

# **Land Use and Climate Change Impacts on Erosion and Sediment Transport**

**Climate Change Impacts on Sediment  
Dynamics: Measurement, Modelling and  
Management**

ICCE Symposium 2018

Proceedings of the International Association of Hydrological Sciences (IAHS) Volume 381, 2019

**Moscow, Russia  
27-31 August 2018**

## **Editors:**

**Sergey Chalov  
Valentin Golosov  
Adrian Collins  
Mike Stone**

ISBN: 978-1-5108-9544-7

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

The copyright of any article is retained by the author(s) and distributed under the Creative Commons Attribution 3.0 license. <http://creativecommons.org/licenses/by/3.0/>  
Unless otherwise stated, associated published material is distributed under the same license. The original work can be found online at:

<http://www.proc-iahs.net/381/index.html>

Printed with permission by Curran Associates, Inc. (2020)

International Association of Hydrological Sciences  
Centre for Ecology and Hydrology  
Wallingford, Oxfordshire OX10 8BB  
United Kingdom

Phone: 441 491 692 442  
Fax: 441 491 692 448

<http://iahs.info/>

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

<b>PREFACE: LAND USE AND CLIMATE CHANGE IMPACTS ON EROSION AND SEDIMENT TRANSPORT .....</b>	1
<i>Sergey Chalov, Valentin Golosov, Adrian Collins, Mike Stone</i>	
<b>SCIENTOMETRIC ANALYSIS OF THE ACTIVITIES OF THE INTERNATIONAL COMMISSION FOR CONTINENTAL EROSION (ICCE).....</b>	3
<i>Valeriy P. Bondarev</i>	
<b>INTEGRATED APPROACH TO STUDY RIVER FLUXES, WATER AND SEDIMENT SOURCES APPORTIONMENT IN SPARSELY MONITORED CATCHMENT .....</b>	7
<i>Sergey Chalov, Pavel Terskii, Thomas Pluntke, Ludmila Efimova, Vasily Efimov, Vladimir Belyaev, Anna Terskaia, Michal Habel, Daniel Karthe, Christian Bernhofer</i>	
<b>LAKE SEDIMENTATION AS AN AGENT OF POSTGLACIAL TRANSFORMATION OF INTERFLUVES AND FLUVIAL LANDSCAPES OF THE BORISOGLEBSK UPLAND, CENTRAL EUROPEAN RUSSIA .....</b>	13
<i>Ekaterina V. Garankina, Vladimir R. Belyaev, Ilya G. Shorkunov, Yuliya V. Shishkina, Pavel V. Andreev, Elena D. Sheremeteskaya</i>	
<b>CONTEMPORARY GULLY EROSION TREND IN THE NORTHERN PART OF THE FOREST-STEPPE ZONE OF THE RUSSIAN PLAIN: A CASE STUDY FROM THE REPUBLIC OF TATARSTAN, EUROPEAN RUSSIA .....</b>	21
<i>Aidar Sharifullin, Artur Gafurov, Regina Medvedeva, Valentin Golosov, Aleksandr Dvinskikh, Artem Gusarov, Benedict Essuman-Quainoo</i>	
<b>MODERN PATTERNS OF SPATIAL DISTRIBUTION OF THE MAIN SOIL PARAMETERS: CASE STUDY OF THE REPUBLIC OF TATARSTAN, RUSSIA.....</b>	25
<i>Artur Gafurov, Aidar Sharifullin</i>	
<b>IMPACTS OF FLUVIAL PROCESSES ON MEDIEVAL SETTLEMENT LUKOVSKOE (TATARSTAN, RUSSIA) .....</b>	31
