



# IUSS



International Union of Soil Sciences®

Bulletin

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# Conference and Meeting Reports 2023



International Union of Soil Sciences®

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# Conference and Meeting Reports 2023

The International Scientific Conference “XXVI Dokuchaev Conference for Young Scientists” «Soil science matrix» took place at the Saint Petersburg State University and the Dokuchaev Central Soil Science Museum on March 1–3, 2023 in St. Petersburg. The Conference was dedicated to the 140th anniversary of soil science.

This year the topic of the Conference was dedicated to the “soil science matrix”, which is the framework on which all our knowledge is attached, linking soil science with related sciences (biology, ecology, geography, geology, mineralogy, geodesy, physics, chemistry, computer science, etc.). The matrix is a structure of interconnection between the elements of science and society, which includes two aspects: fundamental and applied. Just as transformations within science occur due to social events, so social transformations are carried out largely due to the development of science.

The Organizing Committee of the Conference was represented by students, post-graduate students and young scientists of St. Petersburg State University, the Dokuchaev Central Soil Science Museum and Perm State Agro-Technological University. About 108 Conference applications were received from students, postgraduate students, young scientists, as well as 14 applications from schoolchildren.

Applications were sent from different regions of Russia (Moscow, Pushchino, St. Petersburg, Rostov-on-Don, Volgograd, Apatity, Perm, Irkutsk, Nalchik, Kazan, Astrakhan, Krasnoyarsk, Petrozavodsk, Mytishchi, Tomsk, Tula, Belgorod, Suzdal, etc.), as well as from other countries, including Turkey and Uzbekistan.

All submitted abstracts were subject to preliminary review by members of the Editorial Board – Lecturers of the St. Petersburg State University. The abstracts were finalized by the authors in accordance with the comments of the reviewers, after which they were accepted for publication.

By the beginning of the XXVI Dokuchaev Conference, Russian and English versions of the program, as well as a collection of Conference materials, were posted on the Conference website (<http://www.dokuchaevskie.ru/>). A set of printed versions of the program, proceedings, consumables (pens, notepads, badges, booklets) were distributed to Conference participants.

The Opening and the Plenary Sessions of the Conference took place in-person on March 1, 2023 at the Saint Petersburg State University. The video conference was organized with language interpretation and with live stream on Zoom.

The Conference was opened by Dr. B.F. Aparin, Chair of the Organizing Committee, Professor at the Department of Soil Science & Soil Ecology of the St. Petersburg State University, scientific adviser of the Dokuchaev Central Soil Science Museum, Vice-President of the Dokuchaev Soil Scientists Society (Russia).

The following people addressed the conference participants with welcoming words: Dr. K.V. Chistyakov, Vice-President of the Russian Geographical Society, Director of the Institute of Earth Sciences of the St. Petersburg State University, Professor; Dr. P.V. Krasilnikov, President of the Dokuchaev Soil Scientists Society (Russia), Dean of the Faculty of Soil Science of the Moscow State University, Corresponding Member of the Russian Academy of Sciences (RAS); Dr. N.B. Khitrov, Head of the Department of genesis and amelioration of saline and solonetz soils of the V.V. Dokuchaev Soil Science Institute; Dr. V.A. Androkhonov, Director of the Institute of Soil Science and Agrochemistry, Siberian Branch of the Russian Academy of Sciences.

Information about the Conference was presented by the Executive Secretary of the Conference, Senior Researcher of the Dokuchaev Central Soil Science Museum E.V. Mingareeva and Secretary of the Conference, Researcher of the Dokuchaev Central Soil Science Museum M.A. Lazareva.



*The Opening and the Plenary Session of the conference. President of the Dokuchaev Soil Scientists Society (Russia), Dr. Krasilnikov P.V.*

The Plenary session was conducted by Dr. S.N. Chukov, Professor of the Department of Soil Science & Soil Ecology of the St. Petersburg State University. An important feature of this year's Conference was that the Plenary session was dedicated to a particularly significant date for us – the 100th anniversary of the Department of Soil Science & Soil Ecology of the St. Petersburg State University.

The Department was founded in 1922 at the Department of Agronomy and is a part of the Dokuchaev's scientific and pedagogical school of fundamental Soil Science. Today it is equipped with modern instruments and equipment and trains soil scientists at three educational levels: Bachelor, Master, and Post-graduate programs. There are 5 doctors and 1 PhD in the Department.

