



Transnational Access

PROJECT SUMMARY REPORT

The project leader of the user group fills in the form and returns it to 1) the station manager and 2) WP4 coordinator (hannele.savela@oulu.fi) within 4 weeks at the end of the study period.

Project Acronym (ID)	CliMireSiber
Project Title	Functioning of Siberian mire ecosystems and their response to climate change
Name of Group Leader	Fatima LAGGOUN-DEFARGE
General discipline (select from list)	Earth Sciences & Environment
Specific discipline (select from list)	Global change & Climate observation
Name of organisation	University of Orleans / CNRS (France) - Earth Science Institute of Orleans (ISTO)
E-mail address	Fatima.laggoun-defarge@univ-orleans.fr
Telephone	(+33) 238 49 46 63
Dates spent at the station (specify if several stations)	1 st – 14 th July 2012 – Mukhrino Field Station
Persons who used access:	Fatima Laggoun-Defarge (France) / Sébastien Gogo (France) / Daniel Gilbert (France) / Marie-Laure Toussaint (France) / Alexandre Buttler (Switzerland) / Mariusz Lamentowicz (Poland). Michal Slowinski (Poland) was part of the consortium but not funded from INTERACT.
Number of mandays used (specify for persons and/or stations)	14*6 = 84

1. Short project description (for public use), max. 250 words

Peatlands are now recognised as valuable pools of sequestered C and their response for predicting potential feedbacks on the global C cycle becomes crucial. Therefore, high research priority should be given to how the constraints to decomposition in these environments are sensitive to climate. **Northern hemisphere peatlands, mainly situated in high latitudes, contain 1/3 of the world's soil C stock** despite accounting for only 3–5% of total terrestrial surface. In addition, **Western Siberia hosts large surfaces of pristine peatlands ("mires")** and their study is of high value since this area contains representative peatlands and quantitatively important at global scale and for global change issues.

Our objective within CliMireSiber is to use mires from Siberia as a model and analyse their vulnerability in a context of climate change applying an experimental protocol that simulates in situ an increase of air temperature combined with a change in water table level. The precise goal is **to evaluate the effects of a manipulated temperature increase in combination with drought changes on C balance, biodiversity, vegetation productivity and the fate of organic matter and cycling of nutrients.**

CliMireSiber project will spark a long-term monitoring of C budget at Mukhrino Field Station allowing **meta-analyses of databases** to be undertaken and a future larger Europe – Siberia network to be set-up.

In this way, **CliMireSiber will pave the way for a larger FP-7 EU project** that will integrate more partners in Europe and in Siberia, thus **developing the peatland research community in Europe.**

2. Specific project objectives for the field season in question (max. 250 words)

The user group is already involved (as coordinator or participant) in several experimental projects (PEATWARM, the French ANR; French Observatory System; CLIMPEAT, the Poland-Swiss Research Program; Peatbog, ERA-Net Biodiversa Research Initiative; CLIMABOG, the Swiss NSF). Most of these projects are based on in situ manipulation of temperature increase combined with a change of water table level. **All of these projects operate in temperate zones** (France, Switzerland, Poland) **but have weak connection to sub-boreal zones** (e.g. Siberia). **Our aim is to set up experimental field sites along a latitudinal gradient (temperate to sub-boreal) and harmonise methodologies so as to have reference sites for long term monitoring of C budget** allowing meta-analyses of databases to be undertaken.

The specific objective for the field season in question was thus focussed on upgrading of the Mukhrino Field Station and installing the experimental site (warming devices or OTCs (Open Top Chambers), and trenches for drought manipulation) according to the standard ITEX (International Tundra Experiment).

The planned program in the instrumented Mukhrino site is: (i) continuous in situ monitoring of climatic parameters and environmental variables in the manipulated plots and the controls, (iii) survey during the growing season of vegetation, physico-chemical properties of ground water and C fluxes. Based on the collected data and surveys we will develop a peat decomposition model including C flux dynamics.

3. Main achievements and difficulties encountered during the field season in question (max. 250 words)

On July 2012, the user group stayed 2 weeks at Mukhrino Field Station (MFS) -1st to 14 of July- for the following work programme:

- (i) Setting up the experimental site at MFS and installing devices (OTCs for experimental warming and trenches for drought manipulation). According to the vegetation, a complete random experimental design was assessed in two homogeneous areas: a wet and a dry site. In the wet site, 24 plots were set up: 18 transplanted plots for water table manipulation (9 with OTCs and 9 controls) and 6 plots with no transplantation (3 OTC and 3 controls). In the dry site, we installed 3 plots with OTC and 3 controls.
- (ii) Installing 3 piezometers and sensors for measuring the water table level and soil temperature.
- (iii) Sampling plants and litters from the controls to study of starting conditions (T0).
- (iv) Sampling *Sphagnum* species along wet-dry gradient (10 microhabitats) for testate amoebae ecology and *Sphagnum* molecular composition.
- (v) Extraction of 3 peat cores of ca. 3.70m long for detailed description of the peatland stratigraphy.
- (vi) Extraction of a peat core of 4m long and high resolution sampling for palaeoclimatic reconstruction of Holocene.

Upon completion of such an extensive field work which was accomplished in ca. 12 days, a meeting was organised at Yugra State University (YSU) with the Rector of the University and the French, Polish, Swiss and Russian consortium. The CliMireSiber project was presented by the coordinator followed by a fruitful discussion with the Rector about the strategy for consolidating the Europe – Siberia network.

4. Publications related to the access granted, acknowledging the support by EC. Please specify the type of publication or presentation (scientific journal, book, patent, abstract, proceedings, article on internet) and provide the full reference or link.

a forthcoming paper to be published in the website of the Mukhrino Field Station and YSU: "A new experimental site at Mukhrino Field Station for studying how manipulated temperature and water table level impact the ecosystem functioning"