

# The 20<sup>th</sup> International Symposium on Geo-disaster Reduction 20ISGdR PROGRAM BOOK



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**August 16 - 20, 2022**  
**Kanazawa JAPAN**

## **Organizers**

International Consortium on Geo-disaster Reduction  
Kanazawa University; National Institute of Technology, Fukui College  
Kanazawa Institute of Technology; Fukui University of Technology; Tobishima Corporation

## OVERVIEW

The 20th International Symposium on Geo-disaster Reduction (20th ISGdR) provides an international platform for academics, researchers and practitioners to discuss interdisciplinary research and practices in the fields of the reduction of the disasters triggered by geological and geophysical factors on the earth and beyond. The 20th ISGdR marks the 20<sup>th</sup> Anniversary of the event and take place on August 16-19, 2022 in Kanazawa City, Ishikawa Prefecture, Japan.

**Date:** August 16 to August 19, 2022

**Style:** Hybrid Conference

**Location:** Kanazawa, Japan

**Venue:** The Kanazawa Chamber of Commerce and Industry

**Organizer:** International Consortium on Geo-disaster Reduction (ICGdR)

**Supporters:** Japan Society of Civil Engineers, The Japanese Geotechnical Society, The Chubu Branch of The Japan Society of Engineering Geology

**Sponsors:** Ishikawa Prefecture, Kanazawa City, The Maeda Engineering Foundation, Hokuriku Road Research Association (Hokuriku Doro Kenkyukai)

## EXECUTIVE COMMITTEE

Honorary chair	Prof Emer. Masakatsu MIYAJIMA	Kanazawa University
Chair	Prof. Masaho YOSHIDA	National Institute of Technology, Fukui College
Vice chair	A. Prof. Toshikazu IKEMOTO	Kanazawa University
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Member	Prof. Hayato NISHIKAWA	Fukui University of Technology
Member	A. Prof. Yuya YAMATO	National Institute of Technology, Fukui College
Member	Asst. Prof. Yuko SERIKAWA	National Institute of Technology, Fukui College
Member	Dr. Takumi MURATA	Tobishima Corporation

## GENERAL SCHEDULE

DATE	TIME	LOCATION	PROGRAM
16 Aug.	13:00-17:00	The Kanazawa Chamber of Commerce and Industry	Registration
	15:00-17:00		ICGdR Annual Board Meeting
17 Aug.	08:30-17:20	The Kanazawa Chamber of Commerce and Industry	Registration
	09:00-09:40		Opening and Award Ceremony
	09:40-10:20		Keynote Lecture
	10:20-10:40		Coffee Break
	10:40-12:00		Invited Lecture 1,2
	12:00-12:20		Group Photo
	12:20-13:20		Lunch Time
	13:20-14:40		Session 1-A-1, Session 1-B-1
	14:40-15:00		Coffee Break
	15:00-16:00		Session 1-A-2, Session 1-B-2
	16:00-16:20		Coffee Break
	16:20-17:20		Session 1-A-3, Session 1-B-3
18 Aug.	08:30-17:30	The Kanazawa Chamber of Commerce and Industry	Registration
	09:00-10:20		Invited Lecture 3, 4
	10:20-10:40		Coffee Break
	10:40-12:00		Session 2-A-1, Session 2-B-1
	12:00-13:20		Lunch Time
	13:20-15:00		Session 2-A-2, Session 2-B-2
	15:00-15:20		Coffee Break
	15:20-16:40		Session 2-A-3, Session 2-B-3
	16:40-17:00		Coffee Break
	17:00-17:30		Closing Ceremony
19 Aug.	08:30-17:30	Hakusan Tedorigawa Geopark	Technical Tour

