

G. International partnership

G-1. Workshops and meetings¹

G-1-1. The First International Workshop

The First International Workshop on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on March 3-5, 2008, at the Palace Side Hotel in Kyoto, Japan. In total, 58 researchers participated from 12 countries and regions in East Asia, Southeast Asia and South Asia. A brief report of the meeting including a group photo is seen in the Newsletter No. 2 (see I-1).

= Program =

March 3 (Mon)

- 9:00 Opening
- 9:10 Shigeo YODEN (Department of Geophysics (DG)/ Kyoto University, JAPAN)
International research for prevention and mitigation of meteorological disasters in Southeast Asia

Session I: High-resolution numerical weather predictions (chair: S. Yoden)

- 9:30 Emmy SUPARKA (Institut Teknologi Bandung(ITB), INDONESIA)
Reduction of geohazard risks for sustainable development in Indonesia
- 9:50 Tri Wahyu HADI (ITB, INDONESIA)
Mesoscale NWP model intercomparisons for the maritime continent: preliminary results and future plan
- 10:30 (*coffee break*)
- 11:00 Kazuo SAITO (Meteorological Research Institute (MRI)/JMA, JAPAN)
Contribution of MRI to the international research for prevention and mitigation of meteorological disasters in Southeast Asia
- 11:20 Tabito HARA (Japan Meteorological Agency (JMA), JAPAN)
Operational mesoscale NWP at the Japan Meteorological Agency
- 11:40 Md. Nazrul ISLAM (SAARC Meteorological Research Centre, BANGLADESH)
Use of regional climate model to study extreme weather events in and around Bangladesh
- 12:20 (*lunch break*)
- 13:30 KIEU Thi Xin (Vietnam National University of Hanoi, VIETNAM)
Numerical weather prediction with high resolution regional model-HRM in Vietnam.
Impact of convection parameterization on heavy rainfall forecast of HRM, verification and problems for very low latitudes
- 13:50 Mezak Arnold RATAG (Indonesia National Meteorology and Geophysical Agency (BMG), INDONESIA)
Development of high resolution models and its applications for weather and climate risk reduction in Indonesia
- 14:30 Palikone THALONGSENGCHANH (DG/Kyoto University, JAPAN/LAO, PDR)
A down-scale experiment on numerical weather prediction in Indochina region (Lao PDR)
- 14:50 Krushna Chandra GOUDA (CSIR/Centre for Mathematical Modelling and Computer Simulation, INDIA)
Comparison of two strategies for simulation of extreme rainfall events
- 15:30 (*coffee break*)

Session II: Tutorials and demonstrations (chair: S. Yoden)

- 16:00 Shugo HAYASHI (MRI/JMA, JAPAN)
Basic usage of the NHM for numerical weather experiments
- 16:40 Seiya NISHIZAWA (DG/Kyoto University, JAPAN)

¹ S. Yoden and F. Furutani (Kyoto University)

Experimental development of a unified data base and decision support system for prevention and mitigation of meteorological disasters

March 4 (Tue)

Session III: High-impact weather and its simulation/prediction (chair: K. Saito)

- 9:00 Vinliam BOUNLOM (Hydrological Division, Department of Meteorology and Hydrology, LAO, PDR)
Country report on hydro-meteorological disasters in Lao PDR for the year 2006
- 9:20 Long SARAVUTH (Ministry of Water Resources and Meteorology, CAMBODIA)
Flash flood in Preas Vihear Province
- 9:40 Fredolin TANGANG (National University of Malaysia, MALAYSIA)
On the roles of the northeast cold surge, the Borneo Vortex, the MJO and the IOD during the worst 2006/2007 flood in Southern Peninsular Malaysia
- 10:20 Taiichi HAYASHI (DPRI/Kyoto University, JAPAN)
Disaster by the severe cyclone "Sidr" in the coastal region of Bangladesh in November, 2007
- 10:40 (*coffee break*)
- 11:10 Hiromu SEKO (MRI/JMA, JAPAN)
Numerical simulation of heavy rainfall events in South/Southeast Asia using NHM
- 11:30 Rosbintarti Kartika LESTARI (NTU, SINGAPORE)
Preliminary study on the precipitation of maritime Southeast Asia
- 11:50 Kazuhisa TSUBOKI (Nagoya University, JAPAN)
Simulation experiments of typhoons and tornadoes using the cloud resolving model
- 12:10 Toshiki IWASAKI (Tohoku University, JAPAN)
Influences of cloud microphysical processes on structure and development of tropical cyclone
- 12:30 Mitsuru UENO (MRI/JMA, JAPAN)
Recent advancements in the understanding of typhoon inner-core structures and its implication for typhoon vortex initialization
- 12:50 (*lunch break*)

Session IV: Satellite observations, their applications and data assimilation (chair: T.-Y. Koh)