Off-line Plenary reports were made by the leading scientists of Russia:

- Dr. B.F. Aparin, Professor of the Department of Soil Science & Soil Ecology, St. Petersburg University, Scientific adviser of the Dokuchaev Central Soil Science Museum, «Pages of history of the department of soil science»
- Dr. A.V. Rusakov, Professor, Head of the Department of Soil Science & Soil Ecology, St. Petersburg University, «Modern directions of scientific research at the Department of Soil Science & Soil Ecology, St. Petersburg University»



*The Opening and the Plenary Session of the conference. Participants of the Plenary Session (The owner of the photo is Lazareva M.A.)*

- Dr. P.V. Krasilnikov, Corresponding Member of the Russian Academy of Sciences, Dean of the Faculty of Soil Science, Lomonosov Moscow State University, Head of the Department of General Soil Science, «Soil science of the Russian North: history and new challenges»
- Dr. N.B. Khitrov, Head of Department of Genesis and Amelioration of Saline and Solonetz Soils of the V.V. Dokuchaev Soil Science Institute, «Vertisols of Russia»
- Dr. S.N. Chukov, Professor of the Department of Soil Science & Soil Ecology, St. Petersburg University, «The concept of evolutionary humification»
- Dr. S.N. Lesovaya, Professor of the Department of Physical Geography & Landscape Design, St. Petersburg University, «Domestic school of soil mineralogy: history, main direction of research, current state, prospects»
- PhD E.Yu. Chebykina, Associate Professor of the Department of Applied Ecology, St. Petersburg University, «The foundation laid during the study at the Department of Soil Science of St. Petersburg University is the basis of a successful career»

An important event for the Conference participants was a visit to the Smolensk cemetery and laying flowers on the graves of the founder of soil science V.V. Dokuchaev, his wife A.E. Dokuchaeva and her mother A.I. Sinkler. A visit to the Smolensk cemetery took place on March 1 at 14:00. The attention of the Chair of the Organizing Committee of the Conference B.F.

Aparin was drawn to the fact that in 2021 on the initiative of the Autonomous Non-Commercial Organization «Soil – Life», an all-Russian action was held to raise funds for the repair work of graves.

At the expense of voluntarily collected funds among soil scientists, members of the Dokuchaev Soil Scientists Society, cosmetic repairs were carried out to the burial place of V.V. Dokuchaev's wife and her mother, a project was completed to restore the burial place of a scientist, which is an object of cultural heritage of federal significance.

Then the floor was given to the participants of the conference. They expressed their attitude to the Dokuchaev heritage, called on their young colleagues to study the history of their science and make every effort for its further development. Laying flowers on the grave of the founder of soil science was an act of remembrance and admiration for the outstanding scientist.

A master class on working with literary sources and the Zotero software was in the Dokuchaev Central Soil Science Museum after visiting the graves. A master class was a live stream on Zoom (Coordinator: S.M. Gorokhova, Senior Lecturer of the Department of Soil Science, Member of the Board of the Council of Young Scientists of Perm State Agro-Technological University).

Target audience – students, postgraduate students, young scientists under 35 years old, researchers and everyone who publishes scientific texts. Zotero is a free and open source software that helps to organize bibliographic descriptions of texts and, if desired, their full versions. In addition, with Zotero, you can spend less time formatting references and bibliography to the right standards.

A meeting of the school session «Young researcher. Start in science» traditionally was in the Dokuchaev Central Soil Science Museum on the first day of the conference. The meeting of the conference was on-line-off-line. 13 reports out of 14 announced by participants from St. Petersburg, Volgograd, Tutaev, and Voronezh region were heard. 7 reports were made on-line.

The age of participants ranged from 7 to 17 years. The influence of current modern trends in science was also reflected in the work of schoolchildren. 5 reports were devoted to the study of the microbial community. Other works were devoted to the study of the physicochemical properties of soils and the effectiveness of the use of various types of fertilizers. All speakers received diplomas. An exhibition «Arseniy Arsenievich Yarilov (to the 155th anniversary)» took place at the Dokuchaev Central Soil Science Museum in the evening. The exhibition was made on the basis of archival materials of the Dokuchaev Central Soil Science Museum and the family archive of the family, provided by E.I. Lytkina (the great-granddaughter of A.A. Yarilov).

The exhibition contains original documents, copies of photographs, lifetime scientific works of A.A. Yarilov and family memories. The scientific concept, the selection of material, and the artistic design of the exhibition were made by E.A. Rusakova (senior researcher, chief curator of the Dokuchaev Central Soil Science Museum).

