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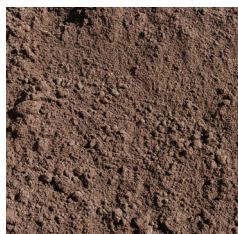
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XXIV Dokuchaev Conference for Young Scientists “Soil Science in a Digital Society”

The International Scientific Conference XXIV Dokuchaev Conference for Young Scientists “**Soil Science in a Digital Society**” took place at the Saint Petersburg State University and the Dokuchaev Central Soil Science Museum on March 1–3, 2021 in St. Petersburg. XXIV Dokuchaev Conference for Young Scientists has been devoted to an actual problem of modern society – the application and the development of digital technologies in soil science, and Year of science and technology in Russia. At the present stage, innovations are the main driving force behind the progress of world civilization. The use of information technologies in soil science makes it possible to study the current state of soils and the dynamics of changes in the main indicators of fertility for a given period of time, to assess soil resources at the present stage, to develop the soil monitoring methodology, including the structure and the content of databases, the mapping of fertility indicators, to develop recommendations for fertilizer application based on cartographic models and attributive information of arable soils. The information and the analytical system, digital soil models of the study area, allow accumulating, analyzing, gener-

alizing information, as well as developing recommendations based on the results of soil monitoring. XXIV Dokuchaev Conference for Young Scientists have been devoted to the anniversary date the 175th anniversary of the V.V. Dokuchaev’s birth – the founder of soil science. The organizing committee of the conference was represented by students, Ph.D. students and young scientists of the St. Petersburg State University and the Dokuchaev Central Soil Science Museum. About 200 conference applications were received from students, Ph.D. students, young scientists, as well as 30 from school children. Applications came from almost all regions of Russia (Moscow, St. Petersburg, Rostov-on-Don, Krasnoyarsk, Kazan, Yakutsk, Tyumen, Vladivostok, Novosibirsk, Nizhny Novgorod, etc.), as well as from countries of near and far abroad, including Czech Republic, Turkey, Italy, Ukraine, Belarus, Kazakhstan, Uzbekistan. By the beginning of the XXIV Dokuchaev conference, Russian and English versions of the program, as well as a collection of conference materials, were posted on the conference website.



The Plenary Session of the conference (© Zakharova M.K.)

The Opening and the Plenary Session of the conference took place on March 1 in the Saint Petersburg State University. For the first time, the opening of the conference was on-line. Video conference was with language interpretation.

The Plenary Session has been opened Chairman 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), Dr. Aparin B.F. The following people addressed the conference participants with welcoming words: Director of the Institute of Earth Sciences of the St. Petersburg State University, Vice-President of the Russian Geographical Society, Dr., Professor (Russia), Chistyakov K.V.; President of the Dokuchaev Soil Scientists Society, President of the Faculty of Soil Science of the Moscow State University, Corresponding Member of the Russian Academy of Sciences (RAS), Dr., Professor (Russia) Shoba S.A.; Director of the V.V. Dokuchaev Soil Science Institute, Academician of the RAS, Dr., Professor (Russia) Ivanov A.L. Heads of soil institutes in Russia and foreign countries addressed the conference participants with welcoming words:

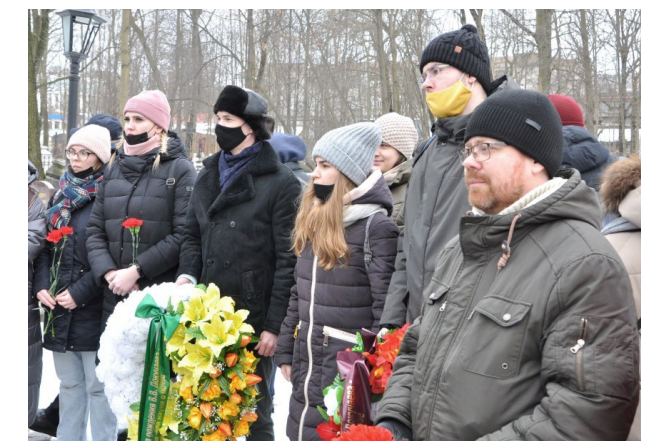
- *Alekseev A.O.*, Director of the Institute of Physico-chemical and Biological Problems of Soil Science of the RAS, Corresponding Member of the RAS, Dr. (Russia);
- *Androkhonov V.A.*, Acting Director of the Institute of Soil Science and Agrochemistry, Siberian Branch of the RAS, Dr. (Russia)
- *Mammadov G.Sh.*, Director of the Institute of Soil Science and Agrochemistry of the Azerbaijan National Academy of Sciences (ANAS), Academician of ANAS, Dr., Professor (Azerbaijan)
- *Lapa V.V.*, Director of the Institute of Soil Science and Agrochemistry of the National Academy of Sciences of Belarus (NASB), Honored Scientist of Belarus, Academician of NASB, Dr., Professor (Belarus)
- *Suleymanov B.U.*, Chairman of the board of the Kazakh U. Uspanov Research Institute of Soil Science and Agricultural Chemistry, Academician of the Academy of Agricultural Sciences of Kazakhstan (AASK), Dr., Associate Professor (Kazakhstan)
- *Baibagyshov E.M.*, Rector of Naryn State University named after S. Naamatov, President of the Kyrgyzstan Soil Scientists Society named after academician A.M. Mamytov, Ph.D., Acting Professor (Kyrgyzstan)
- *Bobomurodov Sh.M.*, Director of the Research Institute of Soil Science and Agrochemistry, Dr. (Uzbekistan)

- *Gafurova L.A.*, Director of the AgroEcoBiotechnology Center, National University of Uzbekistan named after Mirzo Ulugbek, Dr., Professor (Uzbekistan).

Invited talks have been given by:

- *Laura Bertha Reyes Sánchez*, IUSS President, academic of the Faculty of Higher Studies Cuautitlán, National Autonomous University of Mexico, Dr. (Mexico) “The educational project of the IUSS in a digital society”
- *Ivanov A.L.*, Director of the V.V. Dokuchaev Soil Science Institute, Academician of the RAS
- *Maslov A.E.*, Head of the Situational Analytical Center of Soil and Land Resources of Russia, V. V. Dokuchaev Soil Science Institute (Russia) “Digital farming in Russia”.

An important event for the conference participants was a visit to the Smolensk cemetery, a memorial service and laying flowers on the graves of the founder of soil science V.V. Dokuchaev, his wife Anna Yegorovna and her mother A.I. Sinkler. A visit to the Smolensk cemetery took place on March 1 at 2 p.m. Laying flowers were with live stream on Zoom.



Visit to the Smolensk cemetery (© Zakharova M.K.)



Memorial service (© Zakharova M.K.)

The Plenary session ended with reports: Director of the Dokuchaev Central Soil Science Museum, Ph.D., Associate Professor at the Department of Soil Science & Soil Ecology of the St. Petersburg State University Sukhacheva E.Yu. "Popularization of knowledge about soil is the most important task of modern soil science"; Director of the Novodugino Local History Museum named after V.V. Dokuchaev Tanskaya E.I. "V.V. Dokuchaev Memorial Day in the homeland"; researchers of the Dokuchaev Central Soil Science Museum (Zakharova M.K., Timofeeva Yu.R., Aparin B.F., Rusakova E.A.) "Recognition. To the 175th anniversary of the birth of V.V. Dokuchaev"; and also SPbU Media Center report about the Dokuchaev Central Soil Science Museum "In the kingdom of soils". On-line meeting of the school session "Soil is life" took place on March 2 from 10 a.m to 1 p.m. at the St. Petersburg State University. 11 reports out of 14 announced by participants from Irkutsk, Volgograd, Kazan, St. Petersburg, Moscow, Ufa and Kazakhstan were heard. The topics

of the reports were wide. Issues of the soil diversity, the soil monitoring, the soil biotesting, the accumulation of radioactive elements by plants from soil, the determination of humus in soil, the assessment of salt pollution, the application of IoT technologies in soil science were discussed. An exhibition the Vasily Dokuchaev's 175th anniversary took place on March 2 (author Rusakova E.A.). The idea of the exhibition is to highlight the scale of the V.V. Dokuchaev personality through a prism of the perception and the comparison by visitors of achievements of the scientist, confined to certain stages in life, with their own successes. V.V. Dokuchaev's biography, passed through his own life experience, allows visitors to better imagine the scale of the first soil scientist, and imbued with respect for his weighty scientific heritage. The exhibition will provide an insight into the pioneer's extensive and all-around activities in the field of comprehensive soil and environmental studies.



An exhibition the Vasily Dokuchaev's 175th anniversary (© Zakharova M.K.)

On-line meetings of student sessions took place on March 2-3 at the St. Petersburg State University.

1. Soil in a changing environment.
17 reports out of 22 announced were heard.
2. Soil resources and sustainable soil use.
14 reports out of 21 announced were heard.
3. Soil is a multifunctional system.
9 reports out of 19 announced were heard.
4. Prefabricated session: Agrochemistry and harvest in numbers, Information technologies in soil science,

Soil in a changing environment.

11 reports out of 19 announced were heard.

5. Poster session. 1

2 reports out of 18 announced were heard.

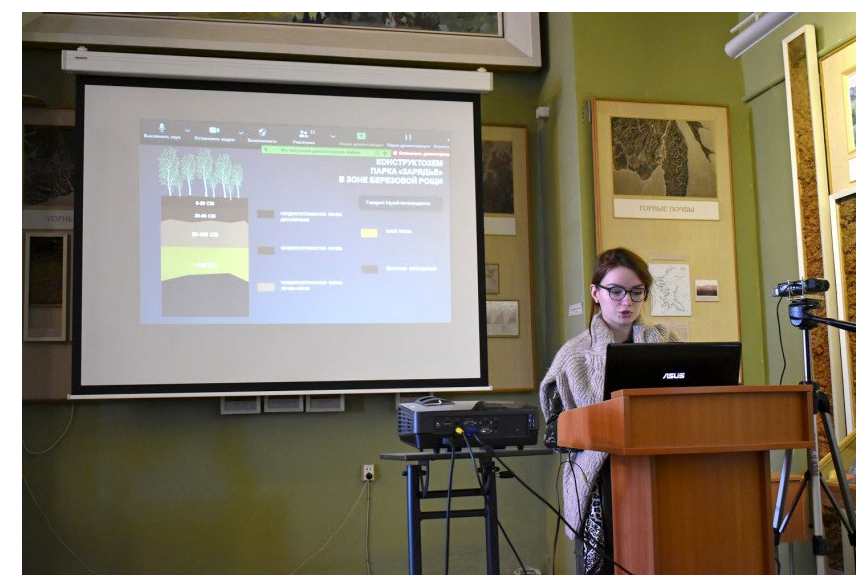
For everyone who came to the conference, a face-to-face meeting was at the Dokuchaev Central Soil Science Museum. A face-to-face meeting was with live stream on Zoom. 26 reports out of 33 announced were heard. 25 reports were presented face-to-face, 1 – online.

Issues of the development of information technologies in soil science, the digital soil mapping and the application of GIS technologies, the multifunctionality of a soil system, the content and the distribution of heavy metals and radioactive elements in soils, the soils geographic distribution, soils changes under the influence of natural environmental factors and anthropogenic pressure, a place of soils in the modern classification, the intensification of agriculture and rational use of soils, the use of various fertilizers, biological products, for growing crops were discussed in student sessions. 89 student reports were heard at the conference. Most of the conference participants were from Moscow – 37 people (Lomonosov Moscow State University, Russian Timiryazev State Agrarian University, Peoples' Friendship University of Russia). From Saint-Petersburg were 10 people (St. Petersburg State University, Dokuchaev Central Soil Science Museum, Agrophysical Research Institute, Saint-Petersburg State Agrarian University). From Pushchino, Moscow region – 7 people (Institute of Physicochemical and Biological Problems of Soil Science of Russian Academy of Sciences (RAS), Pushchino State Institute of Natural Sciences, Federal Research Center "Pushchino Scientific Center for Biological Research of RAS, Institute for Fundamental Problems of Biology of RAS). From Rostov-on-Don – 8 people (Southern Federal University, Federal Research Centre The Southern Scientific Centre of RAS). From Perm – 4 people (Perm State Agro-Technological University named after Academician D.N. Pryanishnikov). From Syktyvkar – 3 people (Pitirim Sorokin Syktyvkar State University). From Novosibirsk – 2 people (Novosibirsk SAU). From Rassvet village, Rostov region – 2 people (Federal Rostov Agricultural Research Centre).

Also among the young scientists were speakers from the countries of near and far abroad:

- IGDIR University, Igdir, Turkey
 - Universita di Pavia, Pavia, Italy
 - Mendel University in Brno, Blansko, Czech Republic
 - Mendel University in Brno, Náměšť nad Oslavou, Czech Republic
 - Belarusian State Agricultural Academy, Gorki, Belarus.
- Chairmen and secretaries of the student sessions were Bachelor's students Leont'ev A.A., Gavrilenko M.D., Napol'skih Yu.M., Master's students Ivanov E.D., Zaripova K.M., Holostov G.D., Smirnova K.A., Ph.D., students Fedorova M.E., Zharkih I.A. at the Department of Soil Science & Soil Ecology of the St. Petersburg State University; researchers of the Dokuchaev Central Soil Science Museum Timofeeva Yu.R., Lazareva M.A., Mingareeva E.V.