<i>Artur Gafurov, Iskander Gainullin, Bulat Usmanov, Petr Khomyakov, Alexey Kasimov</i>	
<b>MAGNITUDE AND FREQUENCY OF DEBRIS AND SLUSH FLOWS IN THE KHBIBINY MOUNTAIN VALLEYS, KOLA PENINSULA, NW RUSSIA .....</b>	37
<i>Ekatерина V. Garankina, Vladimir R. Belyaev, Fedor A. Romanenko, Maxim M. Ivanov, Natalia V. Kuzmenkova, Artem L. Gurinov, Egor D. Tulyakov</i>	
<b>INITIAL RESULTS OF SEDIMENT YIELD MEASUREMENT INTERPRETATION USING A REGIONAL APPROACH: SOUTHERN ITALY CASE STUDY .....</b>	49
<i>Paolo Porto, Giovanni Callegari</i>	
<b>SUSPENDED SEDIMENT YIELD AND CLIMATE CHANGE IN KAMCHATKA, FAR EAST OF RUSSIA .....</b>	55
<i>Ludmila V. Kuksina</i>	
<b>NUMERICAL MODELING AND FORECAST OF CHANNEL CHANGES ON THE RIVER LENA NEAR CITY YAKUTSK .....</b>	65
<i>Pavel Golovlyov, Ekaterina Kornilova, Inna Krylenko, Vitaly Belikov, Aleksandr Zavadskii, Eugeniya Fingert, Natalya Borisova, Elizaveta Morozova</i>	
<b>TWO-DIMENSIONAL HYDRODYNAMIC MODELLING OF CHANNEL PROCESSES AND FLOODS CHARACTERISTICS AT THE CONFLUENCE OF THE AMUR AND ZEYA RIVERS .....</b>	73
<i>Eugeniya Fingert, Inna Krylenko, Vitaly Belikov, Pavel Golovlyov, Aleksandr Zavadskii, Mikhail Samokhin</i>	
<b>QUANTIFYING CHANNEL BANK EROSION OF A SMALL MOUNTAIN RIVER IN RUSSIAN WET SUBTROPICS USING EROSION PINS.....</b>	79
<i>Yulia Kuznetsova, Valentin Golosov, Anatoly Tsypolenkov, Nadezhda Ivanova</i>	
<b>CONTEMPORARY SUSPENDED SEDIMENT YIELD OF CAUCASUS MOUNTAINS.....</b>	87
<i>Anatoly Tsypolenkov, Matthias Vannauerke, Valentin Golosov</i>	
<b>RECONSTRUCTION OF LONG-TERM DYNAMICS OF CHERNOBYL-DERIVED <math>^{137}\text{Cs}</math> IN THE UPA RIVER USING BOTTOM SEDIMENTS IN THE SCHECKINO RESERVOIR AND SEMI-EMPIRICAL MODELLING .....</b>	95
<i>Alexei V. Konoplev, Maxim M. Ivanov, Valentin N. Golosov, Evgenyi A. Konstantinov</i>	
<b>TEMPORAL TRENDS OF <math>^{137}\text{Cs}</math> ACTIVITY CONCENTRATION IN POND WATERS IN THE VICINITY OF FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT .....</b>	101
<i>Yoshifumi Wakayama, Alexei Konoplev, Toshihiro Wada, Tsugiko Takase, Yasunori Igarashi, Kenji Nanba, Ian Byrnes</i>	

<b>PROJECTIONS OF SELENGA RIVER RUNOFF IN THE XXI CENTURY AND UNCERTAINTY ESTIMATES .....</b>	107
<i>Tatiana Millionshchikova</i>	
<b>MODELLING FUTURE HYDROCLIMATIC EFFECTS ON THE COREGONUS MIGRATORIUS SPAWNING MIGRATION IN THE SELENGA RIVER AND LAKE BAIKAL .....</b>	113
<i>Vsevolod Moreydo, Tatiana Millionshchikova, Sergey Chalov</i>	
<b>TIME CHANGES OF DOSE EQUIVALENT RATE ABOVE THE SOIL SURFACE AS INDICATION OF NATURAL ATTENUATION PROCESSES .....</b>	121
<i>Alexei V. Konoplev, Toshihiro Yoshihara, Yoshifumi Wakiyama</i>	
<b>Author Index</b>	