- 14:00 Toshitaka TSUDA (RISH/Kyoto University, JAPAN)
Utilization of GPS radio occultation data for the studies of atmosphere dynamics
- 14:40 Yoshinori SHOJI (MRI/JMA, JAPAN)
An experiment of near real-time precipitable water vapor retrieval using ground-based GPS stations in South East Asia
- 15:00 Perapol BEGKHUNTOD (RFMMC, Mekong River Commission, CAMBODIA)
Satellite-based rainfall estimation and hydro-meteorological networks for flood forecasting in the Mekong River Basin
- 15:40 (*coffee break*)
- 16:10 Hirohiko ISHIKAWA (DPRI/ Kyoto University, JAPAN)
Satellite monitoring of hazardous weather in Asia
- 16:30 Masaru KUNII (MRI/JMA, JAPAN)
Meso-scale data assimilation experiment in low latitudes
- 16:50 Le DUC (Vietnam National University of Hanoi, VIETNAM)
Development of a data assimilation system with HRM model and 3DVAR technique
- 17:10 Takeshi ENOMOTO (Japan Agency for Marine-Earth Science and Technology (JAMSTEC), JAPAN)
ALERA:AFES-LETKF experimental ensemble reanalysis
- 17:30 Vijapuapu S. PRASAD (National Center for Medium Range Weather Forecasting, INDIA)
Assimilation of direct satellite radiance data at NCMRWF
- 18:30 (*banquet*)

March 5 (Wed)

Session V: Model output statistics, predictability, and decision supports (chair: T. Satomura)

- 9:00 Tieh Yong KOH (NTU, SINGAPORE)
Statistical verification of COAMPS model over SCSMEX period
- 9:20 Hongwen KANG (APEC Climate Center, KOREA)
Multi-model output statistical downscaling prediction of precipitation in the Philippines and Thailand
- 9:40 Edwin S. T. LAI (Hong Kong Observatory, P. R. CHINA)
Use of NWP and EPS products in support of location-specific forecasts
- 10:00 Hitoshi MUKOUGAWA (DPRI/Kyoto University, JAPAN)
Predictability of tropical circulation examined by breeding of growing mode(BGM) method for JMA ensemble prediction system
- 10:20 *(coffee break)*
- 10:50 Syozo YAMANE (Chiba Institute of Science, JAPAN)
Properties of ensemble perturbations evolving in an atmospheric general circulation model
- 11:10 Prawit JAMPANYA (Thai Meteorological Department (TMD), THAILAND)
The meteorological natural disasters warning system of Thailand
- 11:30 SANGA-NGOIE Kazadi (Ritsumeikan Asia Pacific University, JAPAN)
Our endangered costal ecosystems - an eco-climatic and risk analysis using GIS and remote sensing -
- 11:50 Kamol PROMASAKHA NA SAKOLNAKHON (TMD, THAILAND)
Integration NWP data and applied geographic information system(GIS) management for landslide at Amphure Pai, Mae Hong Son
- 12:10 Takeshi HORINOCHI (RISH/Kyoto University, JAPAN)
Database and data-analysis infrastructure for atmospheric studies
- 12:30 *(lunch break)*

Session VI: High-resolution model as a fundamental research tool (chair: T.W. Hadi)

- 14:00 Takehiko SATOMURA (DG/Kyoto University, JAPAN)
Development of ultra-high resolution numerical model
- 14:20 Nurjanna Joko TRILAKSONO (ITB, INDONESIA)
Study of diurnal patterns of convection in Sumatra Island using weather research and forecasting-advanced research WRF (WRF-ARW) model
- 14:40 Shigenori OTSUKA (DG/Kyoto University, JAPAN)
Numerical experiments on vertically fine structures of water vapor in the Tropics
- 15:00 Yoichi ISHIKAWA (DG/Kyoto University, JAPAN)
Dependency of the tropical convective clouds on the sea surface temperature simulated by a high-resolution coupled model
- 15:20 Tetsuya TAKEMI (DPRI/Kyoto University, JAPAN)
Environmental stability control of the precipitation structure and intensity within mesoscale convective systems
- 15:40 *(coffee break)*

Session VII: Future research and collaborations

- 16:10 all participants
Open discussions
- 16:50 Closing

G-1-2. The Second International Workshop

The Second International Workshop on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on March 2-5, 2009, at Jayakarta Hotel in Bandung, Indonesia. In total, 47 researchers participated from 12 countries and regions in East Asia, Southeast Asia and South Asia. A brief report of the meeting including a group photo is seen in the Newsletter No. 4 (see I-1).

