in Lidar Guidelines doc. De Maziere, Schneider & Hannigan met and created an outline but no further action to date. Action is still in process.
Issues: Slow progress due to time availability

Task (39): Examine FTIR and IASI Retrievals and Products long-term consistency (2007-2012):

Main Contact: M. Schneider **Due Date:** 2016 **Status:** Ongoing
Milestone: Feb. 2011: start of MUSICA (<http://www.imk-asf.kit.edu/english/musica>)
Progress: Examine long-term consistency (the whole IASI period: 2007-2012)
Issues: Pending coordination with NPROVS

Task (43): Microwave radiometer best measurement practices and suitability of equipment (Microwave Radiometer Guidelines)

Main Contact: N. Cimini **Due Date:** ICM-5 **Status:** Ongoing

Milestone: Spring 2013: Updated draft due
Progress: Large amount of material collected from MWRnet activities, and to be compiled for use in the GRUAN Microwave guidelines. First draft delivered Feb 2013 (V0.4).
Issues: Behind schedule

Task (44): Inventories of Potential Instruments (Microwave)

Main Contact: N. Cimini **Due Date:** Recurring **Status:** Ongoing
Milestone: Last: 2nd Workshop, March 2011; Next: TBA
Progress: Six new unit-members have joined MWRnet since last update
- St.Petersburg State University, St.Petersburg, Russia
- NERSC, Bergen, Norway
- KIT/IMK-IFU, Karlsruhe, Germany
- AWI, Potsdam, Germany
- Institute of Heavy Rain, China Meteorological Admin., Wuhan, China
- MeteoFrance, Toulouse, France
Issues: None

Task (45): Validation Strategies and Results (Microwave)

Main Contact: N. Cimini **Due Date:** Recurring **Status:** Ongoing
Milestone: 18-20 March 2014: First TOPROF WG meeting (Payerne)
Progress: Validation statistics are available for some GRUAN sites and will be reported on GRUAN microwave radiometer guidelines. Observation minus model background (O-B) statistics at selected GRUAN sites are planned within the EU COST Action TOPROF (first WG meeting: 18-20 March 2014).
Issues: None

Task (53): Report on lidar products and uncertainty budgets developed by the ISSI Team on NDACC lidar algorithms

Main Contact: T. Leblanc **Due Date:** Summer 2013 **Status:** Not yet started
Milestone: When main Report and AMT papers are published (2014)
Progress: Main Report under revision by ISSI team and 3 AMT papers in preparation.
Issues: Huge quantity of results, taking longer than expected to compile

Task (52): Paper describing GRUAN lidar products submitted for peer review

Main Contact: T. Leblanc **Due Date:** Late 2014 **Status:** Not yet started
Milestone: When published (2014-2015)
Progress: Not yet started
Issues: Pending completed Guidelines and data processing software

Task (51): Technical documents submitted for review by WG-GRUAN

Main Contact: T. Leblanc **Due Date:** Summer 2013 **Status:** Ongoing
Milestone: When submitted to GRUAN-WG
Progress: None in 2013.
Issues: Delayed due to lack of funding/availability

Task (54): Suitability of Equipment: Best Measurement Practices (Lidar Guidelines)

Main Contact: T. Leblanc **Due Date:** ICM-5 **Status:** Ongoing
Milestone: When final version released (fall 2014)

Progress: Guidelines doc. proposes an overall structure allowing full traceability of instrument and data processing changes. First draft reviewed. Now under revision. Next expected review: October 2014; Expected completion: ICM-7.
Issues: Delayed due to lack of funding/availability

Task (55): Interface with other expert teams: EARLINET Centralized Algorithm (lidar)

Main Contact: A. Apituley **Due Date:** TBA **Status:** Ongoing

Milestone: Aug 2012: First report due

Progress: The EARLINET single calculus chain (SCC) has now been upgraded to a more operational level. All EARLINET groups can now upload data. Since WV Raman lidars should be able to provide aerosol data as well from the nitrogen Raman channel, a possible coupling could be established between the LidarRunClient (for WV) and aerosol – through SCC.

Issues: None to date

Task (60): Suitability of Equipment: AERI as a potential GRUAN FTIR instrument (FTIR)

Main Contact: J. Hannigan **Due Date:** TBA **Status:** Ongoing

Milestone: Aug 2012: First report due

Progress: No inventory at the moment. However, successful contacts with J. Gero in 2013. TT-AM FTIR expert recommend AERI representative to be added to TT-AM, coordinate current AERI operations, and formulate reasonable plans for inclusion into GRUAN

Issues: None to date