

Speakers and titles of oral presentation in WLF5

In the plenary and parallel session of WLF5 held on 3-6 November 2021, a total of 492 speeches were orally presented in one of three modes (onsite, online-virtual or pre-recorded mode) at the Kyoto International Conference Center, Kyoto Japan. The greeting session and high-level panel session were reported in the Fifth World Landslide Forum and Progress of the Open Access Book Series for Kyoto Landslide Commitment 2020 (Sassa, 2022). All speakers/titles and session conveners are reported in this article.

Plenary Session Programme

1. Forum lectures/Forum speech

Chairs: Željko Arbanas (Vice President for Europe, University of Rijeka, Croatia)

Veronica Tofani (Vice President for WLF6, University of Florence, Italy)

Date: Nov.3, 13:30-15:30 JST

Forum lectures

- Fausto Guzzetti (General Director of Office III, Department of Civil Protection, Italian Presidency of the Council of Ministers, Italy): On the prediction of landslides and their consequence
- Charles NG (Chair Professor and Dean of Graduate School, Hong Kong University of Science and Technology, China): Interaction mechanisms between debris flow and multiple barriers

Forum Speech

Dwikorita Karnawati (Head of Agency for Meteorology, Climatology, and Geophysics of the Republic of Indonesia): Promotion of intergovernmental network of ICL-KLC2020

2. Forum Lectures and Award Lectures

Chairs: Vít Vilímek (Vice President for Mission (KLC2020), Charles University, Prague, Czech Republic)

Fawu Wang (Professor, Tongji University, China)

Date: Nov.6, 13:30-15:30 JST

Forum Lectures

- Michel Jaboyedoff (Professor, University of Lausanne, Switzerland): Improving the rockfall failure hazard assessment.
- Brian Collins (Research civil engineer, U.S. Geological Survey, USA): Progress and lessons learned from responses to catastrophic landslides

Award Lectures

- Claudio Margottini (ISPRA - Dpt. Geological Survey of Italy) Fukuoka IPL Award lecture
- Beena Ajmera (Assistant Professor, North Dakota State University, USA) Oldrich Hungr Award lecture

Parallel Session Programme

Theme 1 Sendai Landslide Partnerships and Kyoto Landslide Commitment

Contact: ICL secretariat <secretariat@iclhq.org>

Session 1.1 Sendai Landslide Partnerships, Kyoto Landslide Commitment, and International Programme on Landslides

Convener: Peter Bobrowsky (peter.bobrowsky@canada.ca) & Alexander Strom (strom.alexandr@yandex.ru)

4th Nov. 9:00-12:30 JST

1	9:00-9:15	Kyoji Sassa	Japan	Kyoto 2020 Commitment for Global Promotion of Understanding and Reducing Landslide Disaster Risk
2	9:15-9:30	Peter T. Bobrowsky	Canada	International Consortium on Landslides (ICL): Proposing and Host Organization of SLP20152025 and KLC2020
3	9:30-9:45	Matjaž Mikoš	Slovenia	The ICL journal Landslides - 16 years of capacity development for landslide risk reduction
4	9:45-10:00	Kaoru Takara	Japan	UNITWIN-UNESCO/KU/ICL Programme
5	10:00-10:15	Qunli Han	China	International Programme on Landslides (IPL): A programme of the ICL for Landslide Disaster Risk Reduction
6	10:30-10:45	Alexander Strom	Russia	Central Asia – rockslides' and rock avalanches' treasury and workbook
7	10:45-11:00	Biljana Abolmasov	Serbia	Results of recent monitoring activities on landslide Umka, Belgrade, Serbia - IPL 181
8	11:00-11:15	Matjaž Mikoš	Slovenia	Landslides in Weathered Flysch: From Activation to Deposition (WCoE 2017-2020)
9	11:15-11:30	Snježana Mihalić Arbanas	Croatia	Report of the Croatian WCoE 2017-2020: From landslide mapping to risk assessment
10	11:30-11:45	Nicola Casagli	Italy	Advanced technologies for Landslides (WCoE 2017-2020)
12	12:00-12:15	Željko Arbanas	Croatia	Report of the IPL-219, IPL-220 and Croatian WCoE 2017-2020: From landslide investigation to landslide prediction and stabilization
13	12:15-12:30	Satoru Nishikawa	Japan	Ichi-Nichi-Mae (The Day before the Disaster) Project for Landslide Awareness and Risk Communication

Session 1.1 Sendai Landslide Partnerships, Kyoto Landslide Commitment, and International Programme on Landslides (continue)

Convener: Peter Bobrowsky (peter.bobrowsky@canada.ca) & Alexander Strom (strom.alexandr@yandex.ru)

13:30-14:45 JST

14	13:30-13:45	Eleftheria Poyiadji	Greece	Landslides in Greece and related legislation: difficulties and potential improvements
15	13:45-14:00	Surya Parkash	India	Emerging Issues and Innovative Strategies for Landslides Risk Management
16	14:00-14:15	Bayes Ahmed	UK	The root causes of landslide vulnerability in Bangladesh
17	14:15-14:30	Shuai Zhang	China	Hydrated halloysite: the pesky stuff responsible for a cascade of landslides triggered by the 2018 Iburi earthquake, Japan
18	14:30-14:45	Bastian van den Bout	Netherlands	Impact of multi-hazard interactions on risk assessment

Session 1.2 Landslide-induced Tsunamis

Convener: Shinji Sassa (sassa_pari@hotmail.co.jp)

4th Nov. 15:00-16:30 JST

19	15:00-15:15	Taro Kakinuma	Japan	Numerical simulation for tsunami generation due to a landslide
20	15:15-15:30	Kazuki Murata	Japan	Tsunami Disaster caused by the 1923 Great Kanto Earthquake and the Importance of Submarine Landslides
21	15:30-15:45	Wahyu Widiyanto	Chinese Taipei	Post-event field surveys of 2018 tsunami in Palu Bay and Sunda Strait
22	15:45-16:00	Tso-Ren Wu	Chinese Taipei	Three-Dimensional Simulation on the Rockslide and Mudslide Generated Tsunamis
23	16:00-16:15	Junji Miyamoto	Japan	Submarine landslide study in a drum centrifuge
24	16:15-16:30	Federico Di Traglia	Italy	Dealing with mass flow-induced tsunamis at Stromboli volcano: monitoring strategies

Session 1.3 Landslides at UNESCO designates sites and contribution from WMO, FAO, IRDR

Convener: Qunli Han (qunli.han@irdrinternational.org) & Vít Vilímek (vit.vilimek@natur.cuni.cz)

5th Nov. 9:00-12:30 JST

25	9:00-9:15	Yuki Matsuoka	Japan	Sendai voluntary commitments: landslide stakeholders and the all-of-society approach enhanced by UNDRR
26	9:15-9:30	Vít Vilímek	Czech Republic	Contribution of the collaborative effort of the Czech WCoE to landslide risk reduction at the Machupicchu, Peru
27	9:30-9:45	Irina Pavlova	France	Landslides at UNESCO-designated sites
28	9:45-10:00	Daniele Spizzichino	Italy	Traditional knowledge and local expertise in landslide risk mitigation of world heritages

29	10:00-10:15	William Frodella	Italy	Assessing landslide hazards in cultural heritage sites of the UNESCO Tentative List: examples from developing countries
30	10:15-10:30	Rodrigo Alcaíno-Olivares	Canada	Thermo-mechanical cliff stability at tomb KV42 in the Valley of the Kings, Egypt
31	10:45-11:00	Xu Tang	China	Collaboration in MHEWS through an Integrated Way: The Great Efforts Contributed by Multi-stakeholder Partnership at National, Regional and International Levels
32	11:00-11:15	Yuka Makino	Italy	Resilient Watershed Management: Landscape Approach to Climate Change and Disaster Risk Reduction
33	11:15-11:30	Fang Lian	China	Integrating DRR into the conservation and management mechanisms of the internationally designated sites – view of IRDR
34	11:30-11:45	Giuseppe Esposito	Italy	Landslide hazard and risk assessment for civil protection early response
35	11:45-12:00	Irasema Alcántara-Ayala	Mexico	Size matters: the impact of small, medium and large landslide disasters

Session 1.4 Education and Capacity Development for Risk Management and Risk Governance

Convener: Matjaž Mikoš (matjaz.mikos@gmail.com) & Hendy Setiawan (hendy.setiawan@ugm.ac.id)

5th Nov.13:30-16:15 JST

36	13:30-13:45	Emanuele Intriari	Italy	Early warning systems in Italy: state-of-the-art and future trends
37	13:45-14:00	Jan Klimeš	Czech Republic	Community-based landslide risk management in contrasting social environments, cases from the Czech Republic
38	14:00-14:15	Lee-Ping Shi	Chinese Taipei	Refinement Progresses on Freeway Slope Maintenance after a Huge Landslide Disaster
39	14:15-14:30	Ricardo J. Garnica-Peña	Mexico	Landslide exposure community-based mapping: a first encounter in a small rural locality of Mexico
40	14:30-14:45	Elizabeth A. Holcombe	UK	Co-producing data and decision support tools to reduce landslide risk in the humid tropics
41	14:45-15:00	Mohamad Fazli Sardi	Malaysia	ICT-based landslide disaster simulation drill: Road to achieve 2030 global commitment
42	15:00-15:15	Sao-Jeng Chao	Chinese Taipei	A Preliminary Work of Safety Potential Analysis Model for Anchors Used on Freeway Slopes

43	15:15-15:30	Tamara Breuning	Germany	Initial Experiences of Community Involvement in an Early Warning System in Informal Settlements in Medellín, Colombia
44	15:30-15:45	Hendy Setiawan	Indonesia	Capacity Building and Community Preparedness towards Landslide Disaster in Pagerharjo Village, Kulon Progo Regency of Yogyakarta, Indonesia
45	15:45-16:00	Alexandra Urgilez	Netherlands	Characterization and hydrological analysis of the Guarumales deep-seated landslide in the tropical Ecuadorian Andes
46	16:00-16:15	Mateja Jemec Auflic	Slovenia	On the importance of geological data for landslide risk reduction in Slovenia

Session 1.5 SATREPS-Rain-induced Rapid and Long Travelling Landslides

Convener: Kazuo Konagai (kaz3776k@gmail.com) & Ryosuke Uzuoka (uzuoka.ryosuke.6z@kyoto-u.ac.jp)

6th Nov. 9:00-10:45 JST

47	9:00-9:15	Kazuo Konagai	Japan	SATREPS project for Sri Lanka with regard to “Development of early warning technology of Rain-induced Rapid and Long-travelling Landslides”
48	9:15-9:30	Major General Sudantha Ranasinghe	Sri Lanka	Role of Disaster Management Center on Landslide Risk Management
49	9:30-9:45	Ryo Onishi	Japan	Technology development of reliable rainfall prediction in mountain regions of Sri Lanka
50	9:45-10:00	Shiho Asano	Japan	Strategy for monitoring creeping movements of unstable soil masses triggered by heavy rain at pilot sites in tropical forested mountain
51	10:00-10:15	Jayakody Sanchitha	Japan	Porewater pressure build-up of slopes subjected to different rainfall conditions by centrifuge modelling
52	10:30-10:45	Imaya Ariyaratna	Japan	Early warning system against rainfall-induced landslide in Sri Lanka
53	10:15-10:30	Toru Koike	Japan	Strengthening non-structural measures for Landslide Risk Reduction in Sri Lanka – Achievement in Project SABO -

Theme 2 From Mapping to Hazard and Risk Zonation

Contact: Paola Reichenbach <paola.reichenbach@irpi.cnr.it> and Snježana Mihalić Arbanas

<snjezana.mihalic@rgn.unizg.hr>

Session 2.1 Landslide recognition and mapping

Convener: Dalia Kirschbaum (dalia.kirschbaum@nasa.gov) & Shoji Doshida (sdoshida@fri.go.jp)

4th Nov. 9:00-12:00 JST

1	9:00-9:20	Benjamin B. Mirus	USA	Landslides across the USA: occurrence, susceptibility, and data limitations
2	9:20-9:40	Toyohiko Miyagi	Japan	Landslide Recognition and Mapping for Slope Disaster Risk Reduction and Management
3	9:40-9:55	Rafal Sikora	Poland	New Landslide Inventory Map of the Sudetes Mountains (South-Western Poland)
4	9:55-10:10	Kamila Pawluszek-Filipiak	Poland	Opportunities and challenges of the object-oriented automatic landslide detection from the high resolution Digital Elevation Model
5	10:10-10:25	Mio Kasai	Japan	Can Repeat LiDAR Surveys Locate Future Massive Landslides?
6	10:25-10:40	Nguyen Kim Thanh	Vietnam	Developing recognition and simple mapping by UAV/SfM for local resident in mountainous area in Vietnam – A case study in Po Xi Ngai Community, Laocai province
7	10:40-10:55	Vladimir Greif	Slovakia	Landslide activity classification based on Sentinel-1 satellite radar interferometry data
8	10:55-11:10	Carlo Tacconi Stefanelli	Italy	Damming predisposition of river networks: a mapping methodology
9	11:10-11:25	Timotej Verbovšek	Slovenia	Maximum Likelihood Classification method for detection of litho-geomorphological units in the Vipava Valley, SW Slovenia
10	11:25-11:40	Pham Van Tien	Vietnam	Landslides along Halong-Vandon Expressway in Quang Ninh province, Vietnam
11	11:40-11:50	Tomislav Popit	Slovenia	Roughness analysis of fossil landslide surfaces in the Vipava Valley, SW Slovenia

Session 2.1 Landslide recognition and mapping (continue)

Convener: Paola Reichenbach (paola.reichenbach@irpi.cnr.it) & Snjezana Mihalic Arbanas

(snjezana.mihalic@rgn.unizg.hr)

4th Nov. 13:30-13:50 JST

12	13:30-13:40	Txomin Bornaetxea	Spain	The Effective Surveyed Area. Uncertainty reduction in field work based landslide inventories.
13	13:40-13:50	William Schulz	USA	Use of InSAR at multiple spatial and temporal scales to reveal landsliding mechanisms

Session 2.2 Landslide hazard assessment and zonation – susceptibility modelling

Convener: Paola Reichenbach (paola.reichenbach@irpi.cnr.it) & Snjezana Mihalic Arbanas

(snjezana.mihalic@rgn.unizg.hr)

4th Nov. 13:50-17:00 JST

14	13:50-14:10	Samuele Segoni	Italy	Landslide susceptibility assessment in complex geological settings: sensitivity to geological information and insights on its parameterization
15	14:10-14:30	Hiroshi Yagi	Japan	Landslide susceptibility mapping by interpretation of aerial photographs, AHP and precise DEM
16	14:30-14:45	Christian Arnhardt	UK	An expert-based Landslide susceptibility assessment on city scale level with limited data - an example from Kuala Lumpur City
17	14:45-15:00	Gabriel Legorreta Paulin	Mexico	Landslide susceptibility in two secondary rivers of La Ciénega watershed, Nevado de Toluca volcano, Mexico
18	15:00-15:15	Sharad Kumar Gupta	India	An Ordinal Scale Weighting Approach for Susceptibility Mapping Around Tehri Dam, Uttarakhand, India
19	15:15-15:30	Meei-Ling Lin	Chinese Taipei	Potential Analysis of Deep-seated Landslides Caused by Typhoon Morakot Using Slope Unit
20	15:30-15:45	Lea Tien Tay	Malaysia	Landslide Hazard Mapping of Penang Island Malaysia based on Multilayer Perceptron Approach
21	15:45-16:00	Zheng Han	China	Landslide Susceptibility Mapping Based on the Deep Belief Network: A Case Study in Sichuan Province, China
22	16:00-16:15	Jie Dou	Japan	A Comparative study of deep learning and conventional neural network for evaluating landslide susceptibility using landslide initiation zones
23	16:15-16:30	Domenico Calcaterra	Italy	Landslide susceptibility assessment by ensemble-based Machine Learning models
24	16:30-16:45	Anika Braun	Germany	Overcoming data scarcity related issues for landslide susceptibility modeling with machine learning
25	16:45-17:00	Jewgenij Torizin	Germany	Practical accounting for uncertainties in data-driven landslide susceptibility models. Examples from the Lanzhou case study

Session 2.2 Landslide hazard assessment and zonation – susceptibility modelling (continue)

Convener: Benjamin Mirus (bbmirus@usgs.gov) & Toyohiko Miyagi (c1934009@mail.tohoku-gakuin.ac.jp)

5th Nov. 9:00-12:25 JST

26	9:00-9:15	Victor Carvalho Cabral	Brazil	Assessment of shallow landslides susceptibility using SHALSTAB and SINMAP at Serra do Mar, Brazil
27	9:15-9:30	Biljana Abolmasov	Serbia	Regional slope stability analysis in landslide hazard assessment context, North Macedonia example
28	9:30-9:45	Shoji Doshida	Japan	Evaluation of secondary landslide susceptibility for the rescue activity using LiDAR UAV data
29	9:45-10:00	Johnny Alexander Vega	Colombia	Methodology for landslides assessment causing river channel obstructions and the consequent water shortage in rural communities
30	10:00-10:15	Edier Aristizabal	Colombia	Rainfall-induced shallow landslide susceptibility assessment in mountainous and tropical scarce-data region of the Colombian Andes
31	10:15-10:25	Shahram Nasiri	Australia	Concerns over reliable earthquake-induced landslide hazard assessment: Developing sophisticated geotechnical databases and 3D landslide inventories
32	10:25-10:35	Farrokh Nadim	Norway	Theoretical framework for estimating the annual probability of occurrence of landslides
33	10:35-10:45	Dalia Kirschbaum	USA	Multi-scale landslide hazard assessment using remote sensing data
34	10:45-10:55	Laurie Kurilla	Italy	Global debris flow susceptibility, current and future impact, based on climate and urbanization trends
35	10:55-11:05	Paola Reichenbach	Italy	Evaluating the Terrain Susceptibility to Mass Movements
36	11:05-11:15	Massimiliano Bordoni	Italy	Data-driven Modelling of the Spatio-Temporal Probability of Occurrence of Shallow Landslides with the Integration of Satellite Data
37	11:15-11:25	Corrado Camera	Italy	Introducing the climate component into landslide susceptibility mapping
38	11:25-11:35	Greta Bajni	Italy	The role of climatic predictors for non-stationary rockfall susceptibility modelling
39	11:35-11:45	Mauro Rossi	Italy	Probabilistic modeling of rockfall source areas
40	11:45-11:55	Marco Loche	Czech Republic	Introducing Land Surface Temperature in Susceptibility Modeling
41	11:55-12:05	Song Eu	Korea	Dynamic Landslide Hazard Assessment by Matrix Combination of Soil Water Index and Landslide Susceptibility Map