= Program =

March 2 (Mon)

Opening session (Chair: Tri Wahyu HADI)

- 13:30 Tri Wahyu HADI (ITB, Indonesia)
Welcome, opening remarks, and logistics
- 13:40 Emmy SUPARKA (ITB, Indonesia)
Welcome address
- 14:00 Takashi NISHIGAKI (JST, Japan)
Welcome address
- 14:20 Shigeo YODEN (DG/Kyoto University, Japan)
International collaborations on prevention and mitigation of meteorological disasters in Southeast Asia
- 14:50 Mu MU (IAP/CAS, China)
Approaches to adaptive observation for improving high impact weather prediction: CNOP and SV
- 15:30 (*Coffee break*)

Session I: Downscale NWP (Chair: KIEU Thi Xin)

- 16:00 Tri Wahyu HADI (ITB, Indonesia)
Prediction of diurnal variation over Java Island: A four-model intercomparison
- 16:30 Shugo HAYASHI (MRI/JMA, Japan)
Statistical verifications of short term NWP by NHM and WRF-ARW around Japan and Southeast Asia
- 17:00 Introduction of posters
Two minutes talk without ppt slides
- 17:30 (End of the first day sessions)
- 19:00 <<< Joint banquet with JSPS-AASP at the Jayakarta Hotel >>>

March 3 (Tue)

Session I: - continued (Chair: Toshiki IWASAKI)

- 08:30 Md. Nazrul ISLAM (SAARC/MRC, Bangladesh)
Regional climate model in prevention of meteorological disaster in SAARC region
- 09:00 KIEU Thi Xin (University of Hanoi, Vietnam)
Implementing regional hydrostatic models & NHM of MRI for the historical heavy rain case caused flooding in Hanoi in November 2008. Comparison
Development of a short-range ensemble prediction system at NCHMF: Preliminary results (Le DUC, NCHMF, Vietnam)
- 09:30 Wai-kin WONG (Hong Kong Observatory, Hong Kong)
Development and applications of JMA-NHM in support of severe weather forecasting in Hong Kong
- 10:00 (*Coffee break*)

Session II: Tropical disturbances and precipitation process (Chair: Chun-Chieh WU)

- 10:30 Hiromu SEKO (MRI/JMA, Japan)
Structure of the regional heavy rainfall system that occurred in Mumbai, India, on 26 July 2005

- 11:00 Tetsuya TAKEMI (DPRI/Kyoto University, Japan)
High-resolution modeling study of an extreme rainfall event in a complex terrain under the influence of typhoon Fung-Wong (2008)
- 11:30 (*Lunch*)

Session II: - continued (Chair: Tieh Yong KOH)

- 13:30 Toshiki IWASAKI (Tohoku University, Japan)
Influences of cloud microphysical processes on structure and development of tropical cyclone Part II: Effects of evaporation from rain
- 14:00 Yoichi ISHIKAWA (DG/Kyoto University, Japan)
Interaction between tropical convective clouds and ocean mixed layer simulated by a high-resolution coupled model
- 14:20 Madhavan N. RAJEEVAN (NARL, India)
Sensitivity of different microphysics parameterization schemes to the simulation of mesoscale convective systems observed over Gadanki, India
- 14:40 Tohru KURODA (MRI/JMA, Japan)
NHM utilities for SE Asian NWP and numerical experiments of myanmar cyclone Nargis
- 15:00 (*Coffee break*)

Session III: Observation network (joint with JSPS-AASP) (Chair: Toshitaka TSUDA)

- 15:30 Manabu D. YAMANAKA (JAMSTEC, Japan)
Overview and scientific background of JEPP-HARIMAU project: Long coastlines of maritime continent governing global climate
- 16:00 Masato SHIOTANI (RISH/Kyoto University, Japan)
Ozone and water vapor Observations in the equatorial Pacific
- 16:30 Tieh Yong KOH (Nanyang Technological University, Singapore)
Towards a mesoscale observation network in Southeast Asia
- 17:00 Basuki SUHARDIMAN (ITB, Indonesia)
Trans European information network 3 (TEIN3) and its potential use for the weather and climate research in Southeast Asia
- 17:20 (End of the second day sessions)

March 4 (Wed)

Session IV: New methods in observation, data assimilation, and NWP (joint with JSPS-AASP) (Chair: Masato SHIOTANI)

- 08:30 Toshitaka TSUDA (RISH/Kyoto University, Japan)
Application of GPS radio occultation (RO) data for the studies of atmospheric dynamics and data assimilation into numerical weather prediction model
- 09:00 Seon Ki PARK (Ewha Womans University, Korea)
Data assimilation and parameter estimation to improve forecast accuracy of disastrous weather systems
- 09:30 Kevin CHEUNG (Macquarie University, Australia)
A statistical tropical cyclone rainfall model for the Taiwan area
- 10:00 (*Coffee break*)

Session IV: - continued (Chair: Mezak A. RATAG)

