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GLOBAL CLIMATE OBSERVING  
SYSTEM (GCOS)

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**5th GRUAN Implementation-  
Coordination Meeting (ICM-5)**

De Bilt, Netherlands  
25 February – 1 March 2013

Session 3

## **Task Team 5 (Ancillary Measurements) progress report 01/2013**

*(Submitted by Thierry Leblanc and Tony Reale)*

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### **Summary and Purpose of Document**

Progress report from the task team 5 (Ancillary Measurements) covering period from 09/2012 till 01/2013.

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## **Task Team progress report for February 2013 - Ancillary Measurements (TTAM)**

### **SUMMARY**

This report is presented as an updated to the August 2012 report, noting:

- Lidar guidelines submitted to this task team will be presented at ICM-5.
- A draft document on microwave radiometer guidelines has been circulated by Nico Cimini et al.
- A draft document on FTIR guidelines is currently under preparation.
- Following a visit by Michael Sommer to the Table Mountain Facility in December 2012, a first version of LidarRunClient was worked on and Michael will present the outcomes at ICM-5. The first truth-testing will occur when the client is applied to the two lidars currently in operation within GRUAN including the Payerne lidar.
- The NPP product cal/val team was approached and is preparing to include available GRUAN profiles in the context of "reference" validation to assess product accuracy and/or adherence to specifications which would include use of available uncertainty estimates.

## **Task Team on Ancillary Measurements (TTAM) progress report for Aug. 2012 (Modified on Sept. 20, with changes relevant to tasks 2, 3, 5, 18, and 20)**

### **SUMMARY**

The GRUAN Task Team on Ancillary Measurements (TTAM) have not met or teleconned since the last report (February 2012). Two new tasks were added (19 and 20); #19 is the recent submission by Schneider et al. of an AMT-Discussion paper on the Characterisation of H<sub>2</sub>O products from 10 globally distributed NDACC-FTIR stations, #20 is planned development of GPROVS Phase 2 for integrated GRUAN and satellite profiles validation. Refer to “completed” and “ongoing” lists for all other tasks. The GRUAN-TTAM activities should gear up in the second semester of 2012, with the expected finalization of GRUAN Lidar Guidelines (currently under revision) and the elaboration of the Microwave and FTIR Guidelines (drafts due by ICM-5). As in previous reports, the tasks below are numbered in the order they were created. Tasks appearing in the “Completed” list will no longer appear in future reports. Tasks appearing in the “New” list will move to the “Ongoing” list only if they progress. Tasks newly defined but for which no progress was identified will remain in the list of “new” tasks until actual progress is reported.

### **TASKS COMPLETED SINCE PREVIOUS REPORT:**

#### **Task 2: Validation Strategies and Results (Satellite): Coordination with JPSS**

**Main Contact:** T. Reale                      **Due Date:** ICM-4                      **Status:** **Completed**  
**Milestone:** April 2011: Sounding Operational Algorithm Team (SOAT)  
**Progress:** Concurred with Suomi NPP cal/val team members and established commitment to pursue routine validation of NPP Environmental Data Record (EDR) for atmospheric temperature and moisture soundings at GRUAN sites using as benchmark the intensive satellite validation programs established at ARM sites.  
**Issues:** None

#### **Task 10: Validation Strategies and Results (Microwave): New Publication**

**Main Contact:** A. Haeefele                      **Due Date:** Recurring                      **Status:** **Completed**  
**Milestone:** Fall 2011: AMT-Discussion paper on suitability of microwave for NWS  
**Progress:** Löhnert, U. and Maier, O.: Operational profiling of temperature using ground-based microwave radiometry at Payerne: prospects and challenges, Atmos. Meas. Tech., 5, 1121-1134, doi:10.5194/amt-5-1121-2012, 2012  
**Issues:** None

#### **Task 13: GRUAN Manual Add-ons by TT5 in Secs. 6.4.2 and 7.1.4**

**Main Contact:** All TT5                      **Due Date:** ICM-4                      **Status:** **Completed**  
**Milestone:** Feb 2012: TT5 input returned  
**Progress:** “Scheduling” and “Remote sensing instruments” add-ons by TT5 now being finalized (to G. Bodeker)  
**Issues:** None

### **PROGRESS ON ONGOING TASKS:**

#### **Task 1: Inventories of Retrievals and Products from satellites**

**Main Contact:** T. Reale                      **Due Date:** ICM-4                      **Status:** Ongoing  
**Milestone:** ICM-4