Off-line-on-line meetings of student sessions took place on March 2–3, 2023 at the St. Petersburg State University and the Dokuchaev Central Soil Science Museum:



Meeting of 'Soil physics and chemistry' session (left). A participant of the Session on 'Anthropogenic soils' (right). The owners of the photos are Yu.R. Morgach and S.M. Gorokhova

1. Anthropogenic soils. 22 reports out of 24 announced were heard and 9 reports were made on-line.
2. Soil physics and chemistry. 16 reports out of 25 announced were heard. 7 reports were made on-line.
3. Bioinert interactions. 14 reports out of 22 announced were heard and 5 reports were made on-line.
4. Traditions and innovations of soil science. 13 reports out of 17 announced were heard and 3 reports were made on-line.
5. Soil geography. 11 reports out of 14 announced were heard and 5 reports were made on-line.
4. Traditions and innovations of soil science. 13 reports out of 17 announced were heard and 3 reports were made on-line.
5. Soil geography. 11 reports out of 14 announced were heard and 3 reports were made on-line.
6. Poster session. 3 reports out of 6 announced were heard.

Issues of studies of the composition, chemical, physical, biological properties and processes of modern and buried, urban and initial soils, their ecological-geochemical, ecological, agroecological assessment; study and application of modern web services, smartphones, geoinformation methods in soil research, transformation of soil compounds in the course of model experiments; assessment of the geographical knowledge and distribution of anthropogenically modified soils, fallow lands of different natural zones; diagnostics, classification and restoration of disturbed soils; soil pollution with heavy metals, radioactive, rare earth elements, hydrocarbons, their detoxification; technogenic salinization; soil phytotoxicity; biological, microbiological, enzymatic activity of anthropogenically modified soils under various vegetation were discussed in student sessions.



81 student's reports were heard at the conference. Most of the conference participants were from Moscow – 33 people (Lomonosov Moscow State University, V.V. Dokuchaev Soil Science Institute, Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, Peoples' Friendship University of Russia, Institute of Geography Russian Academy of Sciences (RAS)). 19 people were from Saint-Petersburg (St. Petersburg State University, Dokuchaev Central Soil Science Museum, St. Petersburg State Forest Technical University named after S.M. Kirov, Russian State Hydrometeorological University, Children and Youth Creative Center «Vasilyevsky Island»).

From Rostov-on-Don – 8 people (Southern Federal University). From Perm – 7 people (Perm State Agro-Technological University, Perm State University). From Pushchino, Moscow region – 3 people (Institute of Physicochemical and Biological Problems of Soil Science of RAS). From Tyumen – 2 people (University of Tyumen). From Apatity – 2 people (Institute of Problems of Industrial Ecology of the North of the Karelian Scientific Center of RAS; Polar Alpine Botanical Garden-Institute of the Karelian Scientific Center of RAS). Astrakhan – 2 people (Astrakhan Tatishchev State University).

Also among the young scientists were speakers from:

- Tomsk State University, Tomsk;
- Irkutsk State University, Irkutsk;
- Institute of Ecology of Mountain Territories named after A.K. Tembotov of RAS, Nalchik;
- Institute of Biophysics. Siberian Branch of RAS, Krasnoyarsk;
- Igdir University, Igdir, Turkey.

Chair and secretaries of the student sessions were Bachelor's students Karabach E.A., Tikhomirova V.A., Leont'ev A.A., Pampour D.; Master's students Lebedinsky M.I., Kuzmina A.A., postgraduate students Zharkih I.A., Kholostov G.D., Fedorova M.E. at the Department of Soil Science & Soil Ecology of the St. Petersburg State University; postgraduate students Ivanov E.D. at the Department of Applied Ecology of the St. Petersburg University; researchers Morgach Yu.R., Lazareva M.A. at the Dokuchaev Central Soil Science Museum; Senior Lecturer of the Department of Soil Science, Member of the Board of the Council of Young Scientists of the Perm State Agro-Technological University Gorokhova S.M.

The jury members that evaluated the performances of the participants were Dr., S.N. Chukov, Professor; PhD A.A. Sheshukova, Senior Lecturer; Yu.V. Simonova, Assistant at the Department of Soil Science & Soil Ecology of the St. Petersburg State University; PhD K.L. Yakkonen, Associate Professor at the Department of Agrochemistry of the St. Petersburg State University; PhD G.A. Kasatkina, Leading researcher, PhD E.V. Pyatina, Leading researcher of the Dokuchaev Central Soil Science Museum, and also chair and secretaries of the student sessions.