# SYMPOSIUM

**August 17 (Wednesday)**

<b>Opening Ceremony</b> (Conference Room A)	
Facilitator	<b>Toshiyuki TAKAHARA</b>
09:00-09:40	<b>Opening Speech</b> Prof. Masaho YOSHIDA
	<b>Activity Report of ISGdR</b> Prof. Fawu WANG
	<b>Introduction of the new ICGdR members</b> Prof. Tonglu LI
	<b>Award Ceremony</b> Prof Emer. Masakatsu MIYAJIMA
<b>Keynote Lecture</b> (Conference Room A)	
Facilitator	<b>Masaho YOSHIDA</b>
09:40-10:20	<b>Prof Emer. Masakatsu MIYAJIMA</b> (Kanazawa University) <i>Resilience of water pipelines and facilities against geo-hazards induced by earthquakes and heavy rains</i>
10:20-10:40	<b>Coffee Break</b>
<b>Invited Lecture 1, 2</b> (Conference Room A)	
Facilitator	<b>Masakatsu MIYAJIMA</b>
10:40-11:20	<b>Prof. Yusuke ONO</b> (Tottori University) <i>Numerical simulation of earthquake-induced slope failures using the SPH method</i>
11:20-12:00	<b>Dr. Ryoichi FURUTA</b> (Remote Sensing Technology Center of Japan) <i>Monitoring disasters and surveying damages using remote sensing technologies</i>
12:00-12:20	<b>Group Photo</b>
12:20-13:20	<b>Lunch Time</b>



	<b>Session 1-A-1</b> (Conference Room A)	<b>Session 1-B-1</b> (Conference Room B)
Chairperson	<b>Masakatsu MIYAJIMA</b>	<b>Yasuko KUWATA</b>
13:20-13:40	<b>Chenxing WANG</b> (Chang'an University) <i>Field monitoring of rainfall infiltration and the recession constant of antecedent precipitation in a residual soil slope</i>	<b>Zixin ZHAO</b> (Tongji University) <i>UAV-based semi-automatic rock discontinuity surface identification and information extraction</i>
13:40-14:00	<b>Jiayu CHEN</b> (Kanazawa University) <i>Experimental study on the mechanical properties of unsaturated Kanto loam</i>	<b>Deshun WU</b> (Tongji University) <i>Hybrid method for predicting metro-induced vibrations based on combined surface measurement and numerical simulation</i>
14:00-14:20	<b>Xuetong MA</b> (Chang'an University) <i>Experimental study on underwater accumulation form of loess bank slope</i>	<b>Hyukkee HONG</b> (Kansai University) <i>Effects of fan-shaped edge filter on soil embankment</i>
14:20-14:40	<b>Yulu LEI</b> (Chang'an University) <i>Study on prediction method of loess collapsibility in Longdong area</i>	<b>Zhao-dong LI</b> (Chang'an University) <i>Identification and assessment of geo-hazard risk in the typical Chinese loess region</i>
14:40-15:00	<b>Coffee Break</b>	
	<b>Session 1-A-2</b> (Conference Room A)	<b>Session 1-B-2</b> (Conference Room B)
Chairperson	<b>Toshikazu IKEMOTO</b>	<b>Masaho YOSHIDA</b>
15:00-15:20	<b>Lin ZHANG</b> (Chang'an University) <i>Prediction model of wetting-induced collapse of compacted loess with different initial void ratios and moisture contents</i>	<b>Qipeng LI</b> (Chang'an University) <i>Study on suitability of thick base material protection in ecological restoration of loess cutting high slope</i>
15:20-15:40	<b>Zhiyan ZHAO</b> (Chang'an University) <i>Research on saturated permeability characteristics of loess-paleosol sequence in Xianyang tableland</i>	<b>Tempa THINLEY</b> (Kanazawa Institute of Technology) <i>Geotechnical investigation and suitable countermeasures for mitigation of slope failure at Reotala in Bhutan</i>
15:40-16:00	<b>Haoyu DONG</b> (Northwest University) <i>Failure mechanism of sandy soil slope caused by water-vibration</i>	<b>Nao FUKUSHIGE</b> (Kanazawa University) <i>Optimization of ground reinforcement based on the lower bound limit analysis</i>
16:00-16:20	<b>Coffee Break</b>	