42	12:05-12:15	Claudia Meisina	Italy	Impact of agricultural management in vineyards to landslides susceptibility in Italian Apennines
43	12:15-12:25	Dymphna Nolasco-Javier	Philippines	Landslide susceptibility assessment using binary logistic regression in northern Philippines

Session 2.3 Landslide hazard assessment and zonation – temporal and size modelling

Convener: Mauro Rossi (mauro.rossi@irpi.cnr.it)& Erica Akemi Goto (ericagoto@gmail.com)

5th Nov. 13:30-16:00 JST

44	13:30-13:45	Stefan Steger	Italy	A statistical exploratory analysis of inventoried slide-type movements for South Tyrol (Italy)
45	13:45-14:00	Gabriel Legorreta Paulin	Mexico	Assessing landslide volume for landform hazard zoning purposes
46	14:00-14:15	Saskia de Vilde	New Zealand	Empirical relationships to estimate the probability of runout exceedance for various landslide types
47	14:15-14:30	Rex L Baum	USA	Rapid sensitivity analysis for reducing uncertainty in landslide hazard assessment
48	14:30-14:45	Kana Nakatani	Japan	Applying debris flow simulation for detailed hazard and risk mapping and for considering effective countermeasures
49	14:45-15:00	Kaiheng Hu	China	Debris-Flow Peak Discharge Calculation Model Based on Erosion Zoning
50	15:00-15:15	Takashi Koi	Japan	Rainfall-induced lahar occurrences shortly after eruptions and its initiation processes in Japan
51	15:15-15:30	Jiaying Li	China	Spatiotemporal Assessment of Geological Hazard Safety along Railway Engineering using a Novel Method: A Case Study of the Sichuan-Tibet Railway, China
52	15:30-15:45	Mohamed Rouai	Morocco	Slope Stability and Landslide Hazard in Volubilis Archaeological Site (Morocco)
53	15:45-16:00	Olivier Dewitte	Belgium	Landslide Timing in a Changing Tropical Environment: the North Tanganyika-Kivu Rift region, Africa

Session 2.4 Landslide data and information for disaster mitigation

Convener: Txomin Bornaetxea (txomin.bornaetxea@ehu.eus) & Mio Kasai (kasaim@for.agr.hokudai.ac.jp)

5th Nov. 16:00-17:00 JST

54	16:00-16:15	Mohd Farid Abdul Kadir	Malaysia	Risk-informed Land Use Planning for Landslide Disaster Risk Reduction: A Case Study of Cameron
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				Highlands, Pahang, Malaysia
55	16:15-16:30	Paolo Tarolli	Italy	Landslides in steep-slope agricultural landscapes
56	16:30-16:45	Matteo Del Soldato	Italy	From satellite images to field survey: a complete scheme of landslide InSAR monitoring
57	16:45-17:00	Toyohiko Miyagi	Japan	Slope disaster risk reduction map as a communication tool for community based DRR in Japan & Vietnam

Session 2.5 Landslide vulnerability of people, communities and the built environment

Convener: Dario Peduto (dpeduto@unisa.it) & Mike Winter (mwinter@trl.co.uk)

6th Nov. 9:00-11:00 JST

58	9:00-9:15	Paola Salvati	Italy	People vulnerability to landslide: risky behaviours and dangerous conditions by gender and age
59	9:15-9:30	Erica Akemi Goto	USA	Using mixed-methods to understand community vulnerability to debris flows in Montecito, CA
60	9:30-9:45	Dario Peduto	Italy	Innovation in analysis and forecasting of vulnerability to slow-moving landslides
61	9:45-10:00	Ricardo Garnica-Peña	Mexico	On the use of UAVs for landslide exposure of households: La Gloria neighbourhood, Teziutlán, Puebla
62	10:00-10:15	Aditi Singh	India	Site-specific risk assessment of buildings exposed to rock fall in India- A case study
63	10:15-10:30	Michio Ishigaki	Japan	The Advanced Method for Detecting Geotechnical Risks of Landslide Failures by Surveying Historical Surface Deformation and Underground Water
65	10:45-11:00	Kuntala Bhusan	India	Landslide Scenario in North Eastern Region of India and Associated Challenges

Theme 3: Monitoring and Early Warning

Contact: Veronica Tofani <veronica.tofani@unifi.it>

Session 3.1 Landslide monitoring and geophysical surveys

Convener: David Huntley (david.huntley@canada.ca) & Jan Klimes (klimes@irms.cas.cz)

4th Nov. 9:00-12:35 JST

1	9:00-9:20	Paola Revellino	Italy	Defining kinematic and evolutive features of earth flows using integrated monitoring and low-cost sensors
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2	9:20-9:35	Jan Blahůt	Czech Republic	Monitoring of thermoelastic wave within a rock mass coupling information from IR camera and crack meters: a 24-hour experiment on “Branická skála” Rock in Prague, Czechia
3	9:35-9:50	David Huntley	Canada	Field testing innovative differential geospatial and photogrammetric monitoring of a slow-moving landslide, south-central British Columbia, Canada
4	9:50-10:05	Paolo Allasia	Italy	The role of measure of deep-seated displacements in the monitoring networks on large-scale landslide
5	10:05-10:20	Filip Hartvich	Czech Republic	Multiinstrumental monitoring network Slopenet - new advances
6	10:20-10:35	Lal Dinpuia	India	Slope Instabilities Analysis and Monitoring of Aizawl Landslide, Mizoram, Northeast India
7	10:35-10:50	Jongmans Denis	France	Geophysical monitoring of landslides: state-of-the art and recent advances
8	10:50-11:05	Sebastian Uhlemann	USA	Geophysical monitoring of landslides – A step closer towards predictive understanding?
9	11:05-11:20	Jim Whiteley	UK	Recent advances in high spatial resolution geophysical monitoring of moisture-induced landslides
10	11:20-11:35	Hao Luo	China	Characteristic analysis of the Nayong rock avalanche based on the seismic signal
11	11:35-11:50	Liang Feng	Italy	Rockfall detection and early warning using micro-seismic monitoring
12	11:50-12:05	Yu Zhuang	China	Electrical resistivity tomography (ERT) based investigation of two landslides in Guizhou, China
13	12:05-12:20	Kiminori Araiba	Japan	Vibration of Piled Rocks - Which rock can be removed ?
14	12:20-12:35	Hong-Hu Zhu	China	Multi-parameter monitoring of landslides using a distributed fiber optic sensing system

Session 3.2 Remote sensing for landslide risk management

Convener: Veronica Tofani (veronica.tofani@unifi.it) & Martin Krkac (mkrkac@rgn.hr)

4th Nov. 13:30-15:45 JST

15	13:30-13:45	Mihai Niculita	Romania	LiDAR and UAV SfM for landslide monitoring
16	13:45-14:00	Paolo Mazzanti	Italy	Recent developments in photomonitoring
17	14:00-14:15	Ko-Fei Liu	Chinese Taipei	Debris flow detection with video camera

19	14:30-14:45	Ying Liu	China	Remote sensing monitoring of landslides along highways
20	14:45-15:00	Anna Barra	Spain	Sentinel-1 landslides detection: the Granada coast
21	15:00-15:15	Chaoying Zhao	China	Landslide Dynamic Deformation Monitoring with Sequential Least Squares Based SAR/InSAR techniques
22	15:15-15:30	David Bonneau	Canada	Towards managing debris channel risks to infrastructure: Understanding debris processes using remotely sensed data.

Session 3.4 Forecasting models and time predictions of landslides

Convener: Katsuo Sasahara (sasahara@kochi-u.ac.jp) & Emanuele Intrieri (emanuele.intrieri@unifi.it)

5th Nov. 9:00-12:30 JST

23	9:00-9:15	Maria Teresa Brunetti	Italy	Regional approaches in forecasting rainfall-induced landslides
24	9:15-9:30	Graziella Devoli	Norway	Seven years of landslide forecasting in Norway – strengths and limitations
25	9:30-9:45	Hyuck-Jin Park	Republic of Korea	Probabilistic modelling of uncertainties in physically based landslide susceptibility assessment
26	9:45-10:00	Veronica Tofani	Italy	Calibration and validation of a physically-based regional landslide forecasting model
27	10:00-10:15	Judith Uwihirwe	Netherlands	Landslide precipitation thresholds in Rwanda
28	10:15-10:30	Nikhil Nedumpallile Vasu	UK	Methodology for developing a preliminary hydrological threshold for rainfall-induced landslides in Kuala Lumpur city, Malaysia
29	10:30-10:45	Brenda Rosser	New Zealand	Development of a Rainfall-induced Landslide Forecast Tool for New Zealand
30	10:45-11:00	Naoki Iwata	Japan	Influence of intervals measuring surface displacement on time prediction of slope failure using Fukuzono Method
31	11:00-11:15	Katsuo Sasahara	Japan	Velocity and acceleration of surface displacement in sandy model slope with various slope conditions
32	11:15-11:30	Praveen Kumar	India	Comparison of Moving-average, Lazy, and Information Gain Methods for Predicting Weekly Slope-movements: A Case-study in Chamoli, India
33	11:30-11:45	Antoinette Tordesillas	Australia	New insights into the spatiotemporal precursory failure dynamics of the 2017 Xinmo landslide and its surrounds
34	11:45-12:00	Martin Krkač	Croatia	A comparative study of random forests and multiple linear regression in the prediction of landslide velocity

35	12:00-12:15	Adriaan van Natijne	Netherlands	Machine Learning: Potential for Deep-Seated Landslide Nowcasting
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Session 3.3 Landslide early warning systems

Convener: Michele Calvello (mcalvello@unisa.it) & Faisal Fathani (tfathani@ugm.ac.id)

5th Nov. 13:30-16:30 JST

36	13:30-13:45	Gaetano Pecoraro	Italy	Definition and first application of a probabilistic warning model for rainfall-induced landslides
37	13:45-14:00	Katerina Kavoura	Greece	Establishment of an integrated landslide early warning and monitoring system in populated areas
38	14:00-14:15	Nguyen Duc Ha	Vietnam	An Integrated WebGIS System for Shallow Landslide Hazard Early Warning
39	14:15-14:30	Adrian Wicki	Switzerland	The value of soil wetness measurements for regional landslide Early Warning Systems
40	14:30-14:45	John Singer	Germany	Technical concepts for an early warning system for rainfall induced landslides in informal settlements
42	15:00-15:15	Qiang Xu	China	Presenting Some Successful Cases of Regional Landslides Early Warning Systems in China
43	15:15-15:30	Klaus-Peter Keilig	Germany	Towards an early warning system for instable slopes in Gorgia The large Tskneti Akhaldaba landslide
44	15:30-15:45	Lin Wang	Japan	An EWS of landslide and slope failure by MEMS tilting sensor array
45	15:45-16:00	Piciullo Luca	Norway	Standards for the performance assessment of territorial landslide early warning systems

Session 3.3 Landslide early warning systems (continue)

Convener: Michele Calvello (mcalvello@unisa.it) & Faisal Fathani (tfathani@ugm.ac.id)

6th Nov. 9:00-10:45

47	9:00-9:15	Michele Calvello	Italy	LandAware: a new international network on Landslide Early Warning Systems
48	9:15-9:30	Chih-Chung Chung	Chinese Taipei	The Development of TDR-integrated landslide Early Warning System
50	9:45-10:00	Teuku Faisal Fathani	Indonesia	Global standard for multi-hazards early warning system
51	10:00-10:15	Imaya Ariyarathna	Japan	The time prediction Method of an onset of rainfall induced landslides for early warning

Theme 4: Testing, Modeling and Risk Assessment

Contact: Binod Tiwari <btiwari@fullerton.edu>

Session 4.1 Recent Development in Physical Modeling of Landslides

Convener: Katsuo Sasahara (sasahara@kochi-u.ac.jp) & Binod Tiwari (btiwari@fullerton.edu)

4th Nov. 9:00-11:00 JST

1	9:00-9:15	Rolando P Orense	New Zealand	Application of magnetic tracking system in laboratory-scale rock avalanche model tests
2	9:15-9:30	Yanto	Indonesia	A simple physically-based distributed translational landslide model
3	9:30-9:45	Nobutaka Hiraoka	Japan	Centrifuge Modelling of Slope Failure due to Groundwater during Excavation
4	9:45-10:00	Binod Tiwari	USA	Experimental Studies on the Effect of Vegetation Density to Change Underground Seepage Rate and Stability of Slopes
5	10:00-10:15	Jonathan M Carey	USA	Laboratory Simulations of Submarine Landslide Failure Mechanisms
7	10:30-10:45	Clarence Choi	China	Landslide Growth: Collisions and Contractile Skins
8	10:45-11:00	Anthony Leung	Hong Kong SAR, China	Innovative Use of Thermo-Active Pile Row in Unsaturated Soil Slopes

Session 4.2 Recent Development in Numerical Modeling of Landslides

Convener: Deepak Raj Bhat (deepakbhat@okuyama.co.jp) & Beena Ajmera (beena.ajmera@ndsu.edu)

4th Nov. 11:15-12:30 JST

9	11:15-11:30	Daniel Pradel	USA	Numerical Modelling for Slope Stabilizations in Modern Geotechnical Practice
11	11:30-11:45	Qihua Liang	UK	A coupled discrete element and depth-averaged model for flow-like landslide simulations
12	11:45-12:00	Martin Mergili	Austria	Advanced methods for simulating complex landslides
13	12:00-12:15	Laura Longoni	Italy	First test results from the SMART-SED simulation tool basin scale sediment yield model

Session 4.2 Recent Development in Numerical Modeling of Landslides (continue)

Convener: Khang Dang (khangdq@gmail.com) & Beena Ajmera (beena.ajmera@ndsu.edu)

4th Nov. 13:30-16:30 JST

14	13:30-13:45	Khang Dang	Japan	Hazard assessment of a rainfall-induced deep-seated landslide in Hakha city, Myanmar
15	13:45-14:00	Doan Huy Loi	Japan	Landslide hazard zoning based on the integrated simulation model (LS-Rapid)
16	14:00-14:15	Akihiko Wakai	Japan	Numerical simulation of a creeping landslide case in Japan
17	14:15-14:30	Takashi Kitazume	Japan	Numerical simulation of debris flows after ash fall at Mt. Fuji
18	14:30-14:45	Thirapong Pipatpongsa	Japan	On the progression of slope failures using inverse velocity of surface movements in an undercut slope model
19	14:45-15:00	Mario Martinelli	Netherlands	Rainfall boundary condition in a multiphase Material Point Method
20	15:00-15:15	Hitoshi Nakase	Japan	Reproduction of Sedimentation State during Rock Slope Failure Using the Simplified DEM Model
21	15:15-15:30	Matjaž Mikoš	Slovenia	An extreme May 2018 debris flood case study in northern Slovenia: analysis, modelling, and mitigation
22	15:30-15:45	Chaojun Ouyang	China	Numerical modeling of dynamic process and risk prediction of recent catastrophe landslides
23	15:45-16:00	Shuji Moriguchi	Japan	Sensitivity Analysis of DEM Parameters in Granular Flow Simulations

Session 4.3 Recent Development in Soil and Rock Testing Techniques, Application and Analysis Methods

Convener: Sabatino Cuomo (scuomo@unisa.it) & Netra Prakash Bhandary (netra@ehime-u.ac.jp)

5th Nov. 9:00-11:00 JST

24	9:00-9:15	Binod Tiwari	USA	Recent Developments in the Evaluation and Application of Residual and Fully Softened Shear Strengths for the Stability Analyses of Landslides
25	9:15-9:30	Deepak Raj Bhat	Japan	Shearing rate effect on residual strength of typical clay soils in ring shear test
26	9:30-9:45	Sabatino Cuomo	Italy	Simple shear tests for unsaturated soils
27	9:45-10:00	Beena Ajmera	USA	Simplest Methods of Determining Dynamic Soil Properties for Use in Co-seismic Hazard Analysis
28	10:00-10:15	Shenghua Cui	China	Liquefaction within Bedding Fault: New Understanding of the Initiation and Movement of Daguangbao Landslide Triggered by the 2008 Wenchuan Earthquake (Ms=8.0)

29	10:15-10:30	Netra Prakash Bhandary	Japan	Residual-state ring shear creep tests on clayey materials and development of creep failure model
30	10:30-10:45	Jakub Roháč	Czech Republic	Challenges in Evaluating Shear-Rate Effects in Soils
31	10:45-11:00	Satoshi Goto	Japan	Monotonic and Cyclic Behaviour of Tephra Layer Landslide at Takanodai from the 2016 Kumamoto Earthquake

Session 4.4 Recent Advancements in the Methods of Slope Stability and Deformation Analyses

Convener: Jiawei Xu (xu.jiawei.38z@st.kyoto-u.ac.jp) & Binod Tiwari (btiwari@fullerton.edu)

5th Nov. 11:10-12:40 JST

32	11:10-11:25	Timur Ersöz	Turkey	Slope Stability Assessment of Weak and Weathered Rocks with BQ System
33	11:25-11:40	Elizabeth A Holcombe	UK	Soil databases to assist slope stability assessments in the Eastern Caribbean
34	11:40-11:55	Ran LI	China	Failure mechanism of a flow-like landslide triggered by the 2018 Western Shimane Earthquake
35	11:55-12:10	Saaduddin	UK	The Mt Gamalama instability level in generating landslide-induced tsunami in Ternate Island, Indonesia
36	12:10-12:25	Jiawei Xu	Japan	Seepage and deformation of unsaturated slope during post-earthquake rainfall
37	12:25-12:40	Jan Jerman	Czech Republic	3D analysis of settlement and stability of the open-cast coal mine landfill: Bilina mine case

