



**International Conference**  
**“Debris Flows: Disasters, Risk, Forecast, Protection”**

**Organisers**

- Debris Flow Association, Russia
- North Caucasian Engineering and Design Institute for Water Industry and Land Reclamation (Sevkavgiprovdokhoz Institute), Russia
- High-Mountain Geophysical Institute, Russia
- M.V. Lomonosov Moscow State University, Faculty of Geography, Russia
- Far East Geological Institute, Far Eastern Branch, Russian Academy of Sciences, Russia

**Organising Committee**

**Co-Chairmen of the Organising Committee**

- |                  |  |
|------------------|--|
| K.N. Nosov       | General Director of the “Sevkavgiprovdokhoz”<br>Institute, President of the Debris Flow Association, Distinguished Meliorator of<br>Russia, Pyatigorsk, Russia |
| V.O. Tapaskhanov | Director, Ph.D., High-Mountain Geophysical Institute, Nalchik, Russia  |

**Deputy Co-Chairmen of the Organising Committee**

- |                  |  |
|------------------|--|
| Y.B. Vinogradov  | Chief Researcher, Professor, D.Sc. (Technical Sciences), State Hydrological<br>Institute, Saint Petersburg, Russia   |
| V.A. Volosukhin  | Pro-Rector for Research, Professor, D.Sc. (Technical Sciences), Novochoerkassk<br>State Melioration Academy, Novochoerkassk, Russia  |
| M.Ch. Zalikhanov | Member of the State Duma of the Russian Federal Assembly, Head of the<br>Sustainable Development Commission, Academician of the Russian Academy of<br>Sciences, Moscow, Russia       |
| P.M. Lurie       | Head, North-Caucasian Administration of the Hydrometeorological Service,<br>Professor D. Sc. (Geography), Rostov-on-Don, Russia  |
| G.V. Salov       | Head, Kuban' Basin Water Administration, Ph. D., Krasnodar, Russia   |
| S.I. Shagin      | Head, Main Office of the Ministry of Russian Federation for Civil Defense,<br>Emergencies and Disaster Mitigation in the Republic of Kabardino-Balkariya, Ph.<br>D., Nalchik, Russia |

### **Executive Secretary of the Organising Committee**

S.S. Chernomorets Senior Researcher, Ph.D., Faculty of Geography,  
M.V. Lomonosov Moscow State University, Scientific Secretary of the Debris  
Flow Association, Moscow, Russia

### **Members of the Organising Committee**

V.R. Boinagryan Head of Department of Geomorphology and Cartography, Professor, D.Sc.  
(Geography), Yerevan State University, Yerevan, Armenia

I.V. Bondyrev Head of the Physical Geography Section, Professor, D.Sc. (Geography), Vakhushti  
Bagrationi Institute of Geography, Tbilisi, Georgia

G.V. Gavardashvili Director, Professor, D.Sc. (Technical Sciences),  
Institute of Water Management, Tbilisi, Georgia

Y.V. Efremov Head of Department of Geology and  
Geomorphology, Professor, D.Sc. (Geography), Kuban' State University,  
Krasnodar, Russia

R. Genevois Professor, Ph.D., Department of Geosciences, University of Padova, Italy

E.V. Zaporozhchenko Deputy Technical Director, Ph.D., Sevkavgiprovdokhoz Institute, Vice-President  
of the Debris Flow Association, Pyatigorsk, Russia

N.A. Kazakov Deputy Director, Ph.D., Sakhalin Subsidiary of the Far East Geological Institute,  
Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia

A.I. Khanchuk Director of the Far East Geological Institute, Russian Academy of Sciences,  
Academician of the Russian Academy of Sciences, Vladivostok, Russia

K.F. Liu Professor, Ph.D., National Taiwan University, Taipei, Taiwan

A.R. Medeu Director of the Institute of Geography of Kazakhstan, Professor, D.Sc.  
(Geography), Almaty, Kazakhstan

