

Stage Report in Belgium for the Remote Sensing Technologies Training

23 October to 23 November 2016

A thirteen (13) hours trip and crossing different time zones was one of the most exciting travels of my life outside Philippines. Upon arrival in Belgium last 23 October 2016 at 2:00 pm, I and Dr. Andres Ignacio were fetched and sent immediately to our respective accommodation areas. At the University Catholic of Louvain, we were welcomed by a student volunteer and accompanied/oriented us on some areas where we can buy our personal necessities, by the time we get settled; we rested and prepared for the next day.

24 October 2016 we had our meeting with Dr. Pierre Defourny and his researcher-Julie at Earth and Life Institute-Environment/Geomatics. The objectives for the meeting were a) GIS and Remote sensing classes and the software to be used for the training b) UAV-drones test fly and simulation (observation of how to use the UAV) c) Initial strategies and what data to be gathered for the ARES-LUCID projects. For the first Objective; I have to attend classes 2 hours per session every Wednesdays and Thursdays at 4:15-6:15 in the afternoon for GIS software applications and 2 hours for Thursdays at 10:45-12:45 morning for remote sensing data gathering. The second objective was met last 27 October 2016 when we observed the test fly of drones by some experts at the test zones of UCL. For the last objective; a time series data covering the 3 sites of the project from 2000-2016 land cover had to be gathered, this pertains to the synchronization of agriculture and technology like the use of Sentinel 2 satellite for agriculture monitoring and the validation strategy on the field to determine the change of land use and identify various crop types for the ARES-LUCID project areas in the Philippines.

25 October 2016 we attended the a day seminar for the bright side of Remote Sensing; the use of Sentinel 2 monitoring in Agriculture, Forestry and Policy at Hotel Bloom, Brussels, Belgium. It was a great privilege for me to know and understand the future of agriculture in terms of monitoring in order to solve various problems in agriculture and food security. Aside from being one out of 2 Filipinos or Asian that attended the seminar at the very least I have an idea on what would be the importance of those technologies and satellite acquired images for research and development programs in the field of Agriculture. 26 October 2016, I started to get acquainted with my laboratory mates and started to gather electronic books about GIS and remote sensing from my colleagues and also they provided me some data for tutorials on the software to be used. 27 October 2016, I reviewed my notes about GIS and try to get familiar with those terms used in GIS and Remote sensing that I noted during the seminar.

With the observance of holidays it was a long weekend then (28 October- 1 November 2016); and I had a chance to visit beautiful sceneries in Brussels, Namur and Louvain la Nueve and experienced foreign culture. The first week of November started with a meeting at Dr. Pierre office on various project updates and a follow-up of the data to be gathered for an initial evaluation of the project sites. My classes for GIS and remote sensing

started and I was granted my log in for internet usage and software trials for tutorials. The lectures were in French but I still manage to have translated in advance so I can at least understand what was being taught. With the very basic reference for remote sensing and GIS I started reading and taking notes, I have to compare it with the lectures notes in class if my understanding in the lectures had matched. 2-4 of November I attended the laboratory classes and learn the basic of ARC GIS and I started reading about remote sensing. I attended a meeting regarding what would be the data collected for analysis at Dr. Pierre's office, the discussion were all about the purchase of the Unmanned Aircraft Vehicle (UAV), what would be the role of geomatics in determining land use change and to focus on the change on crop types and crop land extension within the area of study (Bukidnon-Upper Pulangui). Corn crop variety identification was a challenge for the study but it would still be tabled for discussion.

The 2nd week (7-11) of November, I engage myself in reading and learning about remote sensing, attending lectures and trying to get familiar with the use of different software's to identify land-use cover through different spectral bands. In addition, I've learned the basics of map reading, comparison between colours, highlands and lowlands and read journals and other related studies that was already been materialized, like the STARS project (the use of remote sensing technology to improved agricultural practices in Sub-Saharan Africa and South Asia- Supported by Bill and Melinda Gates Foundation) this project had captured my attention because it can provide an impacts on the lives of farmers on the world's poorest countries. Aside from lectures and own readings, I was also exposed to various presentations like the significance of Sentinel 2/Landsat 8 in Agriculture monitoring and how researchers focus on details and time series data. Dr. Ignacio was given a chance to present regarding the advocacies of Environmental Science for Social Change (ESSC) and its accomplishments and a little back ground on the involvement of UCL Earth and Life Institute on different ESSC projects in the Philippines.

Here comes the 3rd week (14-18 November), A 2 hours presentation was given by a researcher about orfeo toolbox used as library and its salient features on how it tries to process the data derived from the satellites. 17th November I attended the 1st collaboration meeting at Namur with the ARES-LUCID project partners from UNamur, UCL, ESSC, ADMU and CMU. There were three (3) agenda for the meeting; 1) Project ARES-LUCID overview and preliminary activities launched 2) Mission Trip from Belgium to the Philippines 3) Presentation of Geomatics and its significant contributions to the project. The remaining days of the week was to identify different locations that I am familiar with, in terms of major crops planted in Bukidnon. This was used as an initial data to view if there will be some similar spectral bands related to the area of study in Upper Pulagui. For my last 3 days (21-23 November) of stay I and my colleague was into determining various crop types, identify processing/milling plants major areas in Bukidnon using the Sentinel 2 data and Google earth, we identified similar colours as we compare those areas planted with different crops (especially corn) in Bukidnon area. It was difficult to identify different varieties based on colour because Bukidnon crop areas were diverse and fragmented.

The overall assessment for my training and stay in Belgium was awesome and wonderful; from the weather, to the colleagues in the laboratory, the accommodation but not so much of the food- but I love the chocolates and the beverages and in general the place itself--- That I came to realized that the World is small when you're in UCL Earth and Life Institute.

A heartfelt thanks to ARES-LUCID Project partners Dr. Leyens, Dr. Pierre, Dr. Balland, Dr. Ignacio and to Earth and Life Institute Colleagues for making my first trip Belgium wonderful and a memorable one---- MERCI BEAUCOUP---

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