**Progress:** Available legacy real-time derived satellite products have been identified for atmospheric temperature and moisture profiling suitable for validation exercises at GRUAN sites including those from newly deployed Suomi-NPP. Associated meta-data and climate oriented legacy products still being pursued

**Issues:** None

**Task 3: Validation Strategies and Results (Satellite): Satellite Products Cal/Val (NPROVS)**

**Main Contact:** Tony Reale      **Due Date:** ICM-5      **Status:** Ongoing

**Milestone:** October 2012

**Progress:** NOAA Products Validation System (NPROVS) to serve as baseline for developing dedicated interface to access, display and analyze GRUAN (radiosonde) observations via NCDC (and LC) ... GRUAN Products Validation System (GPROVS) Phase-1

**Issues:** Access to ECMWF (NWP) pinned to sonde

**Task 4: 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) and develop IASI land scene retrievals

**Issues:** Pending coordination with NPROVS

**Task 5: Products and Uncertainty Budgets (Lidar): ISSI Team on NDACC Lidar Algorithms**

**Main Contact:** T. Leblanc      **Due Date:** Summer 2012      **Status:** Ongoing

**Milestone:** August 2011: Standardization Tools for Vertical Resolution Validated  
Sept. 2012: Meeting #3 (on uncertainties)

Next milestone: Spring 2013: Docs released and Meeting #4

**Progress:** Vertical resolution: Tools available, Manual being written, due Oct. 2012. Results posted here:

[http://www.issibern.ch/teams/ndacc/private/NDACC\\_Tools\\_Vertical\\_Resolution.htm](http://www.issibern.ch/teams/ndacc/private/NDACC_Tools_Vertical_Resolution.htm) (currently, login needed, but eventually will become public). Tools for "NDACC-standardized" expression of uncertainties to be developed in the winter 2012/2013 (several docs available now).

**Issues:** Intensive work required for uncertainties

**Task 6: Products and Uncertainty Budgets (Satellite): Progress report on G-VAP**

**Main Contact:** M. Schröder      **Due Date:** Post 2013      **Status:** Ongoing

**Milestone:** Second workshop on the GEWEX water vapour assessment (G-VAP) announced: DWD, Offenbach, Germany, 26-28 Sept. 2012

**Progress:** The workshop preparation is well advanced. In a second circular the G-VAP co-chairs L. Shi (NOAA/NESDIS/NCDC), A. Gambacorta (NOAA/NESDIS/STAR) and M. Schroeder (CM SAF/DWD) distributed an invitation letter together with a data fact sheet to collect information on satellite and validation data records, Approximately 40 scientists registered for the workshop. The assessment was introduced at the International TOVS Science Conference in Toulouse, France. The next step is the distribution of the G-VAP road map and the workshop agenda

**Issues:** None

**Task 7: Inventories of Potential Instruments (Microwave)**

**Main Contact:** N. Cimini                      **Due Date:** Recurring                      **Status:** Ongoing  
**Milestone:** Last: 2<sup>nd</sup> Workshop, March 2011; Next: TBA  
**Progress:** No new unit has joined MWRnet since last update  
**Issues:** None

**Task 8: Validation Strategies and Results (Microwave)**

**Main Contact:** N. Cimini                      **Due Date:** Recurring                      **Status:** Ongoing  
**Milestone:** 14-16 march 2011: Second Meeting in Köln (EG-CLIMET)  
**Progress:** Validation statistics available for some GRUAN sites will be made available and reported on GRUAN microwave radiometer guidelines  
**Issues:** None

**Task 9: Validation Strategies and Results (lidar): New Publications**

**Main Contact:** T. Leblanc                      **Due Date:** Recurring                      **Status:** Ongoing  
**Milestone:** AMT Special Issue on MOHAVE-2009; Currently 4 papers published  
**Progress:** 1 paper in AMT-Discuss.: Whiteman et al. (ALVICE lidar), Two more papers to be submitted: McGee (STROZ lidar), and Toon et al. (FTIR).  
**Issues:** No progress since 2/2012 for McGee et al. and Toon et al. papers

**Task 11: Meta Data (Microwave)**

**Main Contact:** N. Cimini                      **Due Date:** None                      **Status:** Ongoing  
**Milestone:** TBA  
**Progress:** MWR data from most common units have been collected to start the activities on data and metadata format harmonization  
**Issues:** None

**Task 12: Suitability of Equipment: Best Measurement Practices (Lidar Guidelines)**

**Main Contact:** T. Leblanc                      **Due Date:** ICM-5                      **Status:** Ongoing  
**Milestone:** January 2012: Draft version 0.1 released  
**Progress:** Guidelines doc. proposes an overall structure allowing full traceability of instrument and data processing changes. First draft reviewed. Now under revision, including synchronization with latest version of GRUAN Guide. Next expected review: October 2012; Expected completion: ICM-5.  
**Issues:** TBA

**Task 16: 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:** T. Leblanc and A. Apituley met G. D'Amico at recent lidar conference. EARLINET Single Calculus Chain tested on several co-located lidars, but not yet extended to entire network. GRUAN-EARLINET interaction to be continued.  
**Issues:** None

**Task 17: 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:** J. Hannigan, together with D. Tobin, will investigate on the possibility to bring AERI instrument into GRUAN.  
**Issues:** progress unknown

**Task 18: Suitability of Deployed Equipment: Site Atmospheric State Best Estimate (SASBE)**

**Main Contact:** Tobin/Reale      **Due Date:** TBA      **Status:** Ongoing  
**Milestone:** December 2012: Progress report  
**Progress:** Special NPP validations underway at ARM sites being analyzed (D Tobin) to serve as possible benchmark to combine GRUAN ancillary and sonde measurements (including uncertainties) to calculate SASBE for atmospheric temperature and moisture with focus on NPP satellite FTIR/MW products validation  
**Issues:** Volunteers form GRUAN sites to provide synchronized sonde, ancillary profiles including at satellite overpass

**NEW TASKS AND PROGRESS TO DATE**

**Task 14: Suitability of Equipment: Best Measurement Practices (Microwave Guidelines)**

**Main Contact:** N. Cimini      **Due Date:** ICM-5      **Status:** New 2/2102  
**Milestone:** Fall 2012: First draft due  
**Progress:** Large amount of material collected from MWRnet activities, and to be compiled for use in the GRUAN Microwave guidelines  
**Issues:** Delays due to late release of GRUAN Guide and Lidar Guidelines

**Task 15: Suitability of Equipment: Best Measurement Practices (FTIR Guidelines)**

**Main Contact:** M. Schneider      **Due Date:** ICM-5      **Status:** New 2/2012  
**Milestone:** Fall 2012: First draft due  
**Progress:** TT5 FTIR experts will work on a first draft following principles applied in Lidar Guidelines doc.  
**Issues:** Delays due to late release of GRUAN Guide and Lidar Guidelines

**Task 19: Characterisation of H2O products from 10 globally distributed NDACC-FTIR stations**

**Main Contact:** M. Schneider      **Due Date:** None      **Status:** New 8/2012  
**Milestone:** August 2012: AMT-Discussion paper  
**Progress:** Schneider, M., Barthlott, S., Hase, F., González, Y., Yoshimura, K., García, O. E., Sepúlveda, E., Gomez-Pelaez, A., Gisi, M., Kohlhepp, R., Dohe, S., Blumenstock, T., Strong, K., Weaver, D., Palm, M., Deutscher, N. M., Warneke, T., Notholt, J., Lejeune, B., Demoulin, P., Jones, N., Griffith, D. W. T., Smale, D., and Robinson, J.: Ground-based remote sensing of tropospheric water vapour isotopologues within the project MUSICA, Atmos. Meas. Tech. Discuss., 5, 5357-5418, doi:10.5194/amtd-5-5357-2012, 2012. <http://www.atmos-meas-tech-discuss.net/5/5357/2012/amtd-5-5357-2012.html>  
**Issues:** None. This paper can serve as basis for the GRUAN FTIR Guidelines

**Task 20: Validation Strategies (Satellite): Satellite/GRUAN Products Cal/Val (GPROVS) Phase 2**

**Main Contact:** T. Reale      **Due Date:** ICM-5      **Status:** New 8/2012  
**Milestone:** October 2012  
**Progress:** GPROVS Phase-1 to serve as baseline for developing dedicated interface to access, display and analyze GRUAN sonde plus available ancillary data profiles collocated to sonde and/or selected satellite overpass; ... GRUAN Products Validation System (GPROVS) Phase-2  
**Issues:** Access to Ancillary profile data, also see #18