



# Natural Disaster Research Council



DISASTER PREVENTION RESEARCH INSTITUTE,  
KYOTO UNIVERSITY, JAPAN

京都大学防災研究所 自然災害研究協議会





## Objectives

The Council aims to facilitate closer cooperation among the institutes involved and promote their effective collaboration by discussing research plans and exchanging academic information regarding the research on natural disasters and their mitigation.

### (1) Planning of research on natural disasters

The Council facilitates planning, development, and promotion of the research regarding the natural disasters specific to each region in Japan, for example: cold wave, heavy snowfall, and volcanic disasters in Hokkaido; earthquake and tsunami, heavy snowfall, and agricultural damage in Tohoku; earthquake, soft ground, and urban disaster in Kanto; heavy rainfall/snowfall, geohazards, earthquake and tsunami in Chubu; typhoon and flood, slope failure, urban disaster, earthquake and tsunami in Kinki; heavy rainfall and geohazards in Chugoku; earthquake and tsunami, typhoon, geohazards in Shikoku; loam and other specific geohazards, torrential rainfall and volcanic disasters in western Japan. The Council also conducts liaison and coordination between research entities. Local branches build up a network of researchers specialized in different fields, and provide for a regional center of natural disaster research. The Council gathers the findings of ongoing studies, and plans and proposes future research on natural disasters.

### Assembling and Dispatch of an Investigation Team



### (2) Assembling of investigation teams for natural disasters in and outside Japan

The Council gathers information on natural disasters as soon as they occur in and outside Japan, and discusses the necessity of research. For those with great social or academic significance, the Council, in cooperation with the natural disaster research network and local branches, organizes nationwide interdisciplinary teams to investigate such disasters. These research activities aim to better understand disaster mechanisms, and to contribute to reduce the risk by proposing strategies that can minimize damage in the event of a similar case. Research results are publicized in reports and symposia.

Investigation teams are assembled and dispatched as illustrated.

### (3) System and budget of natural disaster research

To address similar types of disasters occurring in different regions in Japan, the Council provides and manages the system for 1) a comparative study of disasters in cooperation with local branches, 2) a comprehensive disaster research that combines various study fields, and 3) a research on the history of disaster countermeasure technology. To publicize research results, the Council convenes local symposia, local meetings which focus on the area-specific disasters, and the symposium on the natural disaster science. The Council strives to improve its management by carrying out self-inspections including organization reform for a better research and check-and-review of the study. The budget for research promotion is also discussed.

### (4) Establishing a network of natural disaster research

The Council has local branches and natural disaster reference centers that cover all over the country, i.e. Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku and Western Japan. They serve as centers for providing the database that consists of research profiles such as academic interests, background and performance, experience in contingency investigation, phone and fax number, email address, etc. The local branch also plans, promotes and coordinates the research projects in each region. In the event of a disaster, it discusses the necessity of investigation and assembles an

investigation team under close communication with the Council. For this purpose, each local branch builds up and manages the communication network which can be ready to respond in an emergency.

### (5) International Collaboration — Cooperation with the Global Alliance of Disaster Research Institutes (GADRI) —

To contribute to the prevention/reduction of natural disasters in the world and establishment of resilient society, the Council develops natural disaster research in collaboration with research institutes of natural disasters in each country. Especially, under the close cooperation with an alliance of research institutes of natural disasters, the Global Alliance of Disaster Research Institutes (GADRI), the Council develops natural disaster researches functionally and efficiently, and disseminates and publicizes knowledge on disaster mitigation accumulated in Japan.

### (6) Other items concerning promotion of natural disaster research

The Council discusses other items concerning promotion of natural disaster research.



# Activities of the Natural Disaster Research Council

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The Research Group of Natural Disasters, which was established in 1960, was transferred to a new organization to strengthen the collaboration among researchers. Based on the discussions during the transfer, the Natural Disaster Research Council was established to promote natural disaster researches with close cooperation of researchers in 2001. Since then, the Council has been conducting various activities as follows via network of researchers and institutions all over the nation.

## Collaborative Studies Proposed by the NDRC under the Joint Use/Research Center Program of DPRI, Kyoto University

The Disaster Prevention Research Institute, Kyoto University was designated as the Joint Use/Research Center by MEXT in 2009 and a new scheme, Collaborative Studies Proposed by the NDRC, was started in 2010. The Council has been conducting two projects under this scheme, "Study of Exploitation of Comprehensive Research by Collaboration with Researchers and Stakeholders Associated with Natural Disaster" and "Strengthening of the Initial Investigation System in Outbreak of Disasters and Support of Continuous Studies". In these researches, researchers all over Japan have made cooperation with sociological communities and joint investigations of urgent disasters.

## The Symposium on the Natural Disaster Sciences

Since the era of the Research Group of Natural Disasters, a symposium has been held once per year. In this symposium, results of investigation of the latest disasters and "Study of Exploitation of Comprehensive Research by Collaboration with Researchers and Stakeholders Associated with Natural Disaster" are reported.