- 10:30 Chun-Chieh WU (National Taiwan University, Taiwan)
Targeted observation for improving tropical cyclone predictability – DOTSTAR and T-PARC
- 11:00 DODLA V. Bhaskar Rao (Andhra University, India)
Ensemble prediction of “SIDR” cyclone over Bay of Bengal using a high resolution mesoscale model
- 11:30 Kazuo SAITO (MRI/JMA, Japan)
Ensemble forecast experiment of cyclone Nargis
- 12:00 (*Lunch*)

Session V: Risk assessment and community preparedness (Chair: Kazuo SAITO)

- 13:30 Hirohiko ISHIKAWA (DPRI/Kyoto University, Japan)
Estimation of meteorological hazards using output from numerical weather prediction model
- 14:00 Kamol PROMASAKHA NA SAKOLNAKHON (TMD, Thailand)
Case Study: The atmospheric stability indices and applied GIS risk assessment severe thunderstorms in the northeastern of Thailand
- 14:30 Mezak A. RATAG (BMG, Indonesia)
Roles of high resolution weather and climate models in disaster risk management at district level
- 15:00 (*Coffee break*)

Tutorials

- 15:30 Kazuo SAITO, Shugo HAYASHI, and Tohru KURODA (MRI/JMA, Japan)
Introduction to non-hydrostatic model of MRI/JMA
- 17:00 (*End of the third day sessions*)

March 5 (Thu)

Session VI: Extended range NWP (Chair: Mu MU)

- 08:30 Hitoshi MUKOUGAWA (DPRI/Kyoto University, Japan)
On the influence of the tropical intraseasonal oscillation to the predictability of the Pacific/North American pattern
- 09:00 Krushna C. GOUDA (CSIR/CMMCS, India)
Advance prediction of date of onset of monsoon: dynamical basis and skill evaluation
- 09:30 Donald Sukma PERMANA (BMG, Indonesia)
Comparisons between conformal cubic atmospheric model (CCAM) and global forecasting system (GFS): global model output over Indonesia in September – October – November (SON) 2008
- 10:00 (*Coffee break*)

Session VII: Data assimilation (Chair: Seon Ki PARK)

- 10:30 Yoshinori SHOJI (MRI/JMA, Japan)
Data assimilation of precipitable water vapor derived from GPS network in South East Asia
- 11:00 I Dewa Gede A. JUNNAEDHI (ITB, Indonesia)
Impact of local data assimilation on short range weather prediction in Indonesia : A preliminary result
- 11:30 (*Lunch*)

Poster session

- 13:00 Kosuke ITO (DG/Kyoto University, Japan)
Improved estimates of air-sea fluxes in a tropical cyclone using an adjoint method
- Takuya KAWABATA (MRI/JMA, Japan)
Development and results of a cloud-resolving nonhydrostatic 4DVAR assimilation system
- Hyun Hee KIM (Ewha Womans University, Korea)
Identification of adaptive observation area in typhoon Megi (2002) using an ensemble data assimilation method
- Masaru KUNII (MRI/JMA, Japan)
Sensitivity analysis using the mesoscale singular vectors
- Jalu Tejo NUGROHO (LAPAN, Indonesia)
Solar cycle prediction using periodicity analysis of weighted wavelet Z-transform
- Shigenori OTSUKA (DG/Kyoto University, Japan)
Numerical experiments on formation processes of thin moist layers in the mid-troposphere over a tropical ocean
- Kazuo SAITO (MRI/JMA, Japan)
Achievements and experiences of MRI/JMA at the WWRP Beijing Olympic research and development project
- Hiromu SEKO (MRI/JMA, Japan)

Mesoscale ensemble experiments on potential parameters for tornado formation
Hiromu SEKO (MRI/JMA, Japan)

Mesoscale ensemble experiments on heavy rainfalls in Japan area using LETKF
Tri Handoko SETO (BPPT, Indonesia)

Weather modification technology for flood prevention in Indonesia
Ibnu SOFIAN (BAKOSURTANAL, Indonesia)

Simulation of wind-setup wave in the Indonesian Seas using the nesting wavewatch III
Elza SURMAINI (Dept. of Agriculture, Indonesia)

Validation of ECMWF seasonal forecast output in Indonesia

Closing session (Chair: Shigeo YODEN)

14:30 All Participants

Discussion for Future Activities

15:00 (*Adjourn*)

G-1-3. The Third International Workshop

The third international workshop on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on March 1-3, 2010, and the open symposium on “Meteorological Disasters and Adaptable Society in the Asia-Pacific Region” was held on March 4, 2010, at Ritsumeikan Asia Pacific University (APU) in Beppu, Japan. 61 researchers and graduate students from 13 countries participated in the workshop, and 63 people including citizens of Beppu attended the open symposium. A brief report of the meeting including a group photo is seen in the Newsletter No. 6 (see I-1).

