

Proceedings of
Japan-Taiwan International Workshop on
Hydrological and Geochemical Research for
Earthquake Prediction

September 24, 2002
Tsukuba, Japan

Edited by
Naoji Koizumi, Norio Matsumoto and Chjeng-Lun Shieh

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GEOLOGICAL SURVEY OF JAPAN
National Institute of Advanced Industrial Science and Technology

1-1 Higashi 1-Chome, Tsukuba, Ibaraki, 305-8567 Japan

Preface

In February 2002, the Institute of Geoscience, Geological Survey of Japan (IG-GSJ), AIST and the Disaster Prevention Research Center, National Cheng Kung University (DPRC-NCKU), Taiwan agreed to pursue scientific and technical cooperation about hydrological and geochemical research for earthquake prediction in Taiwan. In order to promote the cooperation IG-GSJ and DPRC-NCKU, this international workshop will be held in September 24, 2002 at GSJ, AIST, Tsukuba, Japan.

The purpose of this workshop is to provide an opportunity to report and discuss results of hydrological and geochemical studies for earthquake prediction conducted mainly in Japan and Taiwan. In total, twelve papers will be presented in this workshop.

In order to contribute natural hazard mitigation, international exchange of accumulated knowledge is quite essential. We hope that this workshop will be a new step toward a future mitigation of earthquake hazards in Japan and Taiwan.

September 2002

Naoji Koizumi, Norio Matsumoto and Chjeng-Lun Shieh

Japan-Taiwan International Workshop on Hydrological and Geochemical Research for Earthquake Prediction

September 24-26, 2002

Meeting Room No.2, Geological Survey of Japan, AIST*

PROGRAM

September 24, 2002 (Tuesday)

9:00 ~ 10:00

Registration

Morning Session (10:00 ~ 12:00)

10:00 ~ 10:15

Opening Remarks

H. Kato (Director of Institute of Geoscience, Geological Survey of Japan, AIST)

C-L. Shieh (Director of Disaster Prevention Research Center, National Cheng-Kung University)

10:15 ~ 10:40

W-Y. Chang (NSC*): The program of earthquakes and active-fault research (PEAR) in Taiwan

<abstract> <presentation>

10:40 ~ 11:15

W-C. Lai (DPRC*) and K-C. Chang (WRA*): Planning of groundwater anomalies associated with the Earthquake and cases studies in Taiwan <abstract> <presentation>

11:15 ~ 11:40

E. A. Roeloffs (USGS*): Hydrologic monitoring in the Parkfield earthquake project: Overview of results and future plans <presentation>

11:40 ~ 12:05

M. Ando (Nagoya Univ.): Splay faults and groundwater level changes preceding to the 1946 Nankai earthquake <abstract> <presentation>

12:05 ~

Photographing at the front of the main entrance of Geological Survey of Japan, AIST

<photo>

Afternoon Session (13:40 ~ 18:00)

13:40 ~ 14:05

N. Matsumoto (GSJ*): Estimation of groundwater-level anomalies associated with preseismic sliding of the anticipated Tokai earthquake <abstract> <presentation>

14:05 ~ 14:30

Y-P. Lee (WRA*): A study of discharge change in Da-Jia river associated with Chi-Chi Earthquake <abstract> <presentation>

14:30 ~ 14:55

E. A. Roeloffs (USGS*): Influence of seismic waves on hydrothermal systems: Implications for earthquake triggering <abstract> <presentation>

14:55 ~ 15:20

Y. Kitagawa (GSJ*): Temporal change in permeability of an active fault zone after a large earthquake <abstract> <presentation>

15:20 ~ 15:35

Break

15:35 ~ 16:10

T. Shibata (GSH*): Critical phenomena of rock fracturing in groundwater level observation before the 2000 eruption of Usu volcano, Japan <abstract> <presentation>

16:10 ~ 16:35

F. Tsunomori (Univ. of Tokyo): Development of continuous and multi-component gas monitoring system for groundwater <presentation>

16:35 ~ 17:00

S. Tasaka (Gifu Univ.): Development of the underground water radon detector <presentation>

17:00 ~ 17:20

N. Koizumi (GSJ*): Strategical roles of hydrological and geochemical methods in earthquake prediction research <abstract> <presentation>

17:20 ~ 17:50

Discussion

18:00 ~ 20:00 Banquet at a restaurant in AIST

* AIST: National Institute of Advanced Industrial Science and Technology

DPRC: Disaster Prevention Research Center, National Cheng Kung University, Taiwan

GSH: Geological Survey of Hokkaido, Japan

GSJ: Geological Survey of Japan, AIST

NSC: National Sciences Council, Taiwan

USGS: United States Geological Survey

WRA: Water Resources Agency, Ministry of Economic Affairs, Taiwan

September 25 (Wednesday)

10:00 ~ 12:00, 13:00 ~ 14:30

Business Meeting at the Audio Visual Room of Geological Survey of Japan

Field Trip to Atami and Izu Peninsula

14:30 Departure from the front of the main entrance of Geological Survey of Japan by tour bus

19:00 Arrival at 'KKR Atami' hotel in Atami Hot Spring

19:30 Dinner (Japanese style)

September 26 (Thursday)

7:00 ~ Breakfast

8:00 Departure

Visit Ooyu hot spring, whose discharge changed before the 1923 Kanto Earthquake <photo>

Visit Tanna Fault

Visit Suiko-en observation station, where the radon concentration changed before the 1978

Izu-Oshima-kinkai Earthquake

Visit Ito City Hall

12:00 Lunch

Visit Omuroyama-kita observation station, where groundwater level often changed before nearby earthquake swarms

Visit Omuroyama volcano <photo>

19:00 Arrival at Geological Survey of Japan , AIST

Japan-Taiwan International Workshop on Hydrological and Geochemical
Research for Earthquake Prediction, September 24-26, 2002, Tsukuba,
Japan

List of Participants

KATO, Hirokazu	Director, IG, GSJ, AIST
SHIEH, Chjeng-Lun	Director, DPRC
CHANG, Wen-Yen	NSC
CHANG, Kuo-Chyang	WRA
LEE, Youe-Ping	WRA
LAI, Wen-Chi	DPRC
ROELOFFS, Evelyn. A.	USGS
ANDO, Masataka	Nagoya Univ.
TASAKA, Shigeki	Gifu Univ.
SHIBATA, Tomo	GSH
TSUNOMORI, Fumiaki	Univ. of Tokyo
TANAKA, Kazuhiro	Yamaguchi Univ.
HORIGUCHI, Keika	Univ. of Tokyo
NODA, Tetsuro	Director, IGRE, GSJ, AIST
KISHIMOTO, Kiyoyuki	IGCO, GSJ, AIST
NAKAMURA, Koichi	MRE, GSJ, AIST
TODA, Shinji	AFRC, GSJ, AIST
SATAKE, Kenji	AFRC, GSJ, AIST
SEKIGUCHI, Haruko	AFRC, GSJ, AIST
SATOH, Takashi	IG, GSJ, AIST
ARAI, Takashi	IG, GSJ, AIST
MASUDA, Koji	IG, GSJ, AIST
LEI, Xinglin	IG, GSJ, AIST
SATO, Tsutomu	IG, GSJ, AIST
NAKAMURA, Taro	IG, GSJ, AIST
KOIZUMI, Naoji	IG, GSJ, AIST
MATSUMOTO, Norio	IG, GSJ, AIST
KITAGAWA, Yuuichi	IG, GSJ, AIST
OHTANI, Ryu	IG, GSJ, AIST
TAKAHASHI, Makoto	IG, GSJ, AIST
TANAKA, Yukie	IG, GSJ, AIST
OGAWARA, Satomi	IG, GSJ, AIST
INOUE, Masahumi	

* AIST: National Institute of Advanced Industrial Science and Technology, Japan
GSJ: Geological Survey of Japan
AFRC: Active Fault Research Center
IG: Institute of Geoscience
IGCO: International Geoscience Cooperation Office
IGRE: Institute for Geo-Resource and Environment
MRE: Institute for Marine Resources and Environment

GSH: Geological Survey of Hokkaido, Japan

DPRC: Disaster Prevention Research Center, National Cheng Kung University, Taiwan
NSC: National Sciences Council, Taiwan
WRA: Water Resources Agency, Ministry of Economic Affairs, Taiwan

USGS: United States Geological Survey