

University of Latvia
Jelgavas Street 1
Riga, LV-1004
Latvia
kristaps.lamsters@gmail.com

Reykjavík 12. júlí 2017
UST201706-237/J.S.J.

Application for research permit - Þjórsárver

The Environment Agency of Iceland has received a request from Dr. geol. Kristaps Lamsters on behalf of the University of Latvia, Faculty of Geography and Earth Science, dated 21st of June 2017, regarding permit to collect ice samples from glacier surface, well water, sediment samples from cryoconite holes on the glaciers, and samples of glacial sediments, where no flora or fauna have developed.

Þjórsárver is a nature reserve in the upper part of the Þjórsá River. It is a tundra meadows dissected by numerous glacial and spring-fed streams, the site includes abundant pools and lakes and extensive marshland dominated by sedges. The site is surrounded by a desert composed of volcanic sand. It is the most important nesting area in Iceland for the goose *Anser brachyrhynchus*, supporting about 10,000 pairs. It is a Ramsar site no. 460.

Description of the project:

The project is an interdisciplinary research of the outlet glaciers and proglacial areas in Iceland concentrating on ecological changes. It will study organic and inorganic matter from the cryoconite holes on glaciers and ice/snow surface, particularly the microbial communities. In proglacial areas, the team will study soil development processes in the front of the glaciers, as well on different volcanic bedrock. The team will take samples from different environments to study the roundness and surface microtextures of sand grains. This latter study will help to understand, how different agents, as glacier, wind, water and others impact the grains. At last the team will use ground penetrating radar on Múlajökull to study the structure of the upper part of the glacier. These interdisciplinary studies will help to understand, how glaciers, proglacial area is changing in global warming conditions. The data will be compared to our previous studies in Greenland, and to our future studies in Antarctica.

The team will take small amounts of water (5 ml) in proglacial lakes with clean sampling bottles. Samples of soil will be taken with a special soil drill in diameter up to 8 cm, but according the applicant, no soil around will be damaged. Soil samples will be in three profile lines starting with area in the front of the glacier, where no soil has developed up to 2,5 km from the glacier margin.

Sampling sites are near Múlajökull and Þjórsárjökull outlet glaciers of the Hofsjökull icecap. From cryoconite holes on glacier up to 20 samples will be taken 50 ml each, together up to 1 liter. Ice samples from glacier surface - up to 25 samples, 10 ml each, together 0,25 l. From proglacial lakes, we will take up to 50 samples of water, 5 ml each, together 0,25 l. The largest amount will be soil samples - up to 6 kg, approximately 20 samples 300 grams each. Up to 3 kg will be samples from glacial sediments from different environments, as sand, till plains, glacial landforms, up to 15 samples, 200 grams each.

Number of participants on location will be 4.

Guidelines from the Environment Agency:

The Environment Agency of Iceland grants a permission for collecting samples with in the Þjórsárver nature reserve as described in the application. The permit is subjected to the following conditions:

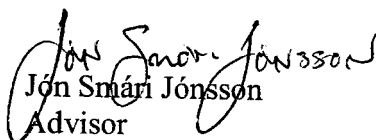
- This permission is granted for the period 23rd to 28th of August 2017.
- Samples quantity is restricted to the amount stated in the application.
- Every measure should be taken to avoid damage to the sites and unnecessary disturbance while collecting the samples.
- The Environment Agency of Iceland wishes to be secured, free of charge, a copy of all reports and scientific articles that result from the research project.
- Off road driving is prohibited in all circumstances.
- Research team members should take measures to minimize the impact of the stay within the nature reserve.

Environment Agency points out, exporting specimens might require a permit from the Icelandic Institute of Natural History (www.ni.is).

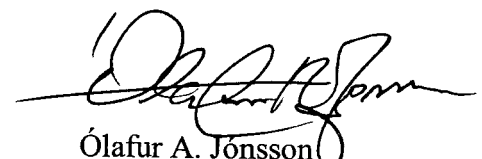
Permission fee

The Environment Agency charges a fee for processing applications for permits in protected areas in accordance with the art. 92 of law no. 60/2013. The fee is ISK 39.400. The invoice will follow this permit.

Sincerely



Jón Smári Jónsson
Advisor



Ólafur A. Jónsson
Director