A.N. Oliferov Professor, D.Sc. (Geography), V.I. Vernadskiy Tavrical National University,  
Simferopol, Ukraine

A.L. Shnyarkov Head of the Laboratory of Snow Avalanches and Debris Flows, Ph.D., Faculty of  
Geography, M.V. Lomonosov Moscow State University, Moscow, Russia

B.S. Stepanov Chief Researcher, Professor, D.Sc. (Geography), Centre of Hydrology, National  
Hydrometeorological Service of Kazakhstan (Kazhydromet), Almaty, Kazakhstan

V.I. Tevzadze Deputy Director, Professor, D.Sc. (Technical Sciences), Institute of Water  
Management, Tbilisi, Georgia

R.O. Ter-Minasyan Section Head, Ph.D., Institute of Water Research  
and Hydrotechnics, Yerevan, Armenia

O.V. Tutubalina Senior Researcher, Ph.D., Faculty of Geography, M.V. Lomonosov Moscow State  
University, Moscow, Russia

E.D. Tsereteli Head of the Department of Natural Hazards Research, Centre of Monitoring and  
Forecasts, Ministry of Environment Protection and Natural Resources of Georgia,

	Ph.D., Tbilisi, Georgia
F. Wei	Professor, Ph.D., Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China
O. Hungr	Professor, Ph.D., University of British Columbia, Vancouver, Canada
S.G. Evans	Professor, Ph.D., University of Waterloo, Waterloo, Ontario, Canada

#### **Technical Secretary of the Organising Committee**

N.Y. Krasnykh	Leading Hydrologist, Sevkavgiprovdkhov Institute, Secretary of the Debris Flow Association, Pyatigorsk, Russia
---------------	--

#### **General sponsor**

- North Caucasian Engineering and Design Institute for Water Industry and Land Reclamation (Sevkavgiprovdkhov Institute), Russia

#### **Financial support**

- Russian Foundation for Basic Research (RFBR), Russia
- High Mountain Geophysical Institute, Russia
- Research & Development Center ScanEx, Russia
- Geobrugg AG, Switzerland

#### **Place**

23-25 September 2008, Beshtau Hotel (The Major and the Minor Conference halls): 17, Bulvarnaya str., Pyatigorsk, Russia.

#### **Arrangements and working time**

The opening ceremony: 10:00, 23 September, Major Conference hall of the Beshtau Hotel.

The social function (ice-breaker reception): 23 September, 18:00, the Assembly Hall of the Sevkavgiprovdhoz Institute (78, Prospekt Kirova, Pyatigorsk, Russia).

The presentation speech time limit during the plenary session – 20 min., questions and discussion – 10 min. The presentation speech time limit during subject sessions – 10 min., questions and discussion – 5 min.

Poster sessions: 24 and 25 September.

#### **Field trip**

Departure: 26 September, 9:00, Beshtau Hotel.

Return: 28 September, 20:00.

Accommodation: Prielbrusye Hotel, Adyl-Su River valley, Elbrus District, Republic of Kabardino-Balkariya, Russia.

# Sessions Programme

## Oral presentations

23 September

### Conference Opening Ceremony Major Conference hall

Words of salutation:

**K.N. Nosov**

(President of the Debris Flow Association, co-Chairmen of the Organising Committee, General Director of the “Sevkavgirovodkhoz” Institute, Russia)

**V.O. Tapaskhanov**

(co-Chairmen of the Organising Committee, the Head of the High-Mountain Geophysical Institute, Russia)

**S.I. Shagin**

(the head of the chief administration of the Kabardino-Balkarian branch of the Russian Federation Ministry of emergencies, Russia)

Keynote presentations  
«Key problems of debris flow science and practice»  
Major Conference hall

**Chairman: E.V. Zaporozhchenko** (Vice-President of the Debris Flow Association, “Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia)

**Debris flows and similar phenomena: main fundamental and applied problems of the first quarter of the 21st century**

**Yu.B. Vinogradov**

(State Hydrological Institute, Saint Petersburg, Russia)