Session 4.5 Recent Development in Disaster Risk Assessment

Convener: Ryosuke Uzuoka (uzuoka.ryosuke.6z@kyoto-u.ac.jp) & Giuseppe Mandrone

(giuseppe.mandrone@unito.it)

5th Nov. 13:30-17:00 JST

38	13:30-13:45	Limin Zhang	China	Engineering Risk Mitigation for Landslide Hazard Chains: the Baige Landslides on the Jinsha River in 2018
39	13:45-14:00	Shantanu Sarkar	India	Engineering Geological Investigation and Slope Stability Analysis for Landslide Hazard Assessment in Indian Himalayas
40	14:00-14:15	Giuseppe Mandrone	Italy	First considerations about post 2017 wildfire erosion response and debris flows in Susa valley (NW Italy)
41	14:15-14:30	Wahyu Wilopo	Indonesia	Identification of Sliding Surface and Crack Pattern in the Soil Creep, Case Study: Unika Soegijapranata Campus, Semarang, Central Java, Indonesia

42	14:30-14:45	Tina Peternel	Slovenia	Preliminary result of real-time landslide monitoring in the case of the hinterland of Koroška Bela, NW Slovenia
43	14:45-15:00	Saskia de Vilder	New Zealand	Quantitative risk analysis of earthquake-induced landslides
44	15:15-15:30	W. K. Leung	Hong Kong SAR, China	Role of Remote Sensing Technology in Landslide Risk Management of Hong Kong
45	15:30-15:45	Luqi Wang	China	Risk assessment of submerged rock mass in reservoir area
47	16:00-16:15	Keh-Jian Shou	Chinese Taipei	On the Scale Effect of the Catchment Landslide Susceptibility with Consideration of Climate Change
48	16:15-16:30	Jordi Corominas	Spain	Fragmental rockfalls and the analysis of risk
49	16:30-16:45	Ratih Indri Hapsari	Indonesia	Satellite Soil Moisture for Estimating Landslide Hazard
50	16:45-17:00	Holger Pankrath	Germany	Shaking table tests of small scaled slope models

Theme 5: Catastrophic Landslides and Frontiers of Landslide Science

Contact: Vít Vilímek <vit.vilimek@natur.cuni.cz>, Alexander Strom <strom.alexandr@yandex.ru>, Fawu Wang <>wangfw@tongji.edu.cn>

Session 5.1 Landslides and earthquakes

Convener: Alexander Strom (strom.alexandr@yandex.ru) & Hiroshi Yagi (yagi@e.yamagata-u.ac.jp)

4th Nov. 9:00-10:30 JST

1	9:00-9:15	Paulus Rahardjo	Indonesia	Study on the Phenomena of Liquefaction Induced Massive Landslides in 28 September 2018 Palu-Donggala Earthquake
2	9:15-9:30	Daria Shubina	Russia	The Krasnogorsk landslide (Northern Caucasus): its evolution and modern activity
3	9:30-9:45	Hiroshi Yagi	Japan	Slope deformation of Jure landslide 2014 along Sun Koshi in Lesser Nepal Himalaya and effect of Gorkha earthquake 2015
4	9:45-10:00	Toshiya Aoki	Japan	Pressure head dynamics on a natural slope in Eastern Iburi struck by the 2018 Hokkaido earthquake
5	10:00-10:15	Sergio Sepulveda	Chile	New insights on recent and active large rock slides in the Andean paraglacial environments of central Chile

6	10:15-10:30	Salvatore Martino	Italy	Earthquake-triggered landslides and slope-seismic waves interaction inferring induced displacements
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Session 5.2 Landslide dams and outburst floods

Convener: Vít Vilimek (vit.vilimek@natur.cuni.cz) & Toshiya Aoki (aokitoshiya6@eis.hokudai.ac.jp)

4th Nov. 10:45-12:30 JST

7	10:45-11:00	Tomas Kroczek	Czech Republic	Rockfall/rockslide hazard, lake expansion and dead-ice melting assessment: Lake Imja, Nepal
8	11:00-11:15	Oleg V. Zerkal	Russia	Formation of the 2018 Bureya landslide, Far East of Russia
9	11:15-11:30	Regine Morgenstern	New Zealand	Landslide dam hazards: assessing their formation, failure modes, longevity and downstream impacts
10	11:30-11:45	Chukwuueloka A.U. Okeke	Nigeria	The Sedimentology and Internal Structure of Landslide Dams – Implications for Internal Erosion and Piping Failure: A Review
11	11:45-12:00	Christian Zangerl	Austria	Investigation, characterisation and monitoring of deep-seated landslides in the surroundings of large dam reservoirs
12	12:00-12:15	Arash Barjasteh	IRAN	March 2019 flood impact on the stability of Ambal salt ridge in the Gotvand dam reservoir, Southern Iran

Session 5.3 Catastrophic large-scale landslides in mountainous regions

Convener: Hans-Balder Havenith (hb.havenith@uliege.be) & Toshimi Mizuno (mizuno-toshimi@oyonet.oyo.co.jp)

4th Nov. 13:30-17:15 JST

13	13:30-13:45	Alexand Strom	Russia	Rock avalanches: basic characteristics and classification criteria
14	13:45-14:00	Jan Burda	Czech Republic	An interdisciplinary assessment of a coal-mining-induced catastrophic landslide (Czech Republic)
15	14:00-14:15	Gioachino Roberti	Canada	Could glacial retreat-related landslides trigger volcanic eruptions? Insights from Mount Meager, British Columbia
16	14:15-14:30	Hans-Balder Havenith	Belgium	Structural and dynamic numerical models of rockslides in the Carpathians and the Alps
17	14:30-14:45	Michele Delchiaro	Italy	Quantitative investigation of a Mass Rock Creep deforming slope through A-Din SAR and geomorphometry
18	14:45-15:00	Ching-Ying Tsou	Japan	Deformational Features of Deep-Seated Gravitational Slope Deformation of Slate Slopes in the Central Range,

				Taiwan
19	15:00-15:15	Kiichiro Kawamura	Japan	Bathymetric Analyses of Submarine Landslides on the Jan Mayen Ridge, Norwegian–Greenland Sea
20	15:15-15:30	Dirk Kuhn	Germany	Forkastningsfjellet rock slide, Spitsbergen: State of activity in a changing climate
21	15:30-15:45	Vinod K Sharma	India	Catastrophic landslides in Indian sector of Himalaya
22	15:45-16:00	Andrée Blais-Stevens	Canada	Landslides that caused fatalities in Canada from 1771-2019
23	16:00-16:15	Mark E. Reid	USA	Basal Liquefaction from Rapid Landsliding: The 2014 Deadly Oso Landslide (USA)
24	16:15-16:30	Toshimi Mizuno	Japan	The evaluation of Deep-seated catastrophic landslides (DCLs) on Kii Peninsula 2011 by means of the historical deformation
26	16:45-17:00	Marte Gutierrez	USA	The Massive February 17, 2006, Leyte, Philippines, Rockslide
27	17:00-17:15	Tomas Panek	Czech Republic	Giant landslides in the foreland of Patagonian Andes: effects of deglaciation and drawdown of glacial lakes

Session 5.4. Landslides triggered by extreme rainfall and other effects of climate change

Convener: Fawu Wang (wangfw@tongji.edu.cn) & Ying Guo (samesongs@163.com)

5th Nov. 9:00-11:30 JST

28	9:00-9:15	Ken Ho	China	Enhancing Preparedness against Impact of Climate Change on Slope Safety in Hong Kong
29	9:15-9:30	Wei Shan	China	Climate Change and Surface Deformation Characteristics in Degradation Area of Permafrost in Lesser Khingan Mountain, China
30	9:30-9:45	Nejc Bezak	Slovenia	Climate change impact evaluation on the water balance of the Koroška Bela area, NW Slovenia
32	10:00-10:15	Kounghoon Nam	China	Extreme rainfall induced landslide susceptibility assessment using Autoencoder combined with Random forest
33	10:15-10:30	Hongjuan Yang	China	Rainfall-induced landslides and debris flows in Mengdong town, Yunnan province, China
34	10:30-10:45	Swapna Acharjee	India	Landslide triggered by rainfall and Land use change: A case study of Laptap Landslide, Arunachal Pradesh, India

35	10:45-11:00	Komatsubara Taku	Japan	Relationships between antecedent rainfall and volume of earthquake-induced □landslides in historical era of Japan
36	11:00-11:15	Gianvito Scaringi	Czech Republic	Looking for a Temperature Control on Slope Stability
37	11:15-11:30	Jeffrey A. Coe	USA	Bellwether sites for evaluating changes in landslide frequency and magnitude in cryospheric mountainous terrain

Session 5.5. Frontiers of landslide science

Convener: Sabatino Cuomo (scuomo@unisa.it) & Junichi Koseki (koseki@civil.t.u-tokyo.ac.jp)

5th Nov. 11:45-12:30 JST

38	11:45- 12:00	Sabatino Cuomo	Italy	Numerical Modelling of Landslide-Structure-Interaction
39	12:00- 12:15	Tazio Strozzi	Switzerland	Accelerating Landslide Hazard at Kandersteg, Swiss Alps; Combining 28 years of satellite InSAR and single campaign terrestrial radar data
40	12:15- 12:30	Ying Guo	China	Identification old landslides in permafrost degradation area in Northeast China by difference distribution of surface trees

