

## Monthly Meeting (May, 2020)

Date: May 26, 2020

Time: 2:15pm - 3:10pm

Location: Park Seismic Office

Attendees:

In the office: Choon Park and Jin Park

Via Skype: Josefin Starkhammar and Nils Ryden

The meeting started with Choon's greetings to team Sweden. Josefin is having throat hurting. We talked about the newly opened Korean restaurant in Lund. We also talked about phase 1 opening businesses under COVID 19 in the US.

### Topics regarding Administrative work (All)

1. Preparing the invoice package to MnDOT now getting easier: referring to only the last month form in order to prepare this month invoice would be helpful.
2. Josefin asked about how we would have to manage administration hours that are fast running out of the allocated amount. Choon mentioned that although he would try to get more specific information in the near future from MnDOT, overuse of hours for one task (e.g., task #1) may not be an issue as far as each participant works under a total allocated work hour. All agreed that the type of task we report can be fairly flexible. For example, this kind of monthly meeting can also be regarded as a non-administrative task if most of the agenda are related to technical aspects.
3. NRRRA meeting had been canceled and will be replaced by multiple online conference meetings over the next several months. This project will have to make an about 45-min presentation in September.
4. The Joint-Field Test (JFT) scheduled on October-November at Lund may not be able to take place due to the Global Pandemic. Choon proposed a potential alternative of remote joint-testing session for about one week. Team Sweden can go out for a field campaign of one day for a specify mission, and then send the data set to Team USA for subsequent analysis for next 1-2 days. Then, both teams can have a conference meeting online to discuss results. This can be repeated multiple times if necessary. However, this is not completely clear yet in logistics, and will be discussed further in a near future. As more field data sets are collected by using old and new systems, this topic will be able to solidify further.

### Topics regarding Technical work

1. Hardware construction (Josefin Starkhammar, Nils Ryden, and Choon Park)
  - Josefin mentioned it needs devotion of a prolonged period of time, for example, one or more weeks, without distraction to make a good progress in hardware building. She anticipated it will be mid-late June when LTH goes into summer

vacation. Then, Nils and Josefin will have time to go out to collect more data by using the old system to send to Team USA for software development purpose.

- Nils mentioned the road newly built by Peab will be available for field testing this summer. The road will not be open for public use, at least, until the end of this year, making the field test highly convenient without any ongoing traffic.
- Nils came up with a new approach to how to record accessory data effectively; e.g., temperature and GPS data. While seismic data will be collected whenever an impact is made, the GPS and IR temperature data will be measured and updated periodically, for example, every 1 second. Then, the recorded seismic data will use the most recent set of the two data to encode into the TDMS format file. This will be sufficient as both parameters will not change significantly within this much short time period. In addition, the IR sensor will not be able to measure temperature faster than this (i.e., 1 sec).

## 2. Data Format

- Josefin proposed the format of the data file from the acquisition system be TDMS format as it is well known and considered standard in the AD conversion hardware development by using LabVIEW. Choon raised a potential drawback with TDMS format because the format includes a big chunk of information that is not used for subsequent seismic-data analysis, while it can result in a significant overhead time for the on-site pseudo-real-time analysis of the seismic data. Choon agreed to look into the TDMS format in more detail to see if only necessary part can be taken in a relatively simple and fast manner to minimize the overhead time.
- Josefin mentioned the C++ codes to read TDMS format are available online. Nils also offered to send his MATLAB codes for understanding of the general structure of TDMS.

## 3. Technical Meeting

- Choon proposed to have another online meeting at the same time of coming Tuesday (6/2) to discuss topics related to software development that can be directly related to the hardware configuration.

### **Agreed to do:**

1. Team Sweden will try to collect more HMA field data sets by using the old ("SYS-RYD-2019") system soon (e.g., June).
2. Nils will send the MATLAB codes for TDMS format to Choon.
3. Nils and Choon will have a technical online meeting on June 2.

The meeting adjourned at 3:10 pm.