

Protocol

Meeting of Freie Universität Berlin representatives and St. Petersburg State University representatives about participation in 2019 in the program of support for the initial stage of joint projects is shown below. The visit took place in St. Petersburg from September 16 to 20, 2019. The meeting was held at the Institute of Earth Sciences, St. Petersburg State University (St. Petersburg, V.O., 10 p. 33/35).

Participants from FU: Prof. Dr. mult. Dr. h. c. Konstantin Terytze, Dr. Ines Vogel, Dr. Dmitri Drabkin – Department of Earth Sciences, Working Group Geoecology,

Participants from SPbU: Prof. Dr. Marina Opekunova; Head of Department of Geoecology and Nature Management, Dr. Irina Fedorova; Dr. Ekaterina Elsukova; Dr. Irina Arestova; Prof. Dr. Anatoliy Opekunov, Dr. Stepan Kukuschkin; Dr. Vsevolod Somov, graduate student Ivan Nedbaev

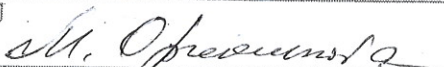

Discussed topics	Results/Decisions
<p>I. Colleagues from both universities made presentations:</p> <ol style="list-style-type: none"> 1. The presentation about St. Petersburg State University and The Institute of Earth Sciences (<i>Dr. Irina Arestova</i>) 2. The presentation of the Department of Geoecology and Nature Management (<i>Head of Department of Geoecology and Nature Management, Dr. Irina Fedorova</i>) 3. The presentation of the research group of the Institute of Earth Sciences (<i>Prof. Dr. Marina Opekunova</i>) 4. The presentation of the Department of Earth Sciences, Working Group Geoecology (<i>Prof. Dr. mult. Dr. h. c. Konstantin Terytze, Dr. Ines Vogel</i>) 5. Investigation of soil pollution in urban and industrial areas. Conditions for possible application in the Russian Science Foundation (RSF) grant competition for the event "Conducting fundamental research and exploratory research by international research teams" jointly with the German Research Foundation (Deutsche Forschungsgemeinschaft DFG). The grant was announced in September, the application deadline is December 9th. (<i>Dr. Ekaterina Elsukova</i>) 6. Rationing of pollutant content in soils (<i>Dr. Stepan Kukuschkin</i>). 	<p>The mentioned presentations were approved, and some issues related to its context were discussed (Appendix 1)</p>
<p>II. Discussion of prospects for cooperation. The following scientific tasks are mentioned in order to achieve the objective:</p> <ol style="list-style-type: none"> 1. Assessment of the soil pollution after the activities of various industries influence. The special attention should be paid to industries whose impact on the environment is relevant both in Germany and in Russia, including the mining industry (non-ferrous and ferrous metallurgy, the extraction of coal, oil shale) and the chemical industry, as well as urban areas. 2. Development and improvement of the methods that can allow clean the soil from pollution, the use of methods of bioremediation, including biochar for cleaning various types of soil. Creating an effective 	<p>We decided to prepare documents for submission to the RSF competition during October. St. Petersburg (the city of Pushkin) was chosen as the object. The scope of work and the location of the experimental areas are outlined. The network of monitoring stations and the main areas of work were discussed. The main attention will be paid to a detailed study of the soils of the background and contaminated sites. The research will include analysis of soil</p>

Konstantin Terytze

Dr. Opekunova

circulation of the substances	samples, soil litter and tree leaves in various types of forests, in parks of the city of Pushkin and in the area of influence of the railway, road transport and industrial enterprises. Self-cleaning of soils under the influence of biochar on contaminated sites will be studied. Heavy metals were chosen for the study: Ni, Cu, Pb, Fe, Mn, Cr, Cd, V, Ba, Zn, Co, Hg, Sr, As as well as organic compounds HC, PAH, phenols. Scientists from FU took for analysis 10 soil samples taken at the site of the study organic compounds (HC, PAH)
Visit to the laboratory (<i>Head of Laboratory Nadejda Scheinerman</i>)	Colleagues from Germany looked at the equipment available in the laboratory, discussed the possibility of its use in future joint projects
Open lecture "Soil protection in Germany and main regulations, research for improvement of soil quality" by <i>Prof. Dr. Konstantin Terytze and Dr. Ines Vogel</i> for students in the direction of Ecology and Nature Management	The lecture was attended by teachers and students of the Institute of Earth Sciences (the list is attached), the lecture aroused interest among students and teachers, many questions were asked, after the lecture a discussion took place (Appendix 2)
Colleagues from SMS proposed the following topics for further collaboration: 1) Bioavailability of priority heavy metals dependent on different soil types and soil parameters also regarding the influence of biochar application 2) Development of an educational manual for the assessment of soil quality in Europe and Russia for master students and further education of state authorities 3) Development of biomonitoring and implementation in territories with mineral oil contamination 4) Identification and prioritisation of soil pollutants and methods for the development of soil quality criteria 5) Development of strategies for the assessment of mixed heavy metal contaminations in soil	Scientists decided to formulate a topic for applying for a grant: Bioavailability of priority heavy metals, mixed heavy metal and organic pollution dependent on different soil types and soil parameters also regarding the influence of biochar application.
Visit to the Soil Museum (St. Petersburg, Birzhevoy pr., 6)	

Date 16.09.2019 - 20.09.2019, St. Petersburg

For SPbU 	For FU 
Prof. Dr. Marina Opekunova	Prof. Dr. Konstantin Terytze

Dr. Irina Fedorova	<i>Irina Fedorova</i>	Dr. Ines Vogel	<i>Ines Vogel</i>
Dr. Ekaterina Elsukova	<i>Ekaterina Elsukova</i>	Dr. Dmitri Drabkin	<i>D. Drabkin</i>
Dr. Irina Arestova	<i>Irina Arestova</i>		
Prof. Dr. Anatoliy Opekunov	<i>Anatoliy Opekunov</i>		
Dr. Stepan Kukuschkin	<i>Stepan Kukuschkin</i>		
Dr. Vsevolod Somov	<i>Vsevolod Somov</i>		
Ivan Nedbaev	<i>Ivan Nedbaev</i>		

Appendix 1 Presentations in electronic form, <https://vk.com/geoecologyspbu>

Appendix 2 Presentation in electronic form

List of students and teachers attending an open lecture

Teachers:

1. Prof. Dr. mult. Dr. h. c. Konstantin Terytze
2. Dr. Ines Vogel
3. Dr. Dmitri Drabkin
4. Prof. Dr. Marina Opekunova
5. Dr. Irina Fedorova
6. Dr. Ekaterina Elsukova
7. Dr. Irina Arestova
8. Prof. Dr. Anatoliy Opekunov
9. Dr. Stepan Kukuschkin
10. Dr. Vsevolod Somov
11. Professor Dr. Gennady Belozersky
12. Dr. Victor Tretyakov
13. Dr. Sergey Lebedev
14. Head of Laboratory Nadejda Scheinerman

Dr. Opekunova

Konstantin Terytze

Students:

1. Zemtsov Vladimir
2. Mordovskoy Eugene
3. Lisenkov Sergey
4. Chunyaeva Ekaterina
5. Monzul Natalia
6. Mukhitdinov Shakhrukhbek
7. Egorova Valeria
8. Chernova Elizabeth
9. Degoda Eugene
10. Malkova Julia
11. Frolova Snezhana
12. Borisova Nadezhda
13. Buranova Anastasia
14. Kirichenko Arina
15. Makarov Anton
16. Ryzhova Lubov
17. Saykina Elizabeth
18. Sitnikova Maria
19. Sysoev Eugene
20. Kharchenko Anastasia