## Activities of Local Branches

The Council has been conducting activities to strengthen the collaboration between researchers in local districts by dividing Japan into 6 areas. Local branches have been made many activities including symposia/workshops, editing and publication of reports of studies on disasters in their territory, etc. In 2015, local branches were reorganized into 8 branches, i.e. Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku and Western Japan. Since then, the Council has been working with these 8 local branches.

## International Collaboration

### – Cooperation with the Global Alliance of Disaster Research Institutes (GADRI) –

The Global Alliance of Disaster Research Institutes (GADRI), is established at the Second Global Summit of Research Institutes for Disaster Risk Reduction in March 2015. The DPRI is approved to serve as secretariat at the summit. In the last decades, catastrophic natural disasters occurred in the many part of the world. It is requested that Japanese academic communities of natural disaster research contribute to enhancing disaster risk reduction by providing scientific knowledge and technologies accumulated in these communities. As a representative body of the communities, the Natural Disaster Research Council decided to cooperate with GADRI and to conduct international collaborative studies to contribute to disaster risk reduction in the world by appointing a new division (or member) in the council to take charge of these international activities. The Japan Academic Network for Disaster Reduction, a network of academic societies, was newly established in the Science Council of Japan in January 2016. The Natural Disaster Research Council will also cooperate with this network to contribute to promotion of research for disaster risk reduction.

## Information Sharing

In order to strengthen the network of researchers in Japan or local areas, the Council establishes a database of researchers of natural disaster and promotes sharing of information. The Council would appreciate your resignation to the database. Access to the URL below for more detail.

<http://www.dpri.kyoto-u.ac.jp/ndic/network/toroku.pdf>

The Research Center for Disaster Reduction Systems is operating a database of literature on natural disaster researches. The Council has a link to this database. The DRS is collecting information of literatures and provide researchers with them. Access to the URL below for more detail.

<http://maple.dpri.kyoto-u.ac.jp/saigai/>



Top page of the Natural Disaster Literature Database, SAIGI



Example of result of search

# Research Projects on Contingent Disaster (Fiscal 2010-2015)

Projects marked with ※ and # were conducted as the emergency in Research of JST and Collaborative Research under Joint Use/Research program of DPRI, respectively. Others are supported by the Grant-in-Aid for Special Purpose of the Grant-in-Aid for Scientific Research (KAKENHI) of MEXT.

## 【Fiscal 2010】

Investigation on the Eruption of Kirishima Volcano in 2011  
(Leader: Setsuya Nakada, Earthquake Research Institute, the University of Tokyo)

Investigation of the 2011 East off Tohoku Earthquake  
(Leader: Masanao Shinohara, Earthquake Research Institute, the University of Tokyo)

※Emergency Investigation of the Eruption of Kirishima Volcano in 2011  
(Leader: Motoo Ukawa, National Research Institute for Earth Science and Disaster Prevention)

# Investigation of Meteorological Condition of the Chugoku and Northern Kyushu Torrential Rainfall in July, 2009  
(Continued)

# Investigation of Effects of Non-Linear Response of Soil on the Low Story RC Buildings during the 2008 Iwate-Miyagi Earthquake (Continued)

## 【Fiscal 2011】

Investigation on the Eruption of Kirishima Volcano in 2011  
(Leader: Setsuya Nakada, Earthquake Research Institute, the University of Tokyo)

Investigation of the 2011 East off Tohoku Earthquake  
(Leader: Masanao Shinohara, Earthquake Research Institute, the University of Tokyo)

# Investigation of the Niigata - Fukushima Torrential Rainfall Disaster in July, 2011

# Investigation of the Torrential Rainfall Disaster due to the Typhoon Talas in September 2011

# Continuous Investigation of the 2011 Tohoku Earthquake Disaster

## 【Fiscal 2012】

Comprehensive Investigation of the Mechanism of Tornadoes in North Kanto on May 6, 2012 and Induced Damages  
(Leader: Junji Maeda, Kyushu University)

Investigation of the Torrential Rainfall in the Yahagi River Area, Fukuoka, in July, 2012  
(Leader: Haruyuki Hashimoto, Kyushu University)

Investigation of Effects of the Northern Kyushu Torrential Rainfall on Business Activities and their Response  
(Leader: Susumu Nakano, Tokushima University)

# Investigation of Tornado Disaster in Northern Kanto in May 2012

# Investigation of Northern Kyushu Torrential Rainfall in July 2012

# Investigation of the Torrential Rainfall Disaster in Uji, Kyoto, in July 2012

# Investigation of Damages due to the Northern Italy Earthquake Swarm in May 2012 and Recovery

# Investigation of the Recovery Process from the 2011 East Japan Earthquake Disaster



Mudflow disaster due to the Hiroshima Torrential Rainfall in August 2014 (Asa-Minami-ku)  
(By the courtesy of Prof. Haruhiko Yamamoto, Yamaguchi Univ.)