	<b>Session 1-A-3</b> (Conference Room A)	<b>Session 1-B-3</b> (Conference Room B)
Chairperson	<b>Shunichi KOBAYASHI</b>	<b>Toshiyuki TAKAHARA</b>
16:20-16:40	<b>Jiewei ZHAN</b> (Chang'an University) <i>Rockfall hazard assessment in the Taihang Grand Canyon scenic area integrating regional-scale identification of potential rockfall sources</i>	<b>Zhandong SU</b> (China Earthquake Administration) <i>Experiment study on the local stress field evolution characteristics of strike-slip faults with different strikes and its implications for fault activity</i>
16:40-17:00	<b>Ziran ZHANG</b> (Chang'an University) <i>Stability evolution of colluvial landslide during rainy season in the Yuanjiang dry-hot valley, Yunnan, China</i>	<b>Yue PAN</b> (Kobe University) <i>Impact of fault dislocation on buried pipeline-fault crossing angle</i>
17:00-17:20	<b>José Maria dos Santos RODRIGUES NETO</b> (Ehime University) <i>A comparison of frequency ratio and machine learning methods for landslide susceptibility assessment</i>	<b>Ryoya WATANABE</b> (Kanazawa University) <i>Experiments on liquefaction countermeasure method using crushed stone layers and geotextiles</i>

# SYMPOSIUM

**August 18 (Thursday)**

<b>Invited Lecture 3, 4</b> (Conference Room A)		
Facilitator	<b>Fawu WANG</b>	
09:00-09:40	<b>Prof. Maochao HE</b> (China University of Mining Technology) <i>Cross-fault measurement for earthquake prediction</i>	
09:40-10:20	<b>Prof. Tetsuo TOBITA</b> (Kansai University) <i>LEAP: International collaborative research project for centrifuge model testing and numerical analysis on dynamic behavior of saturated sloping sand deposit</i>	
10:20-10:40	<b>Coffee Break</b>	
	<b>Session 2-A-1</b> (Conference Room A)	<b>Session 2-B-1</b> (Conference Room B)
Chairperson	<b>Akira MURATA</b>	<b>Kenji KOSA</b>
10:40-11:00	<b>Bin ZHANG</b> (Chang'an University) <i>Control of slope morphology on water flow redistribution and its influence on slope failure pattern</i>	<b>Bidhya SUBEDI</b> (Kyoto University) <i>Estimation of S-wave velocity structure using microtremor observations and hydrogeological data for 3D finite difference simulations of ground motions in the Bangkok Basin, Thailand</i>
11:00-11:20	<b>Kai HAN</b> (Northwest University) <i>A shaking table test of instability sliding of loess landslide under the coupling effect of train vibration and rainfall</i>	<b>Xihan LI</b> (Kyoto University) <i>Development of prediction equation on long period ground motion for Bangkok earthquake early warning</i>
11:20-11:40	<b>Kongming YAN</b> (Tongji University) <i>Localized topographic effect on long-runout debris flows: A site investigation in Ganluo County, China</i>	<b>Shan LI</b> (Northwest University) <i>Effect of small vibration on disintegration characteristics and microstructure of loess</i>
11:40-12:00	<b>Yuta MATSUURA</b> (Tottori University) <i>Capture Effect by flat ground on slope failure debris -A study using distinct element analysis</i>	<b>Zejun LUO</b> (Tongji University) <i>Study on constitutive model of shear creep of rock mass discontinuities considering damage mechanics</i>
12:00-13:20	<b>Lunch Time</b>	

