

2nd Annual Congress on

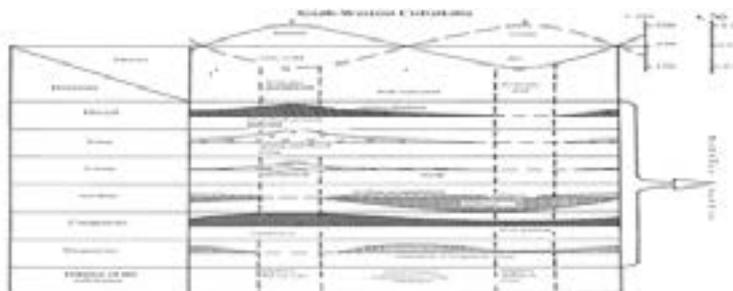
Soil and Water Sciences

October 22-23, 2018 | Berlin, Germany

Soil erosion: The Siberian agricultural lands in Russia

Elizaveta Tyumentseva¹ and Olga Bazhenova²¹Irkutsk State University, Russia²VB Sochava Institute of Geography - SB RAS, Russia

Regional features of sheet and gully erosion are presented. In the Asian part of Russia scales of soil degradation degree are determined on the basis of generalization of soil and gully erosion long-term studies. Soil degradation occurs in the southern semi-arid and semi-humid regions, where agricultural arable lands are located. They (lands) occupy 24 million ha. Among them 9 million ha exposed of soil and gully erosion in varying degrees. We determine difference degradation processes mechanisms from west to east. In the Western Siberia dominate meltwater erosion. In the Middle Siberia soil erosion is caused by meltwater and rainstorm runoff, in the Eastern Siberia – rainstorm discharge is observed. Agricultural lands in mountain locate in inter-mountain basins; notes concentric zoning of changes in mechanisms and rate of land degradation. In the central part of basin dominate aeolian processes, on piedmont plains - sheet and gully erosion. At present day on 15 million ha can be erosion. Were analyzed long-term dynamics of erosion processes based on water discharge and sediment load data for 18 drainage basins. The sharp reduction of soil erosion was determined in the Baikal Lake drainage basin, associated with economic activity conservation since 1990. Predictive estimation of soil loss, using quantitative empirical models of the erosional processes was made. We composed maps of erosion-hazardous for agricultural lands. Erosion danger of lands zoning of the South of Siberia was performed. Six categories of desertification probability in semiarid regions of Siberia, caused by soil erosion, was determined. Altaian model of soil protection from snowmelt sheet erosion, Khakassian model of soil protection from deflation and the Baikal models of soil protection from erosion and deflation were presented. They propose most rational regional optimal conditions for agricultural land cultivation, provide sustainable efficient agriculture and soil conservation.



Recent Publications

1. Bazhenova O and Tyumentseva E (2015) Contemporary aeolian morphogenesis in semiarid landscapes of the intermountain depressions of southern Siberia. *Catena*. 134:50-58.
2. Bazhenova O I (2009) The ecological-geomorphological consequences of conservation of agricultural lands within the Lake Baikal watershed basin, *Geogr. Nat. Resour.* 3:253-257.
3. Bazhenova O I, Tyumentseva E M and Tukhta S A (2016) Extreme phases of denudation and issues of geomorphological safety of the upper Angara region. *Geogr. Nat. Resour.* 37(3):246-256.
4. Tyumentseva E.M., Orel G.F. (2018) Atmospheric processes in the South Baikal Basin and their role in relief formation. *Atmosphere*. 9(5):176-194.

2nd Annual Congress on

Soil and Water Sciences

October 22-23, 2018 | Berlin, Germany

Biography

Tyumentseva Elizaveta M. is an associate professor of geographical sciences at Irkutsk State University. She is a candidate of Geographical Sciences. Tyumentseva is a specialist in the field of physical geography and geomorphology. She has been studying the morphology and dynamics of erosion relief, erosion and deflation of soils in Siberia for the past 40 years. She implemented experimental studies of soil erosion on virgin lands and agricultural lands at the Institute of Geography of the Siberian Branch of the Russian Academy of Sciences in different regions of Siberia. She is the author of more than 100 articles on soil erosion, deflation and ravine issues. She has published in leading Russian and foreign journals.

tumentzeva.liz@yandex.ru

Notes: