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Coordination Meeting (ICM-6)**

Session 4

Greenbelt, USA

10 March – 14 March 2014

Task Team progress report for March 2014 – GNSS-PW TT

(Submitted by June Wang/ Kalev Rannat)

Summary and Purpose of Document

Progress report from the task team GNSS-PW.

Task Team progress report for March 2014 – GNSS-PW TT

SUMMARY

TT conference call held on Friday, 20. September 2013.

The TT has worked on topics listed on the GRUAN Master Action Item list:

- a) Develop the GNSS-PW GRUAN data product including technical documents that detail the estimation of measurement uncertainties, data collection client requirements, and central data processing.
- b) Define the GNSS-PW data collection client requirement, identify the central data processing facility, and initiate data flow.

The main effort is made on issues with the closest due dates in a:

- Manuscript describing the GRUAN GNSS-PW uncertainty estimates submitted to peer reviewed literature (Tong & Elgered, 1. Oct 2014, pending on Tong's availability)
- Technical documentation completed for GNSS-PW measurements (June Wang, Kalev Rannat, 1. March, 2015)
- Technical document describing recommended practices on managing change in GNSS-PW measurements (George, June Wang, Kalev Rannat, 30. Sept. 2013).
- Document providing guidance on GNSS-PW data through a GRUAN GNSS data and product table (Yoshinori, John and Seth, 1. Oct. 2013).

Parallel work is going on or getting started with subtopic b:

- Complete set of GRUAN technical documents describing all aspects of GNSS-PW data flow (June Wang, Kalev Rannat, 1. Dec. 2014).
- Data flow through NCDC portal (Lead Centre, June Wang, Kalev Rannat, 1. Jun. 2015)
- Assessment of data usage, issues and potential improvements for this data stream (GNSS TT 1. Sept. 2016).

Besides working on the tasks #4 ... #7 and the data flow listed above, the GNSS-PW TT has also been involved in the following activities:

1. GNSS data flow and processing: GFZ has officially accepted the invitation for data processing. According to the discussions between GFZ and LC the long term data archive will be maintained by LC, data conversion and processing will be done by GFZ. Accepted data will be receiver proprietary format (if the GFZ conversion tool accepts this format) in any sample-rate, or RINEX version 3, with 30 sec sample rate. Both, LC and GFZ, installed FTP server to exchange GNSS raw and RINEX data, metadata and products. Lindenberg and Ny Alesund are the first two sites for data flow. The work is in progress (next connections should be Lauder and Sodankyla, but additional work needs to be done for supporting met-RINEX data flow and some hardware setups). After the data can be regularly obtained from the first sites, the next step will be to specify the needs for related metadata and if/how to develop a similar tool for GNSS-data as it is done for radiosondes.
2. TT members participating in COST Action ES1206 WG 3, Objectives in here: http://w3.cost.eu/fileadmin/domain_files/ESSEM/Action_ES1206/mou/ES1206-e.pdf
Kalev visited GFZ Potsdam in frames of COST ES1206 STSM. Part of the work covered the topics of GNSS-data flow and quality control (particularly while visiting LC, Lindenberg).
3. A spotlight on Lauder GNSS site on <http://xenon.colorado.edu/spotlight/index.php?product=spotlight&station=laud>. Thanks go to Dan Smale for putting it together!

PROGRESS ON CURRENT TASKS

1) Task #4 in ToR

"To develop guidance on the type, amount, format, temporal resolution and latency of data and associated metadata needed to be stored from the ground-based GNSS measurements and other auxiliary data sources, and data archive and dissemination methods."

Main Contact: Yoshinori

Due Date: 9/30/2013

Status: Done

Milestone: "GRUAN GNSS Data and Product Table" & "Format Specification for COST-716 Processed GPS Data"

Progress:

Issues: The table will be updated by GFZ whenever the E-GVAP document is updated (not very frequently).

2) Task #5 in ToR

"To identify best practices in making and verifying GNSS observations for GRUAN and other climate applications defined in Task 1. "

Main Contact: Kaley/Galina/Jens/Jonathan

Due Date: 30. Sept. 2013

Status: Done

Milestone: Technical document describing recommended practices in GNSS-PW measurements.

Progress:

Issues:

3) Task #6 in ToR

"To follow the guidance on reference quality upper-air measurements outlined in Immler et al. (2010) and provide guidelines for GNSS-PW uncertainty analysis including ways to calculate uncertainties for each data point as required by GRUAN and include them in the final data products."

Main Contact: Gunnar, Tong, June

Due Date: 1. Oct. 2014

Status: Pending

Milestone: Manuscript describing the GRUAN GNSS-PW uncertainty estimates submitted to peer reviewed literature.

Progress: In progress, but delayed.

Issues: The consensus was that it is good idea for Tong to visit GFZ for two months to work on additional analysis and prepare the manuscript. However, Tong can't leave his current job for two months to work on something else. Current plan is for him to not do any additional analysis and just write the manuscript based on the chapter of his thesis.

4) Task #7 in ToR

"To address the question of how to better manage changes applied to ground-based GNSS measurements in both hardware and software and to make sure that the changes will be taken into account for long-term data analysis. "

Main Contact: George/Kaley/June

Due Date: 30. Sept. 2013

Status: Done

Milestone: Technical document describing recommended practices on managing change in GNSS-PW measurements.

Progress: Issues: