



GLOBAL
RESEARCH
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

Country report : Russia



Presentation to IRG Annual Meeting
Cali, 5 February 2019

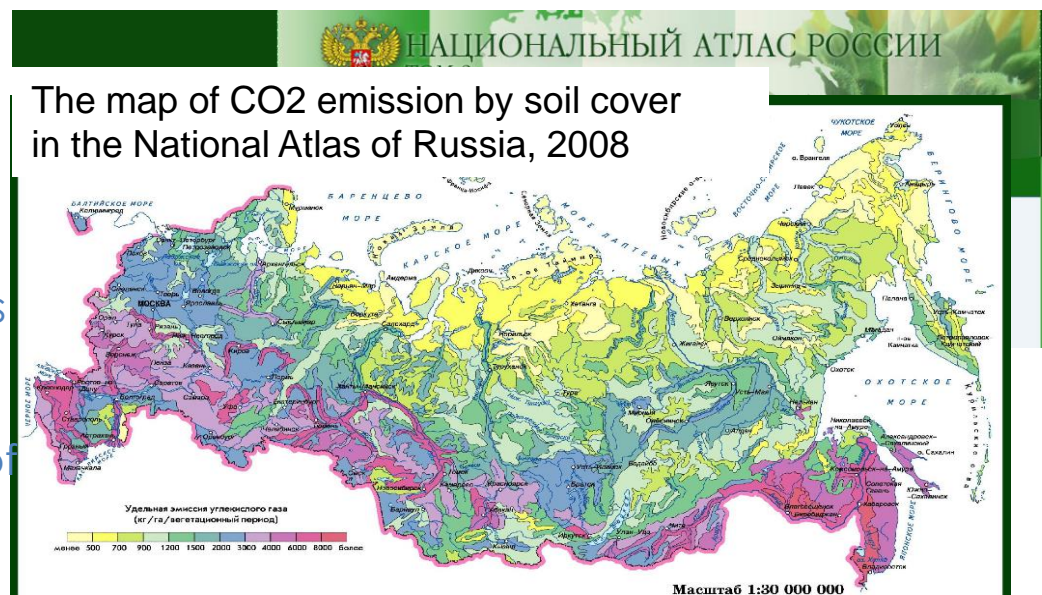
Over the past 10 years, issues of the reducing greenhouse gas emissions in agriculture, soil organic matter management and the introduction SLM practices have been discussed at the national level.

Climate Doctrine of Russian Federation was established in 2009

Since that the number of activities on these issues has increased.

National Report “Global climate and soil cover of Russia: assessment of risks and ecological and economic consequences of land degradation. Adaptive systems and technologies of environmental management (agriculture and forestry)”.

V.V. Dokuchaev Soil Science Institute.
2018

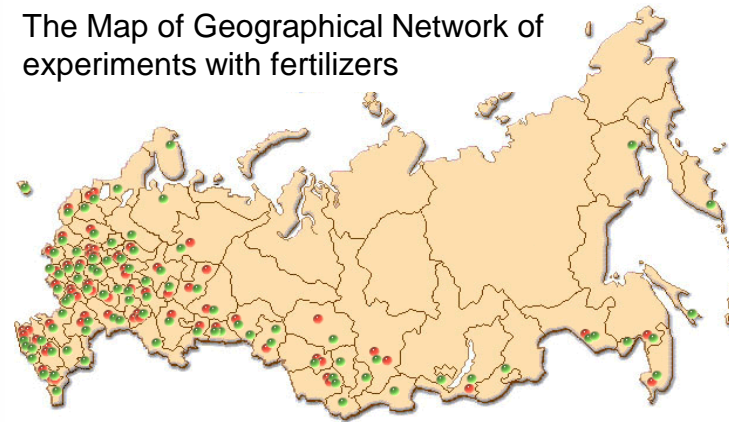


The Geographical Network of experiments with fertilizers has been the scientific basis of agrochemical science in Russia since the 1940s.

Resolution of the International Symposium "Soil Organic Matter Dynamics in Long-Term Field Experiments and Their Modelling," Kursk, 2010

Станции ГеоСети и Агрохимической службы: КАРТА

The Map of Geographical Network of experiments with fertilizers



Станции ГеоСети и Агрохимической службы: РЕГИОНЫ

Агинский Бурятский АО	Калужская обл.	Нижегородская обл.	Татарстан респ.
Адыгя респ.	Камчатская обл.	Новгородская обл.	Тверская обл.
Алтай респ.	Карачаево-Черкессия респ.	Новосибирская обл.	Томская обл.
Алтайский край	Карелия респ.	Омская обл.	Тульская обл.
Амурская обл.	Кемеровская обл.	Оренбургская обл.	Тыва респ.
Архангельская обл.	Кировская обл.	Орловская обл.	Тюменская обл.

<http://geo-set.ru/site/49>

“...However, despite the great volume of information on the contents of SOC in the soils of experimental plots, these data are still insufficient for reliable modeling and predicting the dynamics of the SOM with the aim to ensure sustainable soil management and to optimize the CO2 emission into the atmosphere...”

Russian Federal program “Melioration” 2014-2020

- Increasing of productivity and sustainability of agricultural production and soil fertility by means of integrated reclamation in the context of climate change and natural anomalies;
- increasing of productive potential of reclaimed lands and effective use of natural resources.

Russian Federal program “Pure land” 2017-2025

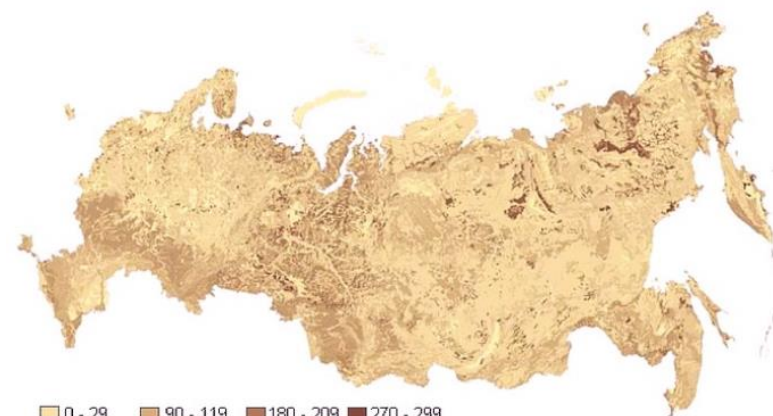
- Reduction of the greenhouse gas emissions by about 840 thousand tons of CO₂ equivalent per year.
- Restoration and reclamation of about 1.5 thousand hectares of land affected by the negative impact, which pretend to improve the environmental conditions for 4.3 million people by 2025.

Russian Federal program “Managing the deposition of atmospheric carbon by arable soils of Russia“, 2018-2021:

- A database on the dynamics SOC of the European Russia (includes 50 administrative-territorial units, the soil cover of which is represented by 55 soil types. Data on long-term field experiments were obtained from 1936 to 2015)
- Apps for automated calculation of the economic feasibility of sequestration of organic carbon in arable agro-ecosystem soils.

Current projects supported by Russian Foundation for Basic Research:

- “The study of anthropogenic dynamics of the state of soil cover on the basis of data mining”. The team of scientists completed work on a digital map of carbon stocks in the 30-cm soil layer of the Russian Federation in 2018 (15-04-03564).
- “Stocks of organic carbon in soils and its stability as a function of land use and climate” (18-04-00773)
- “Theoretical and applied aspects of the transformation of organic matter and nitrogen in arable sod-podzolic soils of the Pre-Urals)” (17-45-590166)
- And others, concerning soil carbon and nitrogen cycles, emissions and sequestration



Запасы органического углерода в 30-см слое почв Российской Федерации, т/га

Institutions

- Lomonosov Moscow State University
- V.V. Dokuchaev Soil Science Institute
- Institute of evolution and ecology and Institute of physical, chemical and biological problems soil science Russian academy of Science and many others.
- Rosgidromet – main government institution for environmental monitoring

Specialists from joint Russian-Vietnamese Tropical Research and Technology Center conduct long-term research on the study of greenhouse gas fluxes (CO₂, N₂O, CH₄) in tropical ecosystems, including daily and seasonal dynamics of CO₂ fluxes from soils.



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NCT:Nam Cat Tien Forest



Observation Period and Data Availability

Measurement Period	December 2011 to present
Measurement Frequency	Continuous
Data Availability	N/A

Contact

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http://asiaflux.net/index.php?page_id=86

- 2016-2017 - Participating in the FAO project on Global Soil Organic Carbon Map creation. The Faculty of Soil Science of MSU coordinated the Russian part of the project.

- Discussing 4 per mille initiative



Soil carbon 4 per mille

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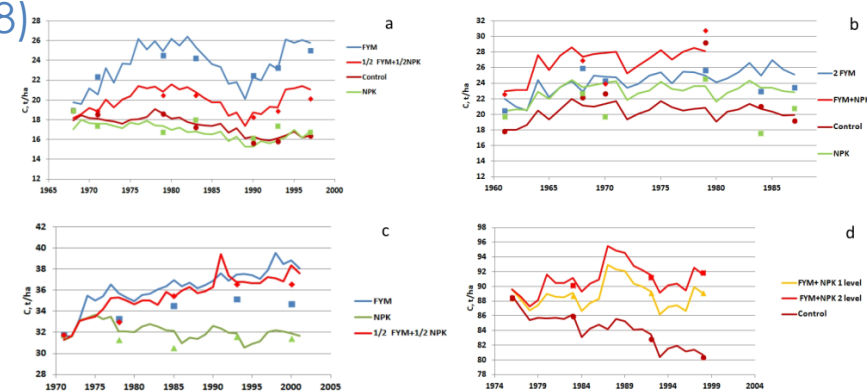


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CIRCASA – MSU partnership



- Creation of the plan of work on the intensification of carbon fixation in soils, general terminology and methodology for theoretical studies and practical application.
- RothC model was used to simulate SOC stocks in seven Russian long-term experiments
Article in Geoderma “Dynamics of soil organic carbon in Russian long-term experiments with mineral and organic fertilizers”/ Vladimir Romanenkov, Maya Belichenko, Alena Petrova, Tatyana Raskatova, Gabriele Wetterauer, Pavel Krasilnikov
- CIRCASA regional workshop at MSU “Stakeholders’ perspectives and knowledge needs on SOC sequestration” (October 2018)



Eurasian Center for Food Security of MSU:



Component 1. Expert-analytical activity

Component 2. Conducting applied research in the field of food security

Component 3. Educational and information activities

Component 4. Coordination of interstate research and development projects

LINK:

<http://ecfs.msu.ru/en/events/world-soil-day-2018-food-security-soils-and-human-capital-soil-science-st-petersburg-russia-1023>



The lack of understanding of economic feasibility of the sustainable management practices is one of the main barriers on the way of SLM implementation



“National movement for recourses saving land use” and other non-government organizations and several agroholdings start to talk about need in “knowledge databases” for farmers. Several farms apply SLM practices (no-till and others)

Several regions established laws for stimulation of SLM practices adoption through regional volunteering guidelines (at federal and municipal lands)

Russia's soils have enormous climate-regulatory resources that could be used in government programs to mitigate the effects of global change.



Thank you for your attention!

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