World Centre of Excellence (WCoE-13) 2014-2017
Progress Report Form 2017

1 January 2016 to 31 December 2016

1. Short Title of WCoE: **Mechanisms of landslides and creep in over-consolidated clays and flysch**

2. Name of Institution: University of Ljubljana, Faculty of Civil and Geodetic Engineering (UL FGG), Assist. Prof. Ana Petkovšek, ana.petkovšek@fgg.uni-lj.si

3. List of core members: Assoc. Prof. Janko Logar, Prof. Matjaž Mikoš, Assist. Prof. Dušan Petrovič, Assist. Prof. Mojca Kosmatin Fras

4. Progress report of activities up to 31 December 2016

In 2016, we collaborated with the University of Rijeka, Croatia (ICL Member), exchanging early stage researchers via a bilateral research project on laboratory investigations and numerical modelling of landslides in flysch deposits in Croatia and Slovenia.

At University of Ljubljana, the UNESCO Chair on Water-related Disaster Risk Reduction was established in 2016 (www.unesco-floods.eu), a member of the UNITWIN Cooperation Programme on Landslide Risk Mitigation for Society and the Environment. The Chair will participate in the University of Ljubljana Summer school on Natural Hazards (including landslide risk and mitigation) for more than 20 international PhD students, to be executed in May/June 2017 with participation of professors from ICL members, and from partner universities: University of Brescia (Italy) and BOKU University (Austria) – details: [http://www.let-group.com/summerschool.html](http://www.let-group.com/summerschool.html).

In 2016, one of the most important activities of the WCoE was the preparation of the 4th World Landslide Forum in Ljubljana in June 2017 ([www.wlf4.org](http://www.wlf4.org)), and as a member of the ICL Adriatic-Balkan Network we have actively supported the preparation efforts together with Slovenian Geological Survey to organize the 3rd Regional Symposium on Landslides in the Adriatic-Balkan Region in October 2017 in Ljubljana, Slovenia ([http://www.geo-zs.si/ReSyLAB2017/](http://www.geo-zs.si/ReSyLAB2017/)).

We have studied the rheological parameters of the Slano blato landslide mudflow and the Stože landslide debris flow. The later research will be published as a research paper for 4th World Landslide Forum (Ljubljana, 2017). The measured rheological parameters of the Stože debris flow will be used for debris-flow numerical modeling using Flo2D program. Together with the Slovenian Geological Survey a landslides probability mapping was performed on for the Potoška planina landslide. A multi-model approach was used: a detailed field survey, GIS based landslide susceptibility model and numerical modeling in LS-Rapid program was applied also to identify landslides and simulate triggering phase (also to be as a research paper for 4th WLF).
5. Plan of future activities

In 2017, we will continue working on the preparation of 4th World Landslide Forum in Ljubljana (May 29 – June 2, 2017), including the Photo Competition and Student Session, and organizing the three-day post study tour in Slovenia and its neighborhood (the field guide was submitted as a technical note to journal Landslides). Furthermore, we will co-organize the 3rd Regional Symposium on Landslides in Adriatic-Balkan Region (3rd ReSyLAB, October 11-13, 2017, Ljubljana, Slovenia). In 2017 we will start working in the framework of the national research program “Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process Analyses and Simulations, and Development of Technologies” (2017-2021). If approved, we will work jointly with Slovenian Geological Survey (GeoZS) on a research project dedicated to recognition of potentially hazardous torrential fans using geomorphic methods and simulating fan formation (lead partner UL FGG), and on a research project dedicated to landslide movement from source areas to zones of deposition using a deterministic approach (lead partner GeoZS).

Through bilateral cooperation with the University of Rijeka, shear strength of landslide material will be tested in ring shear apparatus and in a tri-axial cell with reconstituted samples with diameter of 100 mm. The measured rheological parameters of the Slano Blato mud flow and the Stože debris flows will be used in modeling in Flo2D program. The modelling will be complemented by modelling in LS-Rapid program to study mudflow/debris flow triggering.

6. Publication