Session 5.5. Frontiers of landslide science (continue)

Convener: Sabatino Cuomo (scuomo@unisa.it) & Junichi Koseki (koseki@civil.t.u-tokyo.ac.jp)

5th Nov. 13:30-17:00 JST

41	13:30-13:45	Paula Hilger	Norway	A landform evolution model for the Mannen area in Romsdal valley, Norway
43	14:00-14:15	S.O.A.D. Mihira Lakruwan	Japan	Economizing the Soil Nailing Design by Drainage Improvement – Case History at Ginigathhena
44	14:15-14:30	Sandro Moretti	Italy	Large and small scale multi-sensors remote sensing for landslide characterisation and monitoring
45	14:30-14:45	Gabriel Legorreta Paulin	Mexico	Modeling landslide volumes: A case study in Whatcom County, Washington, USA
46	14:45-15:00	Pietro Rimoldi	Italy	Geosynthetic reinforced soil structures for slope stabilization and landslide rehabilitation in Asia
47	15:00-15:15	Wen-Chieh Cheng	China	Mobility characteristics in loess landslide over erodible bed: insights from sandbox experiments

48	15:15-15:30	Costanza Morino	France	Different dynamics of permafrost degradation-induced landslides revealed by molards
49	15:30-15:45	Yoshinori Otani	Japan	Recent Development of the Mechanically Stabilized Earth Walls with Geosynthetic Strap Reinforcements
50	15:45-16:00	Junichi Koseki	Japan	Japanese case histories on use of geosynthetics in reconstructing failed slopes
51	16:00-16:15	Mario Valiante	Italy	A spatiotemporal object-oriented data model for landslides (LOOM): some first pilot applications from the Cilento Geopark (Italy)
52	16:15-16:30	Motohiro Ito	Japan	Emergency mitigation measures of a dip slope slide with uplifted toe caused by heavy rain in Chichibu, east Japan
53	16:30-16:45	Reshad Md. Ekram Ali	Bangladesh	Influence of geology and geological structures in triggering landslides: Bangladesh perspective
54	16:45-17:00	Hans-Balder Havenith	Belgium	3D landslide models in VR

Theme 6 Specific Topics in Landslide Science and Applications

Contact: Zeljko Arbanas <zeljko.arbanas@gradri.uniri.hr>

Session 6.1 Impact of large ground deformations near seismic faults on critically important civil-infrastructures

Convener: Kazuo Konagai (kaz3776k@gmail.com) & Junji Kiyono (kiyono.junji.5x@kyoto-u.ac.jp)

4th Nov. 9:00-10:45 JST

1	9:00-9:15	Kazuo Konagai	Japan	Recent earthquakes that hit areas covered and/or underlain by pyroclastic matters and their impacts on lifelines
2	9:15-9:30	Alex Tang	Canada	Lessons Learned – Landslide Induced Lifelines Disasters from Past Earthquakes
3	9:15-9:30	Susumu Nakamura	Japan	Risk Assessment of Structural Damage for Rock Collision due to Earthquake-Induced Landslide
4	9:45-10:00	Junji Kiyono	Japan	Seismic response of buried pipeline to strong ground motion of strike-slip fault
5	10:00-10:15	Vishnu Dangol	Nepal	Impact on Infrastructure by 2015 Gorkha Earthquake Induced Landslides
6	10:15-10:30	Tara Nidhi Bhattarai	Nepal	Reconstruction Strategies for Mw 7.8 Earthquake-induced Landslide-affected Settlements in Nepal
7	10:30-10:45	Chih-Hsuan Liu	Chinese Taipei	Relationship between Arias intensity and the earthquake-induced displacements of slopes

Session 6.2 Recent Progress in the Landslide Initiating Science

Convener: Ikuo Towhata (towhata.ikuo.ikuo@gmail.com) & Yifei Cui (yifeicui@mail.tsinghua.edu.cn)

4th Nov. 11:00-12:30 JST

8	11:00-11:15	Haijun Qiu	China	Controls on landslide size: insights from field survey data
9	11:15-11:30	Ikuo Towhata	Japan	Geologic and hydrologic investigations on slope failures triggered by extreme rainfall on Izu Oshima Island, Japan
10	11:30-11:45	Yifei Cui	China	Investigation of internal erosion of wide grading loose soil – a micromechanics-based study
11	11:45-12:00	Huayong Chen	China	Experimental study on formation and propagation of debris flow triggered by the glacial lake outburst flood
12	12:00-12:15	Yan Yan	China	Quantitative analysis of landslide processes based on seismic signals - a new method for monitoring and early warning of landslide hazards
13	12:15-12:30	Amin Askarinejad	Netherlands	Water exfiltration from bedrock: a drastic landslide triggering mechanism

Session 6.3 Earth Observation and Machine Learning

Convener: Giulia Bossi (giulia.bossi@irpi.cnr.it) & Christopher Gomez (k0128086@gsuite.kobe-u.ac.jp)

4th Nov. 13:30-14:45 JST

14	13:30-13:45	Christopher Gomez	Japan	High-resolution point-cloud for Landslides in the 21st Century: from data acquisition to new processing concepts
15	13:45-14:00	Daniele Giordan	Italy	Automatized dissemination of landslide monitoring bulletins for early warning applications
16	14:00-14:15	Giulia Bossi	Italy	Detecting change of patterns in landslide displacements using machine learning, an example application
17	14:15-14:30	Elahe Jamalnia	Netherlands	Predicting rainfall induced slope stability using Random Forest regression and synthetic data
18	14:30-14:45	Ivan Depina	Norway	Hybrid Analytics of Rainfall Infiltration with Physics-informed Neural Networks

Session 6.4 General Landslide Studies

Convener: Zeljko Arbanas (zeljko.arbanas@gradri.uniri.hr) & Daisuke Higaki (a9024@n-koei.co.jp)

4th Nov. 15:00-17:00 JST

19	15:00-15:15	Tonglu Li	China	Loess Stratigraphy and Loess Landslides in the Chinese Loess Plateau
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20	15:15-15:30	Hermanns Reginald L	Norway	Mapping, hazard and consequence analyses for unstable rock slopes in Norway
21	15:30-15:45	Martina Böhme	Norway	Landscape formation and large rock slope instabilities in Manndalen, northern Norway
22	15:45-16:00	Francis Rengers	USA	Landslides after wildfire: initiation, magnitude, and mobility
23	16:00-16:15	Peng Cui	China	Disaster Risk Assessment of the Silk Road
24	16:15-16:30	Daisuke Higaki	Japan	Rehabilitation of gully-dominant hill slopes by using low-cost measures-a case study in Nepal
25	16:30-16:45	Chinthaka Ganepola	Sri Lanka	Site Suitability Analysis for Nature-based Landslide Risk Mitigation
26	16:45-17:00	Jana Eichel	Netherlands	Biogeomorphic feedbacks between plants and mass movement processes in periglacial environments

Session 6.4 General Landslide Studies (continue)

Lin Wang (wang@ccknet.co.jp)

5th Nov. 9:00-10:30 JST

27	9:00-9:15	Oleg V. Zerkal	Russia	Classification of Cryogenic Landslides and Related Phenomena (by Example of the Territory of Russia)
28	9:30-9:45	Hiroshi P. Sato	Japan	Relation between horizontal direction of crustal deformation surveyed on the control points and area ratio of the slope failures triggered by the 2016 Kumamoto earthquake (Mj7.3)
29	9:30-9:45	Weile Li	China	Precursor of large rockslides and its application on landslide early detection
30	9:45-10:00	Michiyo Nakashima	Japan	Report on a landslide in Kyotango city, Kyoto prefecture
31	10:00-10:15	Yasunori Katsume	Japan	Three-dimensional shape of mountainous landslide and the ground deformation caused by snow melting - Jin'nosuke-dani landslide, Mount Hakusan, Central Japan
32	10:15-10:30	Yu Zhao	China	Measuring colloidal forces between clay microparticles with optical tweezers

Session 6.5 The Japanese Geotechnical Society Session

Convener: Kazunari Sako (sako@oce.kagoshima-u.ac.jp) & Noriyuki Yasufuku (yasufuku@civil.kyushu-u.ac.jp)

5th Nov. 10:45-12:30 JST

33	10:45-11:00	Kazuya Yasuhara	Japan	Contribution of geotechnical engineering to climate change and IPCC
34	11:00-11:15	Motoyuki Suzuki	Japan	Urgent issues and new suggestions for geo-disaster prevention in Japan
35	11:15-11:30	Tatsuya Ishikawa	Japan	Lessons from recent geo-disasters in Hokkaido under heavy rainfall
36	11:30-11:45	Noriyuki Yasufuku	Japan	Lessons from recent geo-disasters caused by heavy rainfall in recent years in Kyushu Island, Japan
37	11:45-12:00	Shima Kawamura	Japan	Lessons from recent geo-disasters in Hokkaido under earthquake
38	12:00-12:15	Kiyonobu Kasama	Japan	Lessons from recent earthquake-induced Geo-disaster in Kyushu
39	12:15-12:30	Kumiko Fujita	Japan	Starting International Joint Research for Landslide Disaster Risk Reduction: The Use of Japanese Warning Technology Considering the Social Differences in Sri Lanka and Japan

