

Date of Submission	2019.03.26
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IPL Project Annual Report Form 2018

1 January 2018 to 31 December 2018

1. Project Title

Landslides Mechanism and the Subgrade Stability Controlling Measures in Island Permafrost Area (IPL 167)

2. Main Project Fields

Mitigation, Preparedness and Recovery

3. Name of Project leader

Wei Shan

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Core members of the Project:

Dr. Ying Guo, Northeast Forestry University, China

Dr. Hua Jiang, Northeast Forestry University, China

Dr. Chunjiao Wang, Northeast Forestry University, China

Dr.Zhaoguang Hu, Northeast Forestry University, China

4. Objectives: (5 lines maximum)

Under the permafrost, landslides and other complex geological conditions investigation, design, construction and monitoring technical of express way expansion project.

5. Study Area: (2 lines maximum)

Bei-Hei Expressway Extension Project K160~K182 Section

6. Project Duration (1 line maximum)

2009.08-2019.12

7. Report

1) Progress in the project: (30 lines maximum)

In 2018, on-site monitoring is continued, and environmental problems caused by degraded permafrost continued to increase. For two consecutive years, the overflow of methane was found to be spontaneously ignited in spring. At the same time, a mud volcano was found in the road area, and there was significant

activity in 2016. We plan to add more monitoring sites within the road area.

2) Planned future activities or Statement of completion of the Project (15 lines maximum)

Collating the monitoring data of the past ten years, to establish a prediction model for permafrost degradation of the road, then to conduct permafrost survey and predict in other place along the road.

3) Beneficiaries of Project for Science, Education and/or Society (15 lines maximum)

Permafrost research has been accompanied by human activities. In addition to geological disasters, permafrost degradation will have various influences. Therefore, it is great scientific importance for people to understand the knowledge of permafrost and conduct early prediction and early preparation.

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

1. Attending the 2nd Asian Science and Technology Conference for Disaster Risk Reduction, 17-18 April 2018, Beijing, China, with the theme ‘Science-Policy Dialogue for Implementation of the Sendai Framework’.

2. Holding Seminar on “Engineering and environmental geology in the permafrost region along the Sino-Russian-Mongolian Economic Corridor under the background of climate change” and the Annual Academic Conference of 2018 of ICL-CRLN and the Cold Region Landslide Research of IPL-WCoE held in Harbin.

3. Seminar on “Engineering and environmental geology in the permafrost region along the Sino-Russian-Mongolian Economic Corridor under the background of climate change” and the Annual Academic Conference of 2018 of ICL-CRLN and the Cold Region Landslide Research of IPL-WCoE held in Harbin[J].Guo Y, Zhang C, Han Q, et al. Landslides:1-5.

4. Development of a frozen soil dielectric constant model and determination of dielectric constant variation during the soil freezing process[J].Ying G, Shuang X, Wei S. Cold Regions Science & Technology, 2018, 151:28-33.

5. TXT-tool 4.086-1.2: Shallow Landslides and Plant Protection in Seasonal Frozen Regions[J].Ying G, Wei S, Sun Y, et al. 2018

6. TXT-tool 4.086-1.2 Shallow Landslides and Plant Protection in Seasonal Frozen Regions. Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools, Ying Guo, Wei Shan, Yuying Sun, and Chengcheng Zhang. Springer International Publishing AG 2018. 693-702.