

IPL Project (IPL - 191) Annual Report Form 2019

1 January 2015 to 31 December 2018

1. IPL-191, (2015) and Title **Landslide hazard zonation in Carpathian region of Ukraine using GIS**
2. Main Project Fields
(1) **Technology Development**
B. Hazard Mapping
3. Name of Project leader **Oleksandr M. Trofymchuk, Grand Ph.D., Professor, Corresponding member of National Academy of Sciences of Ukraine**
Affiliation: **(Director, Institute of Telecommunications and Global Information Space of National Academy of Sciences of Ukraine)** and Contact: **(13, Chokolivsky Blvd., Kyiv, 03186, Ukraine, Tel. +38044 245 8797; Fax : +38 044 245 8838; e-mail: itelua@kv.ukrtel.net)**

Core members of the Project: Names/Affiliations: **(Iurii I. Kalyukh, Grand Ph.D., Professor, Head of Laboratory of Monitoring and System Analysis of Building Constructions, Ukrainian State Research Institute of Building Constructions; Evgenii O. Yakovlev, Grand Ph.D., Professor, Chief Researcher, Institute of Telecommunications and Global Information Space of National Academy of Sciences of Ukraine; Viktoriia P. Berchun, Scientific Researcher, Institute of Telecommunications and Global Information Space of National Academy of Sciences of Ukraine)**
4. Objectives: **(The main goal is to develop the instrument for landslide hazard forecasting with the purpose of minimizing an impact of landslide activation on people and tangible objects including constructions, transportation services, pipelines etc. Objectives: to determine the landslide- hazardous slopes over Carpathian region of Ukraine; to develop a database containing the engineering-geological information relevant to descriptors (passports) of landslide sites; to develop targeted GIS on landslides in Carpathian region.)**
5. Study Area: **(Input data will be collected in Carpathian region. Data systematization, analysis, processing, and development of targeted GIS will be carried out.)**
6. Project Duration **(January, 2015 – December, 2017)**
7. **Report**
 - 1) Progress in the project:

Data collection and processing was finished. Database developments were finished. Development of targeted GIS was finished. Preparation of maps of landslide sites was finished.

2) Planned future activities or Statement of completion of the Project.

We plan in 2019 to propose the new project.

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

- **Carpathian local authorities including Ivano-Frankovsk, Lvov, Uzgorod and Chernivci Regional State Administration.**
- **District State Administrations.**
- **Ministry of Environmental Protection and its Regional Branch in Carpathian area.**
- **Institutions of National Academy of Sciences of Ukraine and Environmental NGOs.**

4) Results: (15 line maximum, e.g. publications)

Arrangement of deep foundation pit in restricted conditions of city build-up in landslide territory with considering of seismic loads of 8 points (in English) // Proceedings XVI ECSMGE 2015.-535-540. (Trofymchuk O., etc.)

Construction in seismic regions of Ukraine: DBN V.1.1-12:2013. (in Ukrainian) – [entry into building practice 2014-10-01]. - K.: Minregionbud, 2014. – 118 p. – (Normative document of the Minregionbud of Ukraine). (Trofymchuk O., etc.)

Trench strengthening in the restrained conditions of urban development with allowance for the magnitude 8 seismic loads (in English) // XV Danube - European Conference on Geotechnical Engineering (DECGE 2014) 9-11 September 2014, Vienna, Austria Paper No. 172. - P. 535-540. (Kaliukh I., etc.)

Ivanik O., Kaliukh I., (2018) The monitoring and early warning system of the livadia palace building constructions placed on the active central livadia landslide system, Crimea, Ukraine. XII International Scientific Conference “Monitoring of Geological Processes and Ecological Condition of the Environment” 13–16 November 2018, Kyiv, Ukraine.

Kaliukh I., Farenjuk G., Farenjuk I. (2018) Geotechnical issues of monitoring, calculation and engineering protection of landslide hazardous areas of Ukraine. In: Wu W., Yu HS. (eds) Proceedings of China-Europe Conference on Geotechnical Engineering. Springer Series in Geomechanics and Geoengineering. Springer, Cham

TXT-tool 2.380-1.1: Monitoring and Early Warning System of the Building Constructions of the Livadia Palace, Ukraine / O. Trofymchuk. I. Kaliukh, O. Kliomenkov/ In book: Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools. - 2018. – P. 491-508.

Vibrodinamic monitoring of pile foundation engineering on landslide hazardous site in dense urban development conditions / I. Kaliukh, O. Lebid, V. Dunin, Y. Berchun, S. Samoilenko / Ekologichna Bezpeka. – 2018. – № 2 (26). – C. 54-64.