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MENVIPRO

Modernization of Environment Protection Studies Programmes for Armenia and Georgia

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III Meeting

22-23 July 2019

Halle (Saale)

Meeting dates: 22-23 July 2019

Location: Martin-Luther-University Halle-Wittenberg
Department of Remote Sensing and Cartography

Attendance: according to the signed attendance sheet

Main goal of the Meeting

The objectives of the project meeting were to present the curricula and general teaching structure at the Institute of Geography and Geosciences with special emphasis on the remote sensing and GIS Master courses given by the Department of Remote Sensing. The presentations comprised concepts, utilized data and methods as well as requirements for the students. Special focus was further laid on e-learning techniques. The meeting program encompassed a field visit with the project team to a nearby test site, which is utilized to train students in multiscale and multisensoral landscape analysis using the full range of remote sensing and other geodata, which is a major research and teaching focus at the Department of Remote Sensing.

Day I: July 22nd, 2019

After a welcome by **Ester Smykalla** from the International Office of the University, **Cornelia Gläßer** introduced the history of the Martin Luther-University, the Institute of Geosciences and Geography and the Department of Remote Sensing before. Afterwards, **Max Hörold** gave an overview about the study programmes at the Institute of Geosciences and Geography (*Study Programme_public.pdf*), in which the concept of the curriculum, aims of the courses and course contents were explained. In the follow-up session, **Cornelia Gläßer** gave a detailed overview about the basic courses in cartography and remote sensing in the Bachelor program (*Basic_Courses_public.pdf*). These courses are targeted at students in four different study programmes including future teachers. Thus, the courses aim at providing all necessary knowledge to prepare the students for the requirements of the labour market (e.g. the utilization of geodata at different scales, including thematic data (geology, soils, ...), aerial photos (RGB, CIR), satellite data with different spatial and spectral resolution and different digital elevation

models. These courses further provide the fundamentals required for the Master´s courses. After the lunch break, **Kartin Jäger** introduced the Center of Multimedia Teaching and Learning (LLZ) and its competences within the university (*LLZ_public.pdf*). The e-learning infrastructure and its administration were elaborated at department, institute and university level. **Mike Teucher** presented the use of e-learning and e- assessment techniques in different courses as well results from learning analytics of a course in the first Master semester. Within this course, students with very heterogeneous backgrounds and knowledge levels have to be brought to the same knowledge level for the following master courses, which provides a challenge especially with few staff members. The first day ended with a presentation by **Angela Fatoretti** and **Nicolo Meredino** on the progress and organisation of the project and the next meeting in Tbilisi.

Day II: July 23rd, 2019

In the first talk of day two, **Vera Schreiner** and **Max Hörold** presented different approaches for the utilisation of geodata for multiscale, multisensoral and multitemporal landscape analysis and visualisation in the Master courses (*Landscape Analysis and Visualisation_public.pdf*). In this talk, different examples including geomorphology and terrain analysis, environmental risk assessment and management, spatial planning, land cover and land use classification using aerial and satellite images as well as the analysis of vegetation cover and phenological phases were presented. In the follow-up talk, **Michael Denk** presented the advanced remote sensing courses given by the Department of Remote Sensing in the various Master programmes using examples from the last years (*Advanced RS_public.pdf*). These examples included geologic remote sensing for mapping minerals and geochemical parameters using advanced classification approaches, multitemporal image analyses for assessing changes in post-mining landscapes as well as the spectral analysis and detection of invasive plant species. Special emphasis was given to the organization and structure of these courses, which comprise: working in self-organised small- to medium-sized groups, a mixture of teaching theoretical fundamentals and practical exercises, training with measurement instruments, utilization of free and commercial data and software. After this presentation, **Mike Teucher** introduced the potentials of 3D-visualisation of geodata (e.g. stereoscopic satellite imagery as well as digital terrain models) for didactical purposes within courses. The next session comprised announcements regarding the next project steps and the budget management by the project PI **Nicolò Meredino** and **Angela Fattoretti**. The last part of the program encompassed the introduction to a test site, which is used for teaching students in multi-scale landscape analysis with various kinds of geodata in

lectures as well as excursions. In this context, different instruments (a VNIR/SWIR as well as a MWIR/LWIR FTIR spectrometer, a high resolution GNSS kit, a SPAD meter and a LAI) utilized for field work and training of students were presented. Afterwards, the MLU organized a field trip to this test site (N51°31'56.38", E11°53'30.31"), where topics and didactical approaches used within the study courses were demonstrated. The main objective of the excursion is to enhance the students´ understanding of landscape parameters and models (maps, remote sensing data, etc.) by covering important test site specific topics (geology, morphology, soils and vegetation), in combination with field and laboratory work and practical exercises. As the Department of Remote Sensing has positive experiences with this lecture and received positive feedback from the students, we strongly suggest that the Armenian and Georgian partners assess the possibilities to adept this format in the courses to be newly developed or updated in the MENVIPRO target countries.

Annex 1 – Agenda of the meeting

Annex 2 – Signed Attendance Sheet