## 【Fiscal 2013】

Geotechnical Study of the Torrential Rainfall Disaster in Izu Oshima due to the Typhoon Wipha in October 2013  
(Leader: Ikuo Tohata, the University of Tokyo)

Investigation of Heavy Snowfall Disaster in the Kanto and Koshin Area in February 2014

(Leader: Kaoru Izumi, Research Institute for Natural Hazards and Disaster Recovery, Niigata University)

# Investigation of Damages due to the Typhoon Phanfone in September 2013

# Investigation of Damages due to Tornadoes in Northern Kanto in September 2013

# Investigation of Landslide due to the Typhoon Wipha in October 2013

## [Fiscal 2014]

Investigation of the Mechanism of Mudflow Disaster in Hiroshima due to the August 2014 Torrential Rainfall and its Counter-measurements

(Leader: Haruhiko Yamamoto, Yamaguchi University)

Comprehensive Investigation of the 2014 Eruption of Ontake Volcano

(Leader: Koshun Yamaoka, Nagoya University)

# Investigation of the Torrential Rainfall Disaster in Nagiso in July 2014

# Investigation of the Hiroshima Torrential Rainfall Disaster in August 2014

# Investigation of Earthquake Disaster in the Vicinity of the Kamishiro Fault, Nagano in November 2014

Comprehensive Study of the 2015 Eruption of Kuchinoerabu Volcano

(Leader: Masato Iguchi, Disaster Prevention Research Institute, Kyoto University)

An Integrated Research on 2015 Kanto-Tohoku Torrential Rain Disaster

(Leader: Shigenobu Tanaka, Disaster Prevention Research Institute, Kyoto University)

# Investigation of strong wind damage in Yaeyama Islands, Okinawa Prefecture caused by typhoon 1521 (Goni)

# Investigation on landslides induced by the 2015 Nepal earthquake

Research results are reported in the symposium on the natural disaster science which is held every autumn.

## [Fiscal 2015]

Comprehensive Investigation of the 2015 Nepal Earthquake and its Associated Disaster

(Leader: Ryuichi Yatabe, Ehime University)



Damages due to the Gorka, Nepal, Earthquake of April 25, 2015.

(Left) Disaster of avalanche and mudflow in the Langtang area (By the courtesy of Prof. Hiroshi Yagi, Yamagata Univ.),

(Upper Right) Damage of Buddhism temple in Kathmandu (By the courtesy of Prof. Hiroshi Fukuoka, Niigata Univ.),

(Lower Right) Collapse of low story buildings in Kathmandu (By the courtesy of Prof. Hiroshi Fukuoka, Niigata Univ.).



## Research materials and reports shall be sent to the following addresses.

### Natural disaster reference center in Hokkaido

Graduate School of Engineering, Hokkaido University  
Kita 13, Nishi 8, Kita-ku, Sapporo 060-8628  
Phone: +81-11-737-5449

### Natural disaster reference center in Tohoku

International Research Institute of Disaster Science,  
Tohoku University,  
468-1, Aoba, Aramaki, Aoba-ku, Sendai 980-0845  
Phone: +81-22-795-2099

### Natural disaster reference center in Kanto

International Institute for Resilient Society,  
Saitama University  
255, Shimoookubo, Saitama-ku, Saitama 338-8570  
Phone: +81-48-858-3568

### Natural disaster reference center in Chubu

Dept. of Civil Engineering, Graduate School of Engineering,  
Nagoya University  
Furo-cho, Chikusa-ku, Nagoya 464-8603  
Phone: +81-52-789-4628

### Natural disaster reference center in Kinki

Research Center for Disaster Reduction Systems,  
Disaster Prevention Research Institute, Kyoto University  
Gokasho, Uji 611-0011  
Phone: +81-774-38-4273

### Natural disaster reference center in Western Japan

Graduate School of Engineering, Kyushu University  
Rm. 415, 4<sup>th</sup> floor, West Zone 2, Ito Campus,  
744, Motoooka, Nishi-ku, Fukuoka 819-0395  
Phone: +81-92-802-2545/+81-92-802-3385

### Disaster Information Laboratory of the National Research Institute for Earth Science and Disaster Prevention

3-1, Tennodai, Tsukuba 305-0006  
Phone: +81-29-863-7635



## Natural Disaster Research Council

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<http://www.dpri.kyoto-u.ac.jp/ndic/index.html>

Front cover right/ Collapsed coconut trees in Samar Island, the Philippines, due to the typhoon Haiyan  
(By the courtesy of Prof. Kazuyoshi Nishijima, DPRI, Kyoto Univ.)

Front cover left/ Eruption at the Showa crater of Sakurajima volcano in 2015 (By the courtesy of Prof. Masato Iguchi, DPRI, Kyoto Univ.)

Front cover bottom/ Flood in the Yodo river due to the Typhoon #18 in August 2013 (By the courtesy of the Kinki Regional Office, MILT)

Back cover right/ Mudflow disaster in Izu Oshima due to the typhoon #26 in October 2013  
(By the courtesy of Prof. Haruhiko Yamamoto, Yamaguchi Univ.)

Back cover left/ Flood in the JR Kameoka Station due to the typhoon #18 in September 2013  
(By the courtesy of Prof. Tomoharu Hori, DPRI, Kyoto Univ.)