**Study on the sensitivity of parameters relating to debris flow spread**

**K-F. Liu, Y.-C. Hsu**

(National Taiwan University, Taipei, Taiwan)

**Numerical simulation of debris flow movement and its application in debris flow risk zoning**

**F. Wei, K. Hu, Y. Zhang, S. Jia**

(Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Chain of Functions in debris flow control**

**G. Fiebiger**

(IUFRO Research Group 8.03 Natural Disasters, Salzburg, Austria)

**Scientific objectivation of debris flows conduit parameters**

**V.A. Volosukhin**

(“Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia;  
State Melioration Academy, Novocherkassk, Russia)

## **New developments of mountain hazards in Pamir**

**J.F. Schneider**

(BOKU, Vienna, Austria)

Session

### **“Debris flow disasters”**

**Chairman: S.S. Chernomorets** (Scientific Secretary of the Debris Flow Association, Executive Secretary of the Organising Committee, M.V. Lomonosov Moscow State University, Moscow, Russia)

#### **The debris flows of catastrophic volume in low mountains of Sakhalin Island**

**N.A. Kazakov**, Y.V. Gensiorovskiy

(Far East Geological Institute, Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia)

#### **Phenomenon of debris flows of erosional-tectonic genesis in the Baikal Rift Zone**

**A.A. Lukashov**

(M.V. Lomonosov Moscow State University, Moscow, Russia)

#### **Features of debris flow formation in Crimea and the Carpathians**

**A.N. Oliferov**

(V.I. Vernadskiy Tavrical National University, Simferopol, Ukraine)

#### **Physiographic controls on the magnitude frequency distribution of debris flows**

**R.H. Guthrie**

(Government of British Columbia Province, Nanaimo, Canada)

Group photography of the participants in the Beshtau hotel courtyard

Transfer from the hotel to the “Sevkavgiprovdhoz” Institute (see the Scheme for detailed directions)

Social function for participants (ice-breaker reception)

## **24 September**

Session

### **“Assessment of debris flow risk, debris flow activity and climate change”**

**Chairmen: J.F. Schneider** (BOKU, Vienna, Austria) and **R.K. Yafyazova** (Republican State Agency «Kazgidromet», Almaty, Kazakhstan)

#### **Geomorphological analysis of debris flow hazard due to torrential rainfalls: case study of coastal morphosystems at the Black Sea coast**

**A.Y. Barinov**, E.V. Ash

(M.V. Lomonosov Moscow State University, Moscow, Russia)

#### **Debris flow risk: theoretical basis and practical significance**

**E.A. Talanov**

(Farabi Kazakh National University, Almaty, Kazakhstan)

#### **Hydrometeorological conditions of the periods of mass debris-flow occurrence on Sakhalin Island**

**Y.V. Gensiorovskiy**, N.A. Kazakov, S.V. Rybalchenko

(Far East Geological Institute, Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia)

**About the problem of the estimation of mudflow hazards during an epoch of glacial recession  
(case study of the mudflow basin of the left inflow of the Haznidon River in Kabardino-Balkaria)**

**M.D. Dokukin**, A.M. Bagov, E.A. Savernyuk, S.V. Tolstel  
(High-Mountain Geophysical Institute, Nalchik, Russia)

**Role of atmospheric processes in formation of debris flows in various areas of Russia**

**N.K. Kononova**, I.V. Malneva, I.B. Seynova  
(Institute of Geography of the Russian Academy of Sciences, Moscow, Russia;  
VSEGINGEO, Moscow region, Russia;  
University center of engineering geodynamics and monitoring, Moscow, Russia)

Session

**“Debris flow formation in different geographic environments”**

**Chairmen: M.N. Petrushina** (M.V. Lomonosov Moscow State University, Moscow, Russia) and  
**F. Wei** (Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Role of debris-flow processes in the formation of beaches on south-east coast of Sakhalin Island**