The reports of the conference participants were assessed by the jury on the basis of the criteria developed by the organizing committee: the originality, the novelty, the topicality of research, the consistency, the completeness and the specificity of presented data, the justification of the application of used methods, the saturation of the actual material and its statistical processing, the quality of presented material, the richness of presentation and its technical quality, the knowledge of material and the literacy of presentation, the conformation to speaking time and answers on questions.

After each presentation, the jury members asked the speakers questions, discussed and gave a general assessment of the reports. In some sessions, the reports were so large-scale and varied in subject matter, saturated with material and so strong that the jury members found it difficult to choose the best of them. The participants of the conference were not just passive speakers and members of the audience. During the meetings, thanks to the participants themselves, active discussions and heated debates developed. The selection of works by the jury members this year was more serious, because the best of the reports will be published in a special issue of the journal "Soil Science".

Round table discussion «Educational program in soil science at the St. Petersburg State University» took place at the Dokuchaev Central Soil Science Museum on March 3, 2023. (Coordinator: Dr., A.V. Rusakov, Professor, Head of the Department of Soil Science & Soil Ecology, St. Petersburg University; Chair: A.A. Averyanov, postgraduate student at the Department of Soil Science & Soil Ecology of the St. Petersburg State University).

The Closing of the Conference took place at the Dokuchaev Central Soil Science Museum on March 3. With an introductory speech made by Dr. E.Yu. Sukhacheva, Director of the Dokuchaev Central Soil Science Museum.

Thanks to the participants was expressed by Dr. A.V. Rusakov, Professor, Head of the Department of Soil Science & Soil Ecology at the St. Petersburg University. The meeting was continued by the Secretary of the Conference M.A. Lazareva and Chair of the sessions, who summarized the results.

The high methodological level of participants' research and the topicality of topics were noted. Then the floor was given to the participants of the conference.

They noted the importance of a wide approbation of the results of their scientific research, the acquisition of scientific communication skills and the exchange of experience, noted the excellent organization of the conference and recognized the importance of the regularity of such events.

Based on the results of the sessions, the best reports were awarded places and diplomas of I, II, and III degrees, and reports were also announced for publication in a special issue of the journal "Eurasian Soil Science".

All speakers were awarded certificates of the Dokuchaev Conference for Young Scientists' participants, and school session's participants – diplomas, the design of which was specially developed by researcher of the Dokuchaev Central Soil Science Museum M.K. Zakharova.



Participants of the XXVI Dokuchaev Conference for Young Scientists "Soil science matrix" at the Closing of the Conference  
(The owner of the photo is Zakharova M.K.)

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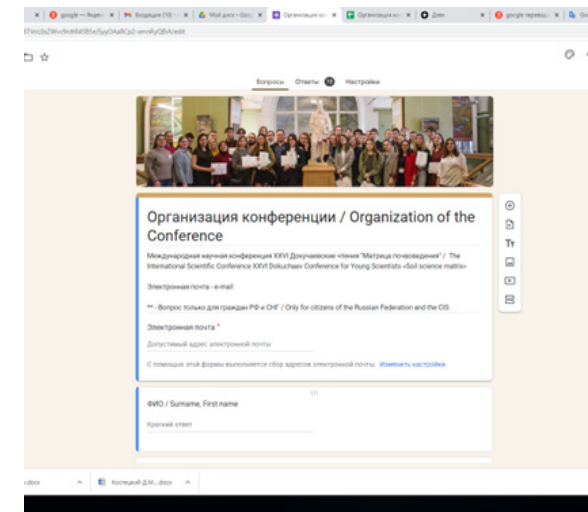
Also, at the suggestion of the Organizing Committee, the participants unanimously decided:

1. To thank:
  - The staff of the public relations department of the St. Petersburg State University for the organization and the technical support of the conference and the Plenary session;
  - The leading scientists – participants of the Plenary session;
  - The members of the conference organizing committee, jury members for the organizing of the XXVI Dokuchaev Conference for Young Scientists
2. To continue a tradition of the annual “Dokuchaev Conference for Young Scientists” organizing and to hold the next XXVII Anniversary Dokuchaev Conference for Young Scientists in 2024.
3. To post information about the XXVI Dokuchaev Conference for Young Scientists on the websites:
  - Dokuchaev Conference for Young Scientists (<http://www.dokuchaevskie.ru/?lang=en>).
  - Institute of Earth Sciences of the St. Petersburg State University (<http://earth.spbu.ru/en/>).
  - Dokuchaev Central Soil Science Museum (<http://soil-museum.ru/en/>).

For the first time, an Internet survey of the participants of the XXVI Dokuchaev Conference for Young Scientists “Soil science matrix” was made on its organization.

120 conference participants were interviewed. Evaluation indicators were a mark system, the highest mark of which is 5 (excellent), the lowest is 2 (unsatisfactory). The participants evaluated a level of organization of the conference as 5 (excellent) and 4 (good). The relevance of the conference topics, the meeting of participants (registration, opening of the conference), the organization of the Plenary session (conducting, selection and relevance of topics), the Conference program (Speaking time), the evaluation of reports, the organization of a visit to the Smolensk cemetery, the organization of a master class on working with references and the Zotero software, the organization of the Closing of the Conference (the procedure) was evaluated by the participants as 5 (excellent). The information support on the websites and the social networks, the time limits and information exhaustiveness about dates and the Program of the Conference, the organization of the Round table discussion «Educational program in soil science at the St. Petersburg State University», the organization of breaks, and technical support the participants evaluated as 4 (good).

Some comments by conference participants:  
 «I liked the scale of the conference (involving cities and universities), which allowed me to take a broad look at the work in my session and contributed to the acquisition of many interesting professional contacts. I thank the organizers for the worthy holding of the conference and the participants for the good reports» (Anonym)  
 «I liked the unique atmosphere of the youth scientific conference and meeting new people» (Chaplygin V.A., Southern Federal University, Rostov-on-Don)



Picture 4. An Internet survey of the participants of the XXVI Dokuchaev Conference for Young Scientists “Soil science matrix” (Owner of a photo is Lazareva M.A.)

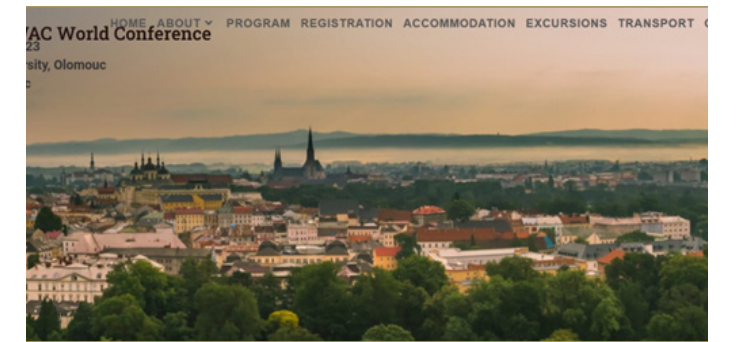
*Chair of the Organizing Committee:*  
 Dr. B.F. Aparin  
 Professor at the Department of Soil Science & Soil Ecology  
 of the St. Petersburg State University,  
 scientific adviser of the Dokuchaev Central Soil Science Museum,  
 Vice-President of the Dokuchaev Soil Scientists Society (Russia),

*Executive Secretary:*  
 E.V. Mingareeva  
 Senior Researcher of the Dokuchaev Central Soil Science Museum

*Secretary:*  
 M.A. Lazareva  
 Researcher of the Dokuchaev Central Soil Science Museum

## The 5th WASWAC World Conference

June 19th– 23rd, 2023, Palacky University, Olomouc, Czech Republic



The 5th WASWAC World Conference “Adaptation Strategies for Soil and Water Conservation in a Changing World” was held under the auspices of the IUSS. As a consequence of intensive agricultural and forestry activities, climate change and other influencing factors, soil and water in the landscape are under increasing pressure and ecosystem services are disrupted. It is therefore necessary to seek and implement measures which will mitigate the negative impact on the components of the environment, especially on soil and water, and will lead to sustainable agricultural and forestry production while also ensuring non-productive functions, in accordance with a number of international and national documents, e.g., the EU Soil Strategy until 2030.

The conference aims were:

- To analyze the present and future situation of soil and water conservation on a worldwide scale while taking into consideration local specifics;
- To analyze the effects of population growth, human activity and climate change on soil and water in the context of the demands of sustainable farming, water, and food supply;
- To promote and increase collaboration between scientific organizations, policymakers, the public and practitioners;
- To determine goals, strategies, and directions for the conservation of soil and water as basic non-renewable natural resources for current exploitation and the needs of future generations;