

## **IPL Project (IPL-106-2) Annual Report**

**Period of activity under report  
from 1 January 2022 to 31 December 2022**

### **1. Project Number and Title:**

IPL-106-2. International Summer School on Rockslides and Related Phenomena in the Kokomeran River Valley, Tien Shan, Kyrgyzstan

### **2. Main Project Fields**

Select the suitable topics. If no suitable one, you may add new field.

(2) Targeted Landslides: Mechanisms and Impacts

A. Catastrophic Landslides

(3) Capacity Building

B. Collating and Disseminating Information/ Knowledge

### **3. Name of Project Leader** Dr. Alexander Strom

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#### **Core members of the Project:**

Prof. Kanatbek Abdrakhmatov, Director of Institute of Seismology, National Academy of Sciences, Kyrgyz Republic

### **4. Objectives**

The ICL Summer School on Rockslides and Related Phenomena is aimed to acquaint students and young landslide researchers with morphological and structural peculiarities of large-scale rockslides and rock avalanches – the most disastrous slope processes in mountainous regions of the World, and with related phenomena such as rockslide dams and catastrophic outburst floods. Neotectonics of Central Tien Shan and evidence of past earthquakes are demonstrated too.

### **5. Study Area**

The Kokomeran River basin, Central Tien Shan, Kyrgyzstan

### **6. Project Duration**

Annual Kokomeran Summer School had started in 2006 within the frames of the IPL projects M<sub>2002</sub>111 and M<sub>2004</sub>126 and was continued as IPL-106-2 Project. Due to Covid-19 pandemic, we had to cancel 2020 and 2021 field training courses (that is why no reports have been provided). However, in August 2022 we rearranged it and successfully performed the 2022 Summer School.

## 7. Report

### 1) Progress in the project:

During 16 years of the Kokomeren Summer School about 160 students and young researchers from Argentina, Austria, Belgium, China (including Hong Kong and Chinese Taipei), Czech Republic, France, Germany, Great Britain, Italy, Japan, Kazakhstan, Korea, Kyrgyzstan, New Zealand, Poland, Russia, Slovakia, Slovenia, Switzerland, Spain, Tajikistan, USA and Uzbekistan were acquainted with characteristic geomorphic, lithological and structural features typical of large-scale rockslides, including those producing long-runout rock avalanches and natural dams.

In 2022 10 students and landslide researchers from Great Britain, Slovenia, Japan, India, Russia, Kazakhstan, Uzbekistan and Kyrgyzstan participated in the 15 days long field training course from August 15 to August 30.

Some of attendees of the previous Summer Schools became interested in detailed research of these phenomena in the Central Asia region and arranged special research projects. In particular, in June 2022 group of researchers from the Dongguk University, Republic of Korea, led by Dr. Jeong-Sik Oh who participated in the 2018 Kokomeren Summer School, visited Kyrgyzstan and worked at several sites in Kokomeren River basin together with Dr. Strom and research students of Prof. Abdrakhmatov studying and dating large rockslides.

Almost every year several previously unknown features were discovered during daily field trips. The 2022 field course was no exception: we found one more, previously unknown long runout rock avalanche close to the Chongsu rock avalanche that was identified many years ago.

### 2) Planned future activities or statement of completion of the Project:

The 2023 Kokomeren Summer School will be organized on August 14-29, 2023. More than 40 researchers and students expressed their interest to attend and up to now more than 30 persons confirmed that they will participate. Some of those who expressed their interest but could not participate this year asked to consider then in 2024. The announcement of the 2023 training course was published in February 2023 (Landslides 20, 875–876. DOI: 10.1007/s10346-023-02033-7). We also plan to prepare a new bilingual (English-Russian) version of the Guidebook with the detailed description not only of the selected features but also of each field trip – coordinates of the access roads and tracks, best observation points, etc. Similarly to the previous years (since 2017) we came to an agreement with the UNESCO Almaty office that they will cover the expenses of 4 participants from Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan (by one from each country) who will attend the 2023 Kokomeren Summer School.

### 3) Beneficiaries of Project for Science, Education and/or Society:

Landslide researchers working both in the Central Asia region and all over the World; emergency experts working on landslide and outburst flood hazard assessment; researchers and practitioners in the fields of paleoseismology and seismic hazard assessment; hydraulic engineers working on dam projects.

#### 4) Results:

Data collected during each field training course have been used for preparing the new version of the Guidebook with coordinates of the access roads and tracks. They were also used for preparing several publications:

- Fan X., Dufresne A., Whiteley J., Yinus A.P., Subramanian S.S., Okeke C.A.U., Pánek T., Hermanns R., Ming P., Strom A., Havenith H-B., Dunning S., Wang G. Tacconi Stefanelli C. 2021. Recent technological and methodological advances for the investigation of landslide dams Earth-Science Reviews. DOI:10.1016/J.EARSCIREV.2021.103646
- Fan, X., Dufresne, A., Subramanian, S.S., Strom, A., Hermanns, R., Stefanelli, C.T., Hewitt, K., Yunus, A.P., Dunning, S., Capra, L., Geertsema, M., Miller, B., Casagli, N., Jansen, J.D., Xu, Q., 2020. The formation and impact of landslide dams – State of the art. Earth Sci. Rev. 103-116.
- Li L., Lan H., Strom A. 2020. Automatic generation of landslide profile for complementing landslide inventory. Geomatics natural hazards & risk. V. 11. No 1. P. 1000-1030. DOI 10.1080/19475705.2020.1766578.
- Strom A. 2020. Traces of catastrophic outburst floods in the Central Asian River valleys. Georisk, No 2, 8–21.
- Strom A. 2021. Rock avalanches: basic characteristics and classification criteria. In: Vilímek V, Wang F, Strom A, Sassa K, Bobrowsky PT, Takara K (Eds) Understanding and reducing landslide disaster risk: Volume 5 Catastrophic Landslides and Frontiers of Landslide Science. Springer Nature Switzerland AG, pp 3–23. DOI 10. 1007/978-3- 030- 60319-9\_1
- Li L., Lan H., Strom A., Macciotta R. 2022. Landslide longitudinal shape: a new concept for complementing landslide aspect ratio. Landslides. DOI 10.1007/s10346-021-01828-w
- Strom, A., Abdrakhmatov, K. 2023 International Summer School on Rockslides and Related Phenomena in the Kokomeran River Basin (Kyrgyzstan) (ICL Kokomeran Summer School). Landslides 20, 875–876 (2023). <https://doi.org/10.1007/s10346-023-02033-7>