**E.N. Kazakova**, D.A. Bobrova  
(Sakhalin Subsidiary of the Far East Geological Institute, Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia)

**Formation and development of natural-anthropogenic debris flows and protection against them  
(case study of Makarovskiy district, Sakhalin)**

V.A. Lobkina, **M.V. Mikhalev**  
(Sakhalin Subsidiary of the Far East Geological Institute, Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia)

**Landscape dynamics in the areas of debris flow impact in the Northern Caucasus**

**M.N. Petrushina**, E.G. Suslova  
(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Debris flow corrasion**

**V.F. Perov**  
(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Topographic factors of debris flow stream induced by rainfall in Taiwan**

**T.C. Chen**, C.Y. Shu  
(National Pingtung University of Science and Technology, Pingtung, Taiwan)

**Glacial debris flows in the Republic North Ossetia-Alania in 2008**

**I.M. Vaskov**, A.L. Valiev  
(State unitary enterprise «Sevosetingeoekomonitoring», Vladikavkaz, Russia)

**Interrelation between debris flow activity and morphometric parameters of a basin**

A.H. Adzhiev, **N.V. Kondratjeva**, O.A. Kumukova, A.A. Gekiev  
(High-Mountain Geophysical Institute, Nalchik, Russia)

**Application of high-resolution remote sensing data for integrated study of debris flows**

**A.Y. Barinov**  
(Research and Development Center ScanEx, Moscow, Russia)

**“Methods for study of debris flows. Debris flow modeling, mechanics and forecast”**

**Chairmen:** **S.S. Chernomorets** (M.V. Lomonosov Moscow State University, Moscow, Russia) and **K.-F. Liu** (National Taiwan University, Taipei, Taiwan)

**Infrasonic behaviour of debris flow and infrasonic warning device**

**S. Zhang**, N. Yu

(Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Assessment of debris flow formation factors in the Adylsu valley (Central Caucasus)**

M.N. Petrushina, A.M. Aleynikova, A.A. Aleynikov, O.I. Budarina, **V.A. Karavayev**

(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Underestimation of the importance of debris-flow topics in Russian school courses in the Geography**

**T.L. Smoktunovich**

(Moscow State Pedagogical University, Moscow, Russia)

**Storm runoff in the catchment areas of debris flow origination sites: deterministic and deterministic-stochastic modelling**

**T.A. Vinogradova**, Yu.B. Vinogradov

(Saint Petersburg State University, Saint Petersburg, Russia; State Hydrological Institute, Saint Petersburg, Russia)

**Simulation of debris flow runout before and after construction of mitigation measures: an example from the Swiss Alps**

**C. Graf**, B.W. McArdell

(WSL Swiss Federal Research Institute, Birmensdorf, Switzerland)

**Debris flow characteristic interpretation using image processing techniques**

**S.-Y. Chang**

(Diwan University, Tainan, Taiwan)

**Experimental study of landslide-induced debris flows and the mobilization process**

**H.-T. Chou**, Y.-Y. Chang

(National Central University, Chung-Li, Taiwan)

**Determination of the density of a debris flow by its deposition**

B. Yu, **S. Wang**

(Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Background forecasting for debris flow hazard in the Central Caucasus: method and application results**

A.H. Adzhiev, N.V. Kondratjeva, **O.A. Kumukova**, I.B. Seynova, E.M. Bogachenko

(High-Mountain Geophysical Institute, Nalchik, Russia;

Kabardino-Balkarian center for hydrometeorology and environment monitoring, Nalchik, Russia)

**The concept of super short-term forecast of debris flows**

B.O. Baymagambetov, **R.K. Yafyazova**

(Republican State Agency «Kazgidromet», Almaty, Kazakhstan)

**Debris flow prediction system at different temporal and spatial scales**

**I.V. Malneva**

(VSEGINGEO, Moscow region, Russia)

25 September

Session

«Debris flow hazard of glacial lakes. Ice-water-rock flows»