	<b>Session 2-A-2</b> (Conference Room A)	<b>Session 2-B-2</b> (Conference Room B)
Chairperson	<b>Toshiyuki TAKAHARA</b>	<b>Michihiro OHORI</b>
13:20-13:40	<b>Ye CHEN</b> (Tongji University) <i>Numerical trough model tests of submarine landslide by CFD-DEM coupling method</i>	<b>Changcheng DU</b> (Tongji University) <i>Stability analysis of slopes stabilized with piles and anchor cables under seismic action</i>
13:40-14:00	<b>Zimeng GAO</b> (Kanazawa University) <i>Rigid plastic finite element analysis of a slope stability problem including tensile stresses</i>	<b>Fei ZHAO</b> (Tongji University) <i>Research progress on seismic energy-dissipative anchors</i>
14:00-14:20	<b>Tao QIN</b> (Chang'an University) <i>Loess high -slope parameter model and stable coefficient finite element calculation program implementation</i>	<b>Kenji KOSA</b> (Kyushu Institute of Technology) <i>Failure mechanism of the Furyo Daiichi Bridge in the 2016 Kumamoto earthquake</i>
14:20-14:40	<b>Bo ZHANG</b> (Tongji University) <i>Motion mechanism analysis of rainfall-induced landslides based on Wang-Sassa model</i>	<b>Takao HASHIMOTO</b> (Kokushikan University) <i>Analysis of Kumamoto castle stone wall damage factors using dynamic FEM in the 2016 Kumamoto earthquake</i>
14:40-15:00	<b>Liu YINPENG</b> (Chang'an University) <i>Failure mechanism and transformation process of the rockslide-debris flow: an analysis on the Shanyang landslide in China</i>	<b>Xiaolei LIU</b> (Ocean University of China) <i>Geotechnical properties of the sliding zone related to wave-induced liquefaction in the Yellow River Subaqueous delta</i>
15:00-15:20	<b>Coffee Break</b>	
	<b>Session 2-A-3</b> (Conference Room A)	<b>Session 2-B-3</b> (Conference Room B)
Chairperson	<b>Masakatsu MIYAJIMA</b>	<b>Toshikazu IKEMOTO</b>
15:20-15:40	<b>Tonglu LI</b> (Chang'an University) <i>Geo-disaster mitigation with urban development in the northern Chinese loess region</i>	<b>Kounghoon NAM</b> (Tongji University) <i>Insight into Tonga submarine volcanic eruption on 15 January 2022</i>
15:40-16:00	<b>Daichi INAMI</b> (National Institute of Technology, Fukui College) <i>Development of a planning support system for citizen participation using mixed reality</i>	<b>ShuoZhe ZHANG</b> (Chang'an University) <i>Study on shear strength parameters of L2 loess in different positive stress ranges</i>



16:00-16:20	<b>Koki KADOYA</b> (National Institute of Technology, Fukui College) <i>The evaluation of experience-based Tsunami drills using a mixed reality</i>	<b>Kotaro TAKAYAMA</b> (National Institute of Technology, Fukui College) <i>Experimental study on the health problems that tilted houses caused by liquefaction</i>
16:20-16:40	<b>Michihiro OHORI</b> (University of Fukui) <i>Tsunami inundation simulation for the Sonobe area of Takahama town in Fukui prefecture</i>	<b>Takumi MURATA</b> (Tobishima Corporation) <i>Vertical displacement of sandy soil by inserting logs</i>
16:40-17:00	<b>Coffee Break</b>	
	<b>Closing Ceremony</b> (Conference Room A)	
Facilitator	<b>Toshiyuki TAKAHARA</b>	
17:00-17:30	<b>Introduction of the next symposium</b> Prof. Yu HUANG	
	<b>Award ceremony of excellent presentation</b> Prof. Masaho YOSHIDA	
	<b>Closing speech</b> Prof Emer. Masakatsu MIYAJIMA	

# TECHNICAL TOUR

**August 19 (Friday)**

Time	Location	Min	Contents
8:30	JR Kanazawa st.		
		45	Move by bus
9:15	Highway side st.		
9:25	“Shirayama”	10	Bathroom break
		60	Explanation by Geopark staff about Hakusan Geo park in the bus
10:25	Hyakumangan		
10:55	Rock	30	Transported big rock by enormous flood on 1934
		15	Move by bus
11:10	Dyke around		Bath room break
12:00	Ichinose Visitor Center	50	Sabo facilities 1934 enormous flood
		30	Explanation about SABO history of Hakusan by geopark staff in the bus
12:30			
13:30	Lunch	60	Lunch time Important Preservation District for Groups of Traditional Buildings
		20	Kuwashima Fossil Wall from bus
13:50	Tedori river earth		
14:50	dam	60	Dam site
		20	Tedori canyon from bus bridges, waterfall
15:10	Watagaya		
15:40	waterfall on Tedori Canyon	30	Erosion by Tedori River
		20	Move by bus
16:00	Shishiku		View of Tedorigawa alluvial fan
16:45	Highland	45	River and disaster reduction Open levee and island villages
		45	
17:30	JR Kanazawa st.		