

INTERNATIONAL SUMMER FIELD SCHOOL

ANTHROPOGENIC AND NATURAL SOIL LANDSCAPES IN EUROPEAN RUSSIA: FROM SEA TO SEA

« Monitoring, modeling and managing urban soils and green infrastructure »
(3MUGIS-2019)

General overview: The 3MUGIS summer school is an annual event, which addresses relevant contemporary environmental consequences and opportunities of urbanization with special emphasis on soil functions. The event is organized under the umbrella of the International Union of Soil Science (IUSS), RUDN University (Russia) and the Urban Soil Institute (USA) with strong cooperation from universities, institutions and research teams from around the world. The inaugural summer school was organized to coincide with the SUITMA 9 international congress in Moscow in May 2017, and attracted students and young researchers from 8 countries. In 2018, 3MUGIS included two parts: an intensive week of lectures, followed by a week long field tour observing natural and anthropogenic soils and landscapes from the taiga to the steppes of Russia.

What's new in 3MUGIS-2019 Building from considerable experience and feedback from participants during the first two years, the organizers have decided to further focus the school on solid practical skills in monitoring, modeling and mapping urban soils and green infrastructure over different climatic and anthropogenic conditions. Lessons from traditional, long-standing and internationally recognized zonal soil geography field courses from Moscow State University (Russia) and the University of California (USA) are being incorporated to provide additional structure, congruence, and rigor to the 3MUGIS program. The organizers intend for the school to become a globally recognized training program that provides students with first hand field experience examining anthropogenic impact sequences across conventional soil forming factors from Sub-arctic to Dry steppe climates. At the end of the program, students will better understand the social, climatic, and geographic factors that contribute to human soil modification in this region; the long-term implications of such changes; practical skills to perform in-field soil monitoring, soil mapping and remote sensing; and applied skills in identifying, implementing, and managing opportunities for urban green infrastructure development.

Five days of focused on-campus training in skills relevant to the sites visited will occur at RUDN University in Moscow city. They will be followed by an expanded two-week field tour from the White Sea (Kandalaksha town, 67N; 32E) to the Azov Sea (Taganrog town, 47N; 38E). The tour will give students a unique overview of the natural and cultural diversity of European Russia. Five zones (subarctic, taiga, deciduous forest, forest-steppes and steppes) will be studied in regard to key issues of urban development, including industrial pollution, forest management, agricultural development, and urban-rural interactions. Urban soils and green infrastructure at each of the region will be studied in comparison to natural references. Conventional field descriptions and classification will be amplified by advanced techniques of in-field analysis. Lecture and field parts will consistently follow the problem-oriented framework to be presented at the final team and individual projects, and a short quiz will occur after each field tour stop that covers topics most relevant to that stop.

DURATION: 21 days (**July 21 – August 11**)

PRELIMINARY STRUCTURE AND PROGRAM

WELCOMING	
Day 1	Arrival to Moscow, city tour, social program
ON CAMPUS TRAINING	
Day 2	2 lectures and 1 practical training on SUITMA classification, morphology and genesis
Day 3	2 lectures and 1 practical training on modeling soil processes in SUITMAs
Day 4	2 lectures and 1 practical training on SUITMA mapping and spatial analysis
Day 5	2 lectures and 1 practical training on soil pollution and remediation
Day 6	5 introductory talks on urban soils and green infrastructure in the zones visited during the field tour (social and natural history of regions, soil factors of most relevance, review of research completed to date) Afternoon to prepare for excursion
FIELD EXCURSION	
Day 7 - 10	Subarctic zone (Apatity and Kandalaksha towns, Ferric Podzols and Abrazems, remediated industrial wastelands, subarctic botanical garden, mountainous soil and landscape sequences, White Sea)
Day 10-12	Taiga zone (Central Forest Reserve, Albic Retisols, windthrows, Technosols of different functional zones in Moscow megapolis, Soil museum by V.R. Williams)
Day 13	Deciduous forests (Pushchino town, Phaeozems, Prioksko-Terrasny Reserve, Observatory, natural and urban forests)
Day 14-16	Forest-Steppe zone (Central Chernozemic Reserve, Halpic and Luvic Chernozems, Technosols on Chernozems, Kursk and Voronezh towns, , Kursk magnetic anomaly, Korennay hermitage)
Day 17-18	Steppe zone (Rostov-on-Don and Taganrog towns, Calcic Chernozems, Don river, Azov See)
Day 19-21	Rostov-on-Don: Summarizing data from the field trip, working on the team projects, project defense and the final exam
Day 22	Departure from Rostov-on-Don international airport

CONDITIONS: 3MUGIS-2019 summer school will host international groups up to 35 participants. 3MUGIS-2019 participants will receive 3 ECTS, recognized by educational programs worldwide. Participation fees will cover accommodation, two meals per day, travelling inside Russia and all materials necessary for courses. The participation fee is anticipated to be 1,200 euro. All of the foreign participants will also receive visa support and any other assistance with organization of their trip to Moscow.

The registration will be open from November 15 2018 at [www. http://3mugis.org/](http://3mugis.org/)

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GEOGRAPHIC RANGE COVERED: SEA TO SEA



Khibiny mountains



Industrial wasteland



Windfalls in Forest Reserve



Prioksky Natural reserve



Soil observations