**Chairmen: S.G. Evans** (University of Waterloo, Waterloo, Canada) and **I.V. Malneva** (VSEGINGEO, Moscow region, Russia)

**Dynamics of glaciers and proglacial lakes in the headwaters of Birdzhalysu River and a possible design for protection against debris flows in the Dzhilyusu resort (north-east flank of Mt. Elbrus)**

A.M. Bagov, **M.D. Dokukin**, E.A. Savernyuk, S.V. Tolstel  
(High-Mountain Geophysical Institute, Nalchik, Russia)

**Debris flows and debris avalanches generated by rockfalls**

**S.G. Evans**

(University of Waterloo, Waterloo, Canada)

**Debris flow hazard of glacial lakes and assessment of their outburst risk**

**D.A. Petrakov**

(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Results of annual inspections of the most dangerous sites along the path of the ice-rock mass after the Kolka Glacier collapse in 2002**

H.M. Mashukov, V.H. Vorokov, A.A. Bannikov, M.M. Kambiev, **A.V. Malbakhov**  
(High-Mountain Geophysical Institute, Nalchik, Russia)

**Using seismic data to validate numeric simulation of large rock-ice avalanches**

**D. Schneider**, P. Bartelt, J. Caplan-Auerbach, C. Huggel

(University of Zurich, Zurich, Switzerland;

WSL Institute for Snow Avalanche Research, Davos Dorf, Switzerland;

Western Washington University, Bellingham, Washington, USA)

**The 2002 Karmadon glacial disaster**

**V.N. Drobyshv**

(Vladikavkaz Scientific Center, Russian Academy of Sciences, Russia)

**Thoughts about origin of Genaldon disasters**

**L.V. Desinov**

(Institute of Geography, Russian Academy of Sciences, Moscow, Russia)

Round-table discussion

“Debris flow manuals: to be or not to be?”

**Chairman: N.A. Kazakov** (Sakhalin Subsidiary of the Far East Geological Institute, Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia)

Session

“Debris flow mitigation: design and application”

**Chairmen: V.A. Volosukhin** (Novocherkassk State Melioration Academy, Novocherkassk, Russia) and **G. Fiebiger** (IUFRO Research Group 8.03 Natural Disasters, Salzburg, Austria)



**ROCCO® barrier systems for debris flows control. Field observations in barrier systems against debris flows**

**C. Graf**, B. Haller, R. Luis  
(Geobrugg AG, Switzerland)

**Debris flow control in Brazilian tropical rain forest mountains**

**D.V. Znamensky**  
(Brasilia-DF, Brazil)

**Design and construction of debris flow protective facilities in Kazakhstan (history and modern stage)**

**Yu.N. Zinevich**  
(Kazgidro Institute, Almaty, Kazakhstan)

**The mountain disasters induced by the Wenchuan earthquake on 12 May**

**H. Xie, F. Wei**  
(Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Debris Flow Association meeting**

**Debris Flow Association: a brief report**

**S.S. Chernomorets**  
(Scientific Secretary of the Debris Flow Association, Executive Secretary of the Organising Committee, M.V. Lomonosov Moscow State University, Moscow, Russia)

**Final session**

## Posters

24 September

**Dynamics of the Bashkara glacier snout and adjoining moraine-lake complex in view of their debris flow hazard**

M.S. Shakhmina, O.V. Tutubalina  
(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Comparative cartographic analysis of Genaldon and Huascarán glacial disasters on the basis of aerial and satellite imagery**

K.A. Aristov, S.S. Chernomorets, O.V. Tutubalina, S.G. Evans  
(M.V. Lomonosov Moscow State University, Moscow, Russia;  
University of Waterloo, Waterloo, Canada)

**Influence of debris flows on the formation of a mountain river channel and floodplain (case study of the Baksan River)**

R.S. Chalov, V.V. Surkov, N.N. Vinogradova, I.V. Krylenko  
(M.V. Lomonosov Moscow State University, Moscow, Russia)