Session 6.5 The Japanese Geotechnical Society Session (continue)

Convener: Kazunari Sako (sako@oce.kagoshima-u.ac.jp) & Noriyuki Yasufuku (yasufuku@civil.kyushu-u.ac.jp)

5th Nov. 13:30-14:00 JST

40	13:30-13:45	Yamashita Yuichi	Japan	Daily education for disaster risk reduction and victim support in disaster
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Session 6.6. Landslide Remediation and Mitigation Studies

Convener: Kazuo Konagai (kaz3776k@gmail.com) & Sangjun Im (junie@snu.ac.kr)

5th Nov. 14:15-15:15 JST

42	14:15-14:30	Stavroula Fotopoulou	Greece	Towards a probabilistic performance-based methodology for the vulnerability assessment of buildings subjected to seismically induced landslides
43	14:30-14:45	Jose A. Chavez	El Salvador	Slope Behavior Improvement of Partially-Saturated Pyroclastic in Data Scarse Regions
44	14:45-15:00	Vishnu Dangol	Nepal	Geotechnical Investigation for Landslide Stabilization Works in Narayanghat-Mugling Road, Central Nepal
45	15:00-15:15	Christophe Balg	Switzerland	Applying over ten years of experience in debris flow barriers to examples in South Africa and India for permanent protection

Korean Session in Theme 6

Convener: Sangjun Im (junie@snu.ac.kr) & Kazuo Konagai (kaz3776k@gmail.com)

5th Nov. 15:30-16:15 JST

46	15:30-15:45	Lee Jin-Ho	Republic of Korea	Development of Engineering Techniques for Exploring Land Creep Susceptible Zones in South Korea
47	15:45-16:00	Namgyun Kim	Republic of Korea	Stability analysis for cut-slope collapse by earthquake
48	16:00-16:15	Sangjun Im	Republic of Korea	Quantitative Evaluation of Erosion Control Dam on Sediment Trapping Efficiency with a Simulation Approach

The Japan Landslide Society E-proceedings sessions

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Session 6.E1 International Cooperation in Landslide Disaster/Risk Reduction (Japan)

Convener: Daisuke Higaki (a9024@n-koei.co.jp)

4th Nov. 9:00-12:35 JST

1	9:00-9:15	Haruki Ogasa	Japan	JICA's support in sediment disaster risk reduction
2	9:15-9:30	Kiyoharu Hirota	Japan	Preliminary report of simple hazard mapping methods for slope stability in Tegucigalpa, Honduras
3	9:30-9:45	Lidia Elizabeth Torres Bernhard	Honduras	AHP Method Applied to Landslide Susceptibility Mapping in pilot sites of Tegucigalpa
4	9:45-10:00	Elias Garcia-Urquia	Honduras	Coupling antecedant rainfall and intensity-duration thresholds for landslide occurrence in Tegucigalpa, Honduras, 2010
5	10:00-10:15	Takeshi Kuwano	Japan	Slope disaster and countermeasures in Honduras
6	10:15-10:30	Masanori Tozawa	Japan	Introduction of Preventive Measures in the Road Infrastructure Development in Tajikistan, in cooperation with a JICA technical project
7	10:50-11:05	Tomoharu Iwasaki	Japan	Technical cooperation project: Landslide adviser for Mauritius
8	11:05-11:20	Mukteshwar Gobin	Mauritius	Structural and non-structural countermeasures against landslides implemented in Mauritius with the assistance of the Government of Japan
9	11:20-11:30	Mikihiro Mori	Japan	Risk Estimation and Cost-Benefit Analysis of Road Geohazard Risk Reduction by comprehensive assessment for seismic and non-seismic hazards.

10	11:30-11:40	Alonso Armado Alfaro	El Salvador	Rockfall and landslides events and its study in Los Chorros Segment of the CA01 route, El Salvador.
11	11:40-11:55	Tempa Thinley	Bhutan	Landslide disaster management and capacity development for roadside slope risk reduction in Bhutan
12	11:55-12:10	Hara Takashi	Japan	Rockfall protection on road in Bhutan
13	12:10-12:25	Naoto Iwasa	Japan	Application on slope stabilization method aimed an environment and landscape conservation

Session 6.E1 International Cooperation in Landslide Disaster/Risk Reduction (Japan) (continue)

4th Nov. 13:30-14:50 JST

14	13:30-13:45	Kaoru Nakazato	Japan	Generating Landslide Hazard Map on 2015 Nepal Earthquake and Subsequent Training Activity
15	13:45-14:00	Daisuke Higaki	Japan	A case study of low-cost measures against landslides by river bank erosion in Nepal
16	14:00-14:15	Yoji Kasahara	Japan	Road slope disaster countermeasures in Sri Lanka
17	14:15-14:30	Pucai Yang	Japan	Identification of Debris Flow Hazards in Sri Lanka
18	14:30-14:40	Hiroshi Ogawa	Japan	Technical transfer for landslide investigation and monitoring at central Asia Kyrgyz Republic

Session 6.E3 Activities of Landslide-prevention engineers to enhance local capacity for disaster reduction in Japan

Convener: Katsuo Sasahara (sasahara@kochi-u.ac.jp)

4th Nov. 15:10-16:50 JST

19	15:10-15:25	Noriko Ohnuma	Japan	Process of preparing Community Disaster Management Plan: Case study of communities on Ichinichi-Mae Project and CDMP that Have Experienced Recent Disaster
20	15:25-15:40	Kiyomi Nakamura	Japan	Extraction of subjects for regional disaster risk reduction by teaching materials simulating evacuation behaviors
21	15:40-15:55	Shunitsu Fujii	Japan	An easy way to learning rainfall-induced landslides and its prevention using analog modelling
23	16:10-16:25	Kouichi Ikebe	Japan	Approaches and actions for information dissemination and education for disaster resilience in the Chubu Branch of Japan Landslide Society
24	16:25-16:35	Takemine Yamada	Japan	Collaboration of the City of Yokohama and the JAGE's chartered engineers for geotechnical evaluation consultation with local residents

Session 6.E2 Introduction of landslide mitigation measures of Japan

Convener: Daisuke Higaki (a9024@n-koei.co.jp)

5th Nov. 9:00-12:05, 13:30-14:30 JST

25	9:00-9:15	Toko Takayama	Japan	Landslide interpretation based on precise visualization method using high resolution geospatial data
26	9:15-9:30	Wataru Takeshita	Japan	Use of UAV-SfM point cloud for emergency response to landslide disasters
27	9:30-9:45	Tomoya Hayakawa	Japan	Large landslide dam in Hidakahoronai, Hokkaido
28	9:45-10:00	Senro Kuraoka	Japan	Development of methods to assess the annual expected loss of earthquake-induced landslides
30	10:00-10:15	Wataru Sagara	Japan	Relationship between water quality and ground condition in earthquake-induced landslide areas
31	10:40-10:55	Yoshinori Ito	Japan	Prediction of groundwater level fluctuation in deep-seated landslide area using genetic algorithm
32	10:55-11:10	Akihiro Miyagi	Japan	Relationship between bamboo rhizome and surface failure
33	11:10-11:25	Kazunori Hayashi	Japan	Small and simple water drainage drilling method for landslide disaster prevention
34	11:25-11:40	Yoshitsugu Kimura	Japan	Performance Verification of sediment capture by Flexible Barrier
35	11:40-11:55	Masayuki Ujihara	Japan	The Geofiber method-protecting slopes with environment-conscious continuous fiber reinforced soil-
36	13:30-13:45	Hiroaki Kojima	Japan	Case studies of installation of measuring instruments on overseas landslide countermeasures and their problems : examples of Sri Lanka and Honduras
37	13:45-14:00	Yusuke Koyama	Japan	Disaster risk coverage of TV media for citizens
38	14:00-14:10	Go Sato	Japan	Creating an archive of landslide interpretation using the human eye via an eye-tracking system
39	14:10-14:20	Lin Wang	Japan	Microseism and Vibration Sensor Array Monitoring System

Session 6.E5 Countermeasures conducted by the Japanese government against landslide disasters

Convener: Katsuo Sasahara (sasahara@kochi-u.ac.jp)

5th Nov. 14:45-16:10 JST

40	14:45-14:55	Masakazu Nagano	Japan	Outline of measures for sediment disaster by Sabo Department of MLIT, Japan
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41	14:55-15:05	Masaru Touhei	Japan	Introduction of Construction Information Modeling / Management in the Yui Landslide Countermeasures
42	15:05-15:15	Teruyoshi Takahara	Japan	Mitigation works for the Aruse I-3 block landslide in Miyoshi, Tokushima, Japan
43	15:15-15:25	Yuki Yamana	Japan	Efforts and results of mountain area conservation by Forestry conservancy projects
44	15:25-15:35	Kojiro Shiraki	Japan	Examples of recent landslide countermeasures by conservancy projects
45	15:35-15:45	Mayuko Shida	Japan	Agriculture and landslides in Japan
46	15:45-15:55	Tooru Sato	Japan	National Project for Landslide Prevention in the Takase Area

