



# First International Workshop on Role of Microorganism and Thermo-Hydro-Chemico-Mechanical Process in Geoenvironment and Geoscience



## ORGANIZED BY

University of the Ryukyus (Faculty of Engineering)

Japanese Society for Rock Mechanics of International Society for Rock Mechanics (Jointly organized)

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## DATE & VENUE

20, March, 2017

50<sup>th</sup> Anniversary Memorial Hall of University of the Ryukyus





## OBJECTIVES

- (1) To enhance the collaboration of researchers on understanding the role of micro-organisms and thermo-hydro-chemico-mechanical processes in Geoscience and Geoengineering,
- (2) To enhance the skills of researchers in the fields of Geomicrobiology and Geomechanics, and to exchange the mutual understanding of Geoenvironmental, Geomicrobial and Geochemical processes in Geospherical environment.
- (3) To extend our knowledge in theoretical, experimental, computational and field-based approaches in the researches of Geomicrobiology in engineering and sciences.
- (4) To enhance an international research/educational collaboration between University of the Ryukyus and Turkish Universities and others.

## KEYNOTE SPEAKERS

### Overseas Invited Speakers

- ✧ Prof. Dr. Reşat ULUSAY

*Dept. of Geological Engineering, Hacettepe University, Ankara, TURKEY (ISRM CTM Chairman)*

The role of thermo-hydro-chemico-mechanical processes on the deterioration of antique settlements in Cappadocia and recent sinkhole formations in Turkey

R. Ulusay and M. Ekmekci

- ✧ Prof. Dr. Halil KUMSAR (Former Vice-President of Pamukkale University)

*Dept. of Geological Engineering, Pamukkale University, Denizli, TURKEY*

The role of thermo-hydro-chemico-mechanical processes in geomorphologic structures in Pamukkale (Turkey) and some recent sinkhole formation in its close vicinity (KAKLIK Cave)

H. Kumsar, M. Özkul, A. Gökgöz, and A. C. Özkan

### National Invited Speakers

- ✧ Prof. Dr. Shunsuke SAKURAI (Former ISRM President)

*Emeritus Professor of Kobe University, Emeritus Professor of Hiroshima Institute of Technology*

Is the failure of rock masses caused by microorganisms?

Shunsuke Sakurai

- ✧ Prof. Dr. Koji KAKUGAWA

*Hiroshima Institute of Technology, Hiroshima, JAPAN*

Microbial community analysis of hillsides where debris-flow hazards occurred

Koji Kakugawa, Tanehiro Futagami, and Shunsuke Sakurai

- ✧ Prof. Dr. Satoru KAWASAKI

*Division of Geoenvironmental Engineering, Faculty of Engineering, Hokkaido University, Sapporo, JAPAN*

Development of novel coastal conservation technology learned from beachrock formation mechanism

Satoru Kawasaki





SPEAKERS (University of the Ryukyus)

- ✧ Prof. Dr. Ömer AYDAN\* and Dr. Naohiko TOKASHIKI

*Dept. of Civil Engineering and Architectures, Faculty of Engineering,*

*\*Honorary Professor of Pamukkale University*

Some empirical guidelines on the stability of karstic caves based on Rock Mass Quality Rating (RMQR) classification system

Ö. Aydan, N. Tokashiki, Halil Kumsar, and Melih Geniş

- ✧ Dr. Naohiko TOKASHIKI and Prof. Dr. Ömer AYDAN\*

*Dept. of Civil Engineering and Architectures, Faculty of Engineering*

*\*Honorary Professor of Pamukkale University*

The stability assessment of cliffs of Ryukyu Limestone in Ryukyu Archipelago from rock mechanics perspective

N. Tokashiki and Ö. Aydan

- ✧ Prof. Dr. Shinya NAKAMURA

*Dept. of Regional Agricultural Engineering, Faculty of Agriculture*

Associate Prof. Dr. Shinya NOZAKI

*Dept. of Electrical and Electronic Engineering, Faculty of Engineering*

Preliminary Report on an Investigation of Air-Filled Cavities in Limestone Areas of Okinawa with Ground Penetrating Radar

S. Nakamura, S. Nozaki, and H. Matsubara

- ✧ Associate Prof. Dr. Tomohiro TOKI

*Dept. of Chemistry, Biology and Marine Science, Faculty of Science*

Edifices on Deep-Sea floor

Tomohiro Toki

- ✧ Associate Prof. Dr. Naoya SHINZATO

*Tropical Biosphere Research Center*

Evaluation of DNA extraction methods for comprehensive microbial community analysis in rock and soil samples

Naoya Shinzato, Ryoma Iwasaki, and Hitoshi Matsubara

- ✧ Associate Prof. Dr. Hitoshi MATSUBARA

*Dept. of Civil Engineering and Architectures, Faculty of Engineering*

Potential of modeling and simulation by reaction-diffusion system for geo-materials

Hitoshi Matsubara and Ryogo Kawakami







## TENTATIVE PROGRAM

9:50 – 10:00	Opening	Prof. Dr. Yasunori ARIZUMI
Part I		
10:00 – 10:40	Keynote Lecture 1	Prof. Dr. Reşat ULUSAY
10:40 – 11:20	Keynote Lecture 2	Prof. Dr. Halil KUMSAR
11:30 – 12:00	Keynote Lecture 3	Prof. Dr. Shunsuke SAKURAI
12:00 – 12:30	Keynote Lecture 4	Prof. Dr. Koji KAKUGAWA
12:30 – 13:00	Keynote Lecture 5	Prof. Dr. Satoru KAWASAKI
Part II		
14:30 – 14:55	Lecture 1	Prof. Dr. Ömer AYDAN
14:55 – 15:20	Lecture 2	Prof. Dr. Naohiko TOKASHIKI
15:20 – 15:45	Lecture 3	Prof. Dr. Shinya NAKAMURA and Shinya NOZAKI
15:50 – 16:15	Lecture 4	Prof. Dr. Tomohiro TOKI
16:15 – 16:40	Lecture 5	Prof. Dr. Naoya SHINZATO
16:40 – 17:05	Lecture 6	Prof. Dr. Hitoshi MATSUBARA
17:05 – 17:15	Closing	Prof. Dr. Ömer AYDAN