**Mountain glaciation retreat in the Caucasus region of Russia as a factor of increase of the glacial debris flow activity**

E.V. Zaporozhchenko  
(“Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia)

**Debris flow situation in the Bulungu-Su River basin as a reflection of hazards and threats, caused by the climatic changes in the high mountains**

E.V. Zaporozhchenko, N.S. Kamenev, K.V. Korikov, N.Yu. Krasnykh, A.S. Nikulin  
(“Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia)

**Activation of debris flow origination sites of the Northern Caucasus in connection with climate change: case study of the Tsey Gorge (Republic of North Ossetia - Alania, Russia)**

N.S. Kamenev, I.V. Galushkin, R.A. Tavasiyev  
(“Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia;  
InfoTERRA, Vladikavkaz, Russia)

**Assessment of a hypothetical outburst of Lake Bashkara**

Yu.A. Gnezdilov, N.Yu. Krasnykh  
(“Sevkavgirovodkhoz” Institute, Pyatigorsk, Russia)

**Climatic and glaciological conditions of debris flow formation in the Central Caucasus at a stage of regress of the Little Ice Age**

I.B. Seynova  
(University Centre for Engineering Geodynamics and Monitoring)

**Landslide-induced debris flow disaster in Biaoshuiyan Gully, Sichuan, China**

H. Xie, Y. Li  
(Key Laboratory of Mountain Hazards and Surface Processes, Chinese Academy of Sciences, Chengdu, China;  
Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

**Automated mapping of glacial lakes on the basis of NDWI index**

I.A. Sokolov, O.V. Tutubalina

(M.V. Lomonosov Moscow State University, Moscow, Russia)

## 25 September

### **Empirical equations of rheological parameters for mixtures of gravels and mud slurries**

C.-D. Jan, J.S. Wang

(National Cheng Kung University, Tainan, Taiwan)

### **Some characteristics of debris flow hazards in mountain urban areas, China**

D. Ma, H. Huang, H. Xie, D. Zhong

(Institute of Mountain Hazards, and Environment, Chinese Academy of Sciences, Chengdu, China)

### **Infrasonic behaviour of debris flow and infrasonic warning device**

S. Zhang, N. Yu

(Southwest Jiao Tong University, Mechanical Engineering College, Chengdu, China)

### **Morphology of lake Syltran (Baksan River basin) and its potential outburst danger**

I.N. Krylenko, V.V. Surkov, A.M. Tarbeeva, I.V. Krylenko

(M.V. Lomonosov Moscow State University, Moscow, Russia)

### **Remote sensing monitoring of the outburst-hazardous high mountain lakes in Pamir**

V.G. Konovalov

(Institute of Geography of the Russian Academy of Sciences, Moscow, Russia)

### **Map of debris flow and glacier hazard of the central part of North Caucasus**

A.N. Kapitanov, S.S. Chernomorets, O.V. Tutubalina

(M.V. Lomonosov Moscow State University, Moscow, Russia)

### **Modelling experimental natural processes using GIS technologies**

A.L. Zhukov

(Research Studies Institute for Applied Mathematics and Automation Kabardino-Balkarian Research center of the Russian Academy of Sciences, Nalchik, Russia)

### **One numerical model of flow movement**

S.K. Gekkieva

(Research Studies Institute for Applied Mathematics and Automation Kabardino-Balkarian Research center of the Russian Academy of Sciences, Nalchik, Russia)

### **Solar activity and natural hazards**

M.M. Bukhurova

(Research Studies Institute for Applied Mathematics and Automation Kabardino-Balkarian Research center of the Russian Academy of Sciences, Nalchik, Russia)

## Exhibition

23-25 September

Minor Conference hall

The presentations of “Geobruigg AG” and “ScanEx” companies

## **Field trip in the vicinity of Mt. Elbrus**

26-28 September

9:00 26 September. The field trip departure (Beshtau hotel entrance, Pyatigorsk).

20:00 28 September. The field trip return (Beshtau hotel, Pyatigorsk)