Session 6.E4 Challenges in international unification of slope disaster prevention technologies

Convener: Mitsuya Enokida (enokida@jce.co.jp)

6th Nov. 10:00-11:20 JST

47	10:00-10:10	Yuuichi Ueno	Japan	International Comparison of the Classification of Soils and Rocks for Determining the Stable Cut Slope Angles
48	10:10-10:20	Naoto Iwasa	Japan	Technical Terms of Structure for Slope Protection
49	10:20-10:30	Mitsuya Enokida	Japan	International differences in methods for calculating the deterrent effect of ground anchoring and soil nailing
50	10:30-10:40	Kiyoharu Hirota	Japan	Vegetation Methods Based on the Japanese Standard Cut Slope in Bhutan
51	10:40-10:50	Daisuke Higaki	Japan	Definition of Technical Terms for Landslide Disaster Management
52	10:50-11:00	Shiho Asano	Japan	Role of forestry conservation for landslide prevention

Thematic issue “Sendai Landslide Partnerships 2015-2025” / “Kyoto Landslide Commitment 2020”

Convener: Binod Tiwari (btiwari@fullerton.edu) & Khang Dang (khangdq@gmail.com)

6th Nov. 9:00-11:30 JST

1	9:00-9:15	Masahiro Shinoda	Japan	Regional landslide susceptibility following the 2016 Kumamoto earthquake using back-calculated geomaterial strength parameters
2	9:15-9:30	Ting-kai Nian	China	Experimental investigation on the formation process of landslide dams and a criterion of river blockage

3	9:30-9:45	Ben Leshchinsky	USA	The Hooskanaden Landslide: historic and recent surge behavior of an active earthflow on the Oregon Coast
4	9:45-10:00	Changdong Li	China	Recent rainfall- and excavation-induced bedding rockslide occurring on 22 October 2018 along the Jian-En expressway, Hubei, China
5	10:00-10:15	Karel Šilhán	Czech Republic	Dendrogeomorphology of landslides: principles, results and perspectives
6	10:15-10:30	Guruh Samodra	Indonesia	Characterization of displacement and internal structure of landslides from multitemporal UAV and ERT imaging
7	10:30-10:45	Sudesh Kumar Wadhawan	India	Causative Factors of Landslides 2019: Case Study in Malappuram and Wayanad Districts of Kerala, India
9	11:00-11:15	Kun Song	China	Successful disaster management of the July 2020 Shaziba landslide triggered by heavy rainfall in Mazhe Village, Enshi City, Hubei Province, China
10	11:15-11:30	Raymond Cheung	Hong Kong	Landslide risk management in Hong Kong

E-Poster Presentation

Convener: Binod Tiwari (btiwari@fullerton.edu) & Khang Dang (khangdq@gmail.com)

6th Nov. 11:40-12:25

1	11:40-11:43	Andrea Fabiánová	Czech Republic	Dendrogeomorphic dating vs. low-magnitude landsliding
2	11:43-11:46	Vaclav Skarpich	Czech Republic	Understanding Complex Slope Deformation through Tree-Ring Analyses: Case from the Vsetínské Vrchy Mts (Outer Western Carpathians, Czech Republic)
3	11:46-11:49	Dominik Krenzel	Japan	Avalanching of variously shaped DEM-particles
4	11:49-11:52	Makoto Inomoto	Japan	Landslides induced by heavy rains in July 2018 in Shikoku island, Japan
6	11:55-11:58	Naoki Nishimura	Japan	Sediment dynamics monitoring at the Osawa Failure of Mt. Fuji
7	11:58-12:01	Mihira Lakruwan	Japan	Variation of Performances of Horizontal Drains and Slope Stability with Perforation Arrangement and Envelope Permeability
9	12:04-12:07	Shinro Abe	Japan	Geological background of landslide occurrence areas in Vietnam
10	12:07-12:10	Hiroomi Nakazato	Japan	Observation method of pore water pressure at slip surface by recycling of broken borehole inclinometer

11	12:10-12:13	Ngoc Ha Do	Japan	Shear band formation observed in a rainfall-induced landslide in a flume experiment on weathered granite sand
13	12:16-12:19	Masashi Sekiguchi	Japan	Repair and Regeneration Technology of Load Cell

World Tsunami Awareness Day Special Event

Contact: Shinji Sassa <sassa_pari@hotmail.co.jp>

Convener: Shinji Sassa (sassa_pari@hotmail.co.jp)

5th Nov. 9:00-12:30 JST

2	9:15-9:30	Finn Løvholt	Norway	Tsunami uncertainty due to landslide dynamics
3	9:30-9:45	Do Minh Duc	Vietnam	Analysis and modeling of a landslide-induced tsunami-like wave across the Truong river in Quang Nam province, Vietnam
4	9:45-10:00	Jan Blahůt	Czech Republic	Tsunami from the San Andrés Landslide on El Hierro, Canary Islands: first attempt using simple scenario
5	10:00-10:15	Ken Ikehara	Japan	The link between upper-slope submarine landslides and mass transport deposits in the hadal
6	10:15-10:30	Shinji Sassa	Japan	Review of Submarine Landslide-induced Tsunamis: The importance of cascading mechanisms and multi-phased physics
7	11:00-11:30	Nicola Casagli	Italy	Monitoring and Early Warning of Landslides including Stromboli landslide induced tsunami
8	11:30-12:00	Kyoji Sassa	Japan	Simulation of Tsunami waves induced by coastal and submarine landslides in Japan
9	12:00-12:30	Luciano Picarelli	Italy	The impact of climate change on landslide hazard and risk

World Tsunami Awareness Day Special Event (continue)

Convener: Shinji Sassa (sassa_pari@hotmail.co.jp)

5th Nov. 13:30-17:00 JST

10	13:30-13:50	Kazuo Konagai	Japan	Early Warning of rain-induced rapid and long-travelling landslides in Sri Lanka
11	13:50-14:10	Stephan Grilli	USA	Tsunami generation by Volcanic flank collapse: Case study of Anak Krakatau

12	14:10-14:30	David Tappin	UK	The continuing underestimated tsunami hazard from submarine landslides
13	14:30-14:50	Viacheslav Gusiakov	Russia	December 11, 2018 landslide and 90-m icy tsunami in the Buryea water reservoir
14	14:50-15:10	Dwikorita Karnawati	Indonesia	Innovation in Tsunami Early Warning System in Indonesia
15	15:10-15:20	Toyohiko Miyagi	Japan	Explanation of submarine landslides distributions around Japanese islands and stereo photo of submarine landslides on the floor
16	15:40-16:40	Panel Discussion: Understanding and reducing disaster risk of landslide-induced Tsunami along with the Kyoto Landslide Commitment 2020		
		Short talks and comments from panelists and floor		
17	16:40-17:00	Concluding remarks on World Tsunami Awareness Day Special Event in WLF5		

KLC2020 Mutihazard Round Table Discussion: Toward an international cooperation network for multi-disaster risk reduction -Landslides, Floods, Tsunamis, Earthquakes, and Volcanic eruptions-

Contact: Kyoji Sassa, KLC2020 Secretariat (klc2020@iclhq.org)

Date: 4th Nov. 10:00-12:30 JST

Chairs: Dwikorita Karnawati (Head of the Agency for Meteorology, Climatology and Geophysics of the Republic of Indonesia), Kaoru Takara (Leader of “Japan-ASEAN Science, Technology and Innovation Platform (JASTIP), Executive Director of ICL), Matjaz Mikos (Leader of the KLC2020 Official Promoters, Chair of Global Promotion Committee of IPL),

Secretary: Kyoji Sassa (Secretary General of KLC 2020 Secretariat), Kazuo Konagai (Research Director of the ICL Secretariat)

Leading speakers:

Hisashi Hoshino (Sabo Division, Ministry of Land Infrastructure, Transport and Tourism, Japan)

Hiroshi Kitazato (Treasurer of the International Union of Geological Sciences (IUGS), Japan)

John LaBrecque (Chair of IUGG GeoRisk Commission, Center for Space Research, U. Texas, USA.)

Fumihiko Imamura (Tsunami expert. Director, International Research Institute of Disaster Science (IRIDeS) at Tohoku University, Japan)

Commentators: Rick Bailey (Head of Secretariat, IOC-UNESCO Indian Ocean Tsunami Warning and Mitigation System), Shinji Sassa (Chair of the World Tsunami Awareness Day Special Event, National Institute of Maritime, Port and Aviation Technology, Japan), Julian Kwan (Geotechnical Engineering Office, Civil Engineering and Development Department, Hong Kong, China) and others.

Conclusion: To establish a Task Force on Multi Disasters Risk Reduction with the task to prepare the concept and strategy on the establishment of the Intergovernmental Coordination Group in Landslides and Other Related Hazards. To conduct a special Session on Landslides and Other Related Hazards in the Global

platform for Disaster Risk Reductrion in Bali next May 2022.

References

Sassa, K. (2022) The Fifth World Landslide Forum and Progress of the Open Access Book Series for Kyoto Landslide Commitment 2020. Lanslides, Vol.1, No.1, pp.1-5.

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Organizing Committee of WLF5

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