The reports of the conference participants were assessed by the jury on the basis of the criteria developed by the organizing committee: the consistency, the completeness and the specificity of presented data, the topicality of research, the justification of the application of used methods, 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. Based on results of the sessions, the best reports were awarded places and diplomas of I, II and III degrees, and also were selected reports recommended for publication in a periodical of the St. Petersburg State University and the Dokuchaev Central Soil Science Museum "Materials for the study of Russian soils" (Issue 14 (41)). All speakers were awarded certificates of the Dokuchaev Conference for Young Scientists' participants, and school



Face-to-face report of the conference participant (© Zakharova M.K.)

session's participants – diplomas, the design of which was specially developed by Ph.D. student of the Department of Soil Science & Soil Ecology of the St. Petersburg State University Zakharova M.K.

At the closing of the conference on March 3, 2021, secretary of the conference Lazareva M.A. and chairmen of the sessions summarized results. The high methodological level of participants' research and the topicality of topics were noted.

Also, at the suggestion of the conference organizing committee, the participants were unanimously decided:

1. To thank:
 - 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 at the St. Petersburg State University;
 - heads of the soil institutes in Russia and foreign countries for the speaking at the Plenary Session of the St. Petersburg State University;
 - members of the conference organizing committee for the organizing of the XXIV Dokuchaev Conference for Young Scientists.

The closing of the conference
(© Zakharova M.K.)



2. To continue a tradition of the annual "Dokuchaev Conference for Young Scientists" organizing and to hold the next XXV Anniversary Dokuchaev Conference for Young Scientists in 2022.
3. To post information about the XXIV Dokuchaev Conference for Young Scientists on the websites:
 - Dokuchaev Conference for Young Scientists (<http://www.dokuchaevskie.ru/>);
 - Department of Soil Science & Soil Ecology of the St. Petersburg State University (<http://soil.spbu.ru/>);
 - Dokuchaev Central Soil Science Museum. (<http://музей-почвоведения.рф/>).

And also on social networks:

- Facebook, "Dokuchaev Conference for Young Scientists" (<https://www.facebook.com/groups/299055950621291/>);
- Instagram, "dokuchaevskie.spb" (<https://www.instagram.com/dokuchaevskie.spb/>).

Chairman 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), Dr. Aparin B.F.
Executive Secretary: Mingareeva E.V.
Secretary: Lazareva M.A.

Information about the International Scientific Conference "XXV Dokuchaev Conference for Young Scientists" «Soil is life»

The conference will take place on March 1–3, 2022 at the Saint Petersburg State University and the Dokuchaev Central Soil Science Museum in St. Petersburg (Russia). Conference form will be face-to-face reports with live stream on Zoom and on-line. Languages of the conference will be Russian and English. Topic of the conference will be «Soil is life».

Directions of the conference:

1. Soil degradation and recultivation;
2. Soil ecosystem services;
3. Soil conservation farming;
4. Healthy soil – healthy nation;
5. Popularization of soil science;
6. School session: «Soil and ecosystems».

Issues of the providing by soils of plants', animals' and people' life and health, the importance of living organisms for soil formation, interactions of mineral, organic substances and living organisms in the soil, the composition and properties of soils, the soil diversity and the geographical distribution of soils, functional relationships in nature, ecosystem functions of soils, the soil-saving crop cultivation, the soil destruction both as a result of natural processes and under the influence of irrational human actions, the protection of soil from its destruction, the fight against fertility decline, soil restoration, the spread and the application of soil knowledge will be considered. The conference will be devoted to the 25th anniversary of the Dokuchaev Conference for Young Scientists and the International Decade of Soils.



Detailed information about the annual Dokuchaev Conference for Young Scientists you can find on the conference's website: <http://www.dokuchaevskie.ru/>. Information letter about the XXV Dokuchaev Conference for Young Scientists will be posted on the website on June 30.

Chairman 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), Dr. Aparin B.F.
Executive Secretary: Mingareeva E.V.
Secretary: Lazareva M.A.