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Task Team Progress Report for June 2017– GNSS-PW

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Summary and Purpose of this Document

Progress report from the task team on GNSS Precipitable Water (GNSS-PW).

Task Team progress report for June 2017 – GNSS-PW TT

SUMMARY

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

#24 Develop a GRUAN GNSS-PW product. Technical documentation completed for GNSS PW measurements (**GNSS PW Omnibus**), IN PROGRESS. The TT spent most of time to finish the omnibus. Most of information is there, but the current version needs clean-up. The goal is to have it done by the end of summer (7/2017).

#29 Define the GNSSPW data collection client requirement, initiate data flow (TT GNSS-PW + LC) - IN PROGRESS. Preliminary discussions about the motivation and technical requirements for developing a “GNSS-data monitoring tool” have been held between the TT and LC. GNSS-data flow differs from “traditional GRUAN observational data flows” – the raw data from the sites is initially collected by GFZ for GNSS-data processing. GFZ uses their own technical solutions and best practices for that (including the data flow and quality monitoring). After the data is processed, it is sent together with the GNSS-data product to the LC for sharing and long-term archiving.

The optimal way to develop a web-based tool for monitoring the GRUAN GNSS data product is probably to combine the data flow and Quality Assessment information from GFZ with the functionalities of the “data monitoring tool”. The “data monitoring tool” could be made accessible over the GRUAN web-site (as the RS Launch Client). However, the GNSS-data monitoring tool will not give possibilities to have impact on the GNSS data flow (interaction with the site’s GNSS-facilities is solely given for GFZ). The “data monitoring tool” will not collect the observational data.

The GNSS data monitoring tool would be used for work with archived data (showing the data availability, data quality related issues, etc.). The idea is to support the user with not only the GNSS-product and its uncertainties only, but also to offer as much as possible the information about the data processing, observational conditions, and initial data quality used for data processing.

A new milestone can be set for ICM10 – prototyping the GNSS-data monitoring tool (and not naming the tool as GNSSPW data collection client as it will not collect the data). The realisation depends on the resources and consensus (TT, GFZ, LC) on the technical requirements.

Besides working on the tasks listed above, the GNSS-PW TT has also been involved in the following activities:

1. New GNSS-PW TT **Term of Reference** in September 2016
2. The GNSS-PW TT recruited a **new member**: Ning Tong, Lantmäteriet (Swedish Mapping, Cadastre and Land Registration Authority), Sweden. T. Ning developed the uncertainty estimate algorithm.
3. The TT **assists the Singapore site** to establish their new GNSS station and data flow. Singapore site has non-optimal conditions for the GNSS-antenna installation (high building nearby). As a first step, testing time-series of GNSS-observations have been recorded (batch of data from 17th Apr to 24th April) with a temporary installation with a tripod and on the roof of the building of the institute (Meteorological Service Singapore). The multipath analysis will give an answer whether the favourite location for the antenna

could be acceptable for GRUAN-grade data collection or not. The analysis is in progress (GFZ). Finding a “better place” is challenging for the site (practical issues). The work is IN PROGRESS.

4. Improving the GNSS PW **data flow** at current operational sites and implementation of uncertainty estimate.