= Program =

March 1 (Mon)

Opening session (Chair: Sanga-N. KAZADI)

- 09:15 Sanga-N. KAZADI (APU, Japan)
Welcome, opening remarks, and logistics
- 09:20 Malcolm J. M. COOPER (APU, Japan)
Welcome address
- 09:30 Shigeo YODEN (DG/Kyoto U., Principal Investigator, Japan)
International collaborations on prevention and mitigation of meteorological disasters in Southeast Asia
- 10:00 Indratmo SOEKARNO (ITB, Vice President, Indonesia)
Flood protection in Bandung - West Java due to Citarum River
- 10:30 (*Coffee break*)

Opening session – continued (Chair: Kazuo SAITO)

- 11:00 Naoyuki HASEGAWA (Head of Office Int. Affairs/JMA, Japan)
Regional cooperation in meteorological services in Asia and the Pacific
- 11:30 Mu MU (IAP/CAS, China)
A comparison study on adaptive observation approaches: Singular vector, conditional nonlinear optimal perturbation and ensemble transform Kalman filter
- 12:00 Kaoru TAKARA (DPRI/Kyoto U., Leader of GCOE-ARS, Japan)
Sustainability science for a resilient society adaptable to extreme weather conditions
- 12:30 (*Group photo*)
- 12:40 (*Lunch*)

Session I: High-impact weather - prediction and analysis (Chair: Tieh Yong KOH)

- 14:00 Tetsuo NAKAZAWA (MRI/JMA, Japan)
Can the global ensemble forecast data detect high-impact weather events?
- 14:30 Venkata Bhaskar Rao DODLA (Jackson State University, US)
A new strategy for improvement in the prediction of tropical cyclone intensity and movement using FDDA and vortex initialization
- 15:00 Introduction of posters
- 15:30 (*Coffee break*)

Session I: - continued (Chair: Tri Wahyu HADI)

- 16:00 Fredolin TANGANG (National University of Malaysia, Malaysia)
Impact of the Madden-Julian Oscillation (MJO) on the maritime continent's rainfall
- 16:30 Samsul BAHRI (Weather Modification Unit/BPPT, Indonesia)
The use of radar for weather modification in order to mitigate weather and climate disaster in Indonesia
- 17:00 (End of the first day sessions)
- 18:00 (*Banquet*)

March 2 (Tue)

Session II: Tropical disturbances (Chair: Takehiko SATOMURA)

- 09:00 Chun-Chieh WU (National Taiwan University, Taiwan)
Targeted observation, data Assimilation, and tropical cyclone dynamics and predictability
- 09:30 Yoshinori SHOJI (MRI/JMA, Japan)
Data assimilation of GPS PWV for Myanmar cyclone NARGIS
- 09:50 Krushna Chandra GOUDA (CSIR/CMMCS, India)
Prediction of tropical cyclone over Bay of Bengal using NHM high resolution model
- 10:10 Hari Prasad DASARI (University of Evora, Portugal)
Numerical prediction and dynamical analysis of a super cyclonic system over north Indian Ocean
- 10:30 (*Coffee break*)

Session II: - continued (Chair: Chun-Chieh WU)

- 11:00 Takeshi ENOMOTO (JAMSTEC, Japan)
Precursory signals of typhoon genesis in analysis ensemble spread
- 11:30 Palikone THALONGSENGCHANH (LMNRRI/PMO, Lao PDR)
Flood event on meteorological disaster “TC Ketsana’s Case FY 2009” in Lao PDR
- 11:50 Thanh NGO-DUC (AMO/NHMS, Vietnam)
Extreme climate events in Vietnam - tropical cyclones and heavy rainfall phenomena observed in the past
- 12:10 Shigenori OTSUKA (DG/Kyoto University, Japan)
Decision support system for prevention and mitigation of meteorological disasters based on ensemble NWP data: an experimental use for the forecasts of Nargis
- 12:30 (Lunch)

Session III: Heavy precipitation and microphysics (Chair: Thi Xin KIEU)

- 13:30 Takehiko SATOMURA (DG/Kyoto University, Japan)
Toward the mitigation of water disaster in countries in the Indochina Peninsula
- 14:00 Juneng LIEW (National University of Malaysia, Malaysia)
Numerical investigation of a severe afternoon thunderstorm over west coast of Peninsular Malaysia
- 14:20 Tetsuya TAKEMI (DPRI/Kyoto University, Japan)
Representation of extreme weather events in convection-resolving simulations at 100-m resolution
- 14:40 Siriluk CHUMCHEAN (Mahanakorn University of Technology, Thailand)
Bangkok rainfall forecasting system: An operational radar and RTC application
- 15:00 (*Coffee break*)

Session III: - continued (Chair: Hirohiko ISHIKAWA)

- 15:30 Seon Ki PARK (Ewha Womans University, Korea)
Characteristics of fog occurrence over the Korean Peninsula
- 16:00 Ryoji NAGASAWA (NPD/JMA, Japan)
Problem of cloud overlap in the radiation calculation in the JMA Nonhydrostatic Model
- 16:20 Chee-Kiat TEO (NTU, Singapore)
Nadir correction to AIRS radiances
- 16:40 Hiromu SEKO (MRI/JMA, Japan)
Data assimilation of side-looking radio occultation by observing system simulation experiment
- 17:00 (*End of the second day sessions*)

March 3 (Wed)

Session IV: Mesoscale NWP (Chair: Seon Ki PARK)

- 09:00 Kazuo SAITO (MRI/JMA, Japan)

- Achievement of MRI for the International Research for Prevention and Mitigation of Meteorological Disasters in Southeast Asia
- 09:30 Takuya KAWABATA (MRI/JMA, Japan)
Cloud-resolving 4D-Var with Radar and GPS data
- 09:50 Masaomi NAKAMURA (MRI/JMA, Japan)
Projection of the change in future extremes around Japan using a nonhydrostatic regional model
- 10:10 Santi SUMDIN (TMD, Thailand)
The conversion operational Unified Model output to GrADS and GIS data for weather forecasting activities in Thai Meteorological Department
- 10:30 (*Coffee break*)

Session IV: - continued (Chair: Tetsuya TAKEMI)

- 11:00 Tri Wahyu HADI (ITB, Indonesia)
Multiscale precursors of extreme weather and climatic events in Indonesia: Process study and experimental predictions
- 11:30 Wai-kin WONG (Hong Kong Observatory, Hong Kong)
Development of operational rapid update non-hydrostatic NWP and data assimilation systems in the Hong Kong Observatory
- 11:50 Shugo HAYASHI (MRI/JMA, Japan)
Statistical verification of short range forecasts by NHM and WRF-ARW over Southeast Asia and Japan areas
- 12:10 Tieh Yong KOH (NTU, Singapore)
Improved diagnostics for NWP verification
- 12:30 (*Lunch*)

Session V: Global to regional scales and applications (Chair: Hiromu SEKO)

- 13:30 Hirohiko ISHIKAWA (DPRI/Kyoto University, Japan)
Reproduction of hazardous weather in Asia in 2009 using dynamic downscaling from global analysis
- 14:00 Kumarenthiran SUBRAMANIAM (MMD, Malaysia)
Performance of ensemble prediction for numerical weather prediction (NWP) models during the northeast monsoon over Peninsular Malaysia
- 14:20 Shozo YAMANE (Doshisha University, Japan)
Properties of ensemble perturbations evolving in an atmospheric general circulation model
- 14:40 Zhina JIANG (LaSW/CAMS, China)
A New Approach to the Generation of Initial Perturbations for Ensemble Prediction: Conditional nonlinear optimal perturbations
- 15:00 (*Coffee break*)

Session V: - continued (Chair: Shigeo YODEN)

- 15:30 Ivonne Milichristi RADJAWANE (ITB, Indonesia)
Sea level rise assessment in the northern part of Java coastal area
- 16:00 Yoichi ISHIKAWA (DG/Kyoto University, Japan)
Formation of ocean surface barrier layer simulated by high-resolution atmosphere-ocean coupled model
- 16:20 Rita Tisiana Dwi KUSWARDANI (Ocean University of China, China)
The effects of surface waves on the upper ocean and climate system and its application to the development of an ocean forecast system in Indonesian Seas

Closing

- 16:40 Yoshinori SHOJI (MRI/JMA, Japan)
Report on the 16th Session of the Asia-Pacific Regional Space Agency Forum and the first Asia Oceania Region Workshop on GNSS
- 16:50 Takashi NISHIGAKI (JST, Japan)

- Concluding remarks
 17:00 Shigeo YODEN (DG/Kyoto U., Japan)
 Summary
 17:10 (*End of the workshop*)

Poster presentations

- P-1 Taiichi HAYASHI (DPRI/Kyoto U., Japan)
 Recent research trend of heavy rainfall and severe local storm in the northeastern Indian subcontinent
- P-2* Hitoshi HIROSE (DG/Kyoto University, Japan)
 Comparison between cloud cover variations from satellite observations and those from surface observations
- P-3* Kosuke ITO (DG/Kyoto University, Japan)
 Estimation of air-sea fluxes in a tropical cyclone by using variational method with an intermediate atmosphere-ocean coupled mode
- P-4 Thi Xin KIEU (Vietnam National University at Hanoi, Vietnam)
 On some tests of rainfall forecast using NHM in Vietnam
- P-5* Yoshiaki MIYAMOTO (DPRI/Kyoto University, Japan)
 Axisymmetric and asymmetric processes of tropical-cyclone vortex during the rapid intensification phase
- P-6 Findy RENGONO (Weather Modification Unit/BPPT, Indonesia)
 Precipitating cloud observed by C-band radar at Sorowako, Indonesia
- P-7* Naoaki SAITO (DG/Kyoto University, Japan)
 Interaction between thermal convection and mean flow in a rotating system
- P-8 Tri Handoko SETO (Weather Modification Unit/BPPT, Indonesia)
 Weather modification technology for flood prevention in Indonesia
- P-9 Widada SULISTYA (Centre for Public Meteorology/BMKG, Indonesia)
 Indonesian extreme weather
- P-10 Fredolin TANGANG (National University of Malaysia, Malaysia)
 Simulation of heavy precipitation episode over eastern Peninsular Malaysia using MM5: Sensitivity to cumulus parameterization schemes
- P-11 Palikone THALONGSENGCHANH (LMNRRI/PMO, Lao PDR)
 TC Ketsana's effect in Lao (FY2009)
- P-12* Nurjanna Joko TRILAKSONO (DG/Kyoto University, Japan)
 Study of heavy rainfall during Jakarta flood event January-February 2007
- P-13* Hiroki YAMAMOTO (DG/Kyoto University, Japan)
 Laboratory experiments on two coalescing axisymmetric turbulent plumes in a rotating fluid
- P-14* Ryuji YOSHIDA (DPRI/Kyoto University Japan)
 A Numerical simulation of tropical cyclogenesis with MCS merger

March 4 (Thu)

“Open Symposium on Meteorological Disasters and Adaptable Society in the Asia-Pacific Region

Open Symposium (Chair: Sanga-N. KAZADI)

- 10:00 Sanga-N. KAZADI (APU, Japan)
Opening remarks
- 10:10 Shigeo YODEN (DG/Kyoto University, Japan)
International collaborations on prevention and mitigation of meteorological disasters in Southeast Asia
- 10:30 Shunso TSUKADA (APU, Japan)
Socio-economic implications of meteorological disasters and possible measures to mitigate their impacts
- 10:50 Tieh Yong KOH (NTU, Singapore)
Towards a mesoscale observation network in Southeast Asia
- 11:10 Toshitaka TSUDA (RISH/Kyoto University, Research Leader of GCOE-ARS, Japan)
Fusion of science and engineering for extreme weathers and global warming
- 11:30 Takashi NISHIGAKI (JST, Japan)
Comments
- 11:40 Masahiro KOBAYASHI (JICA Kyushu, Japan)
Comments
- 11:50 Sanga-N. KAZADI (APU, Japan)
Closing remarks
- 12:00 (*end of the Symposium*)
- 12:15 – 13:15 **Lunch buffet** at the APU cafeteria
all participants are invited to have further discussions/conversations
- 13:30 – 18:00
Field observations at some key spots related to Geohazards in and around Beppu

G-1-4. The First Local Meeting

The first local meeting on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on August 17-18, 2007, at Kyoto University in Kyoto, Japan. 24 Japanese researchers and 2 officers from JST participated in this meeting and discussed research plan and schedule of this program.

G-1-5. The Second Local Meeting

The second local meeting on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on September 9-10, 2008, at MRI in Tsukuba, Japan and 28 Japanese researchers participated in this meeting.

= Program =

13:10-13:30 Opening

13:30-16:20 Session I: Observation and Data

Taiichi HAYASHI (DPRI/Kyoto University)

Recent research trend of mesoscale phenomena in South Asia

Takehiko SATOMURA (DG/Kyoto University)

Precipitation characteristics in northern Indochina

Noriyuki NISHI (DG/Kyoto University)

Detection of precipitation using split-window measurements by geostationary satellite

Hirohiko ISHIKAWA (DPRI/Kyoto University)

Myanmar Cyclone Nargis: Satellite images and numerical experiments by WRF

Masato Shiotani (RISH/Kyoto University)

Stationary circulation observed in the upper troposphere over the western Indian Ocean

Yoshinori SHOJI (MRI/JMA)

Global realtime analysis of GPS data and plan of assimilation experiments

15:30-15:40 (*Coffee break*)

15:40-16:20 Session 1 (continued)

Takeshi HORINOCHI (RISH/Kyoto University)

Gfdnavi: present and future prospects

Seiya NISHIZAWA (DG/Kyoto University)

Experimental development of a decision support system for prevention and mitigation of meteorological disasters with Gfdnavi

16:20-17:00 Invited talks

Shuichi MORI (JAMSTEC)

Present status of JEPP/HARIMAU radar-profiler network observations in Indonesia

Manabu YAMANAKA (JAMSTEC)

Coastline length governing equatorial rainfall amount

17:00-17:30 Discussion on data archive and cooperation

September 10 (Wed)

09:10-10:50 Session 2: Numerical weather prediction

Shigeo YODEN (DG/Kyoto University)

Ensemble forecasts with regional models

Kohei ARANAMI (JMA)

Improvements of utility tools to carry out NHM and introduction of DVD-NHM

Syugo HAYASHI (MRI/JMA)

Intercomparisons of NHM and WRF forecasts over tropical and Japan areas

Tohru KURODA (MRI/JMA)

Development of utility tools for NHM execution in tropics and reproduce/forecast experiments of Nargis

Kazuo Saito (MRI/JMA)

Tidal wave simulation on ensemble forecast of Nargis

10:50-11:00 (*Coffee break*)

11:00-12:00 **Session 2 (continued)**

Mitsuru UENO (MRI/JMA)

Some aspects of typhoon structure represented in the JMA meso-analyses and synthetic data

Masaru KUNII (MRI/JMA)

Regional data assimilation experiment in southeast Asia

Hiromu SEKO (MRI/JMA)

Structure of the regional heavy rainfall occurred at Santacruz, India on 26 July 2005

12:00-12:30 **Discussion on Bandung WS**

G-1-6. The Third Local Meeting

The third local meeting on “Prevention and Mitigation of Meteorological Disasters in Southeast Asia” was held on July 13-14, 2009, at Kyoto University in Kyoto, Japan. 13 Japanese researchers, one Indonesian researcher and two officers from JST participated in this meeting.

= Program =

July 13 (Mon)

09:30-12:00 **Session 1**

Shigeo YODEN (DG/Kyoto University)

Past, present and future of this JST project

Hirohiko ISHIKAWA (DPRI/Kyoto University)

The relationship between the development of Typhoon and the Ocean Heat Content

Tetsuya TAKEMI (DPRI/Kyoto University)

Representation and localization of severe local rainstorms and related disasters with high-resolution regional simulations

Tri Wahyu Hadi (ITB)

Improved NWP systems for hydrometeorological disaster risk reduction in Southeast Asia: economic imperatives and scientific challenges

Nurjanna Joko Trilaksono (DG/Kyoto University, ITB)

Study of heavy rainfall during Jakarta flood event January-February 2007

Shigenori OHTSUKA (DG/Kyoto University)

Experimental development of a decision support system for prevention and mitigation of meteorological disasters with Gfdnavi

12:00-13:30 (*Lunch break*)

13:30-16:00 **Session 2**

Masami Narita (JMA)

Development of a convection scheme for the JMA nonhydrostatic model

Masami Narita (JMA)

Using JMA models by the NWP research and development platform

Syugo HAYASHI (MRI/JMA)

Statistical verification of short range forecasts by NHM and WRF-ARW over Southeast Asia and Japan areas

Tohru KURODA(MRI/JMA)

Recent results and future plan of forecast experiments on Cyclone Nargis

Kazuo SAITO (MRI/JMA)

Ensemble prediction of Myanmar Cyclone Nargis and the associated storm surge

Masaru KUNII (MRI/JMA)

Mesoscale data assimilation of Myanmar Cyclone Nargis

Yoshinori SHOJI (MRI/JMA)

GPS data assimilation of Myanmar Cyclone Nargis

16:00-17:00 **Discussion on the project**

18:00- (*Banquet*)

July 14 (Tue)

09:30-14:30 **Individual discussions**

G-2. Newsletters¹

Newsletters on “International Research for Prevention and Mitigation of Meteorological Disasters in Southeast Asia” were published six times for three years (see Appendix I-1).

- Newsletter No. 1 (Published on December 26, 2007)
Contents: 1. Outline
2. Major Research Subjects
3. Topics (The 1st International Workshop, JSPS-LIPI Workshop, The 5th AOGS Annual Meeting)
- Newsletter No. 2 (Published on March 10, 2008)
Contents: 1. MRI Scientists visit NTU and ITB
2. Report on the 1st International Workshop
3. Topics (Internet satellite “Kizuna” (WINDS))
- Newsletter No. 3 (Published on October 31, 2008)
Contents: 1. Report on the AOGS 2008 Session AS06
2. Topics (The WWRP Beijing Olympics 2008, Forecast Demonstration/Research and Development Project, The Second Domestic Workshop)
- Newsletter No. 4 (Published on March 23, 2009)
Contents: 1. Report on the 2nd International Workshop
2. Joint Sessions and Activities in Institut Teknologi Bandung
3. Topics (A workshop on “Ground based atmospheric observation network in equatorial Asia”)
- Newsletter No. 5 (Published on October 30, 2009)
Contents: 1. MRI Scientist visited CMMCS in India
2. Visit to three institutions in Jakarta, Indonesia, for further international research collaborations
3. Lectures in KAGI21 International Summer School 2009
- Newsletter No. 6 (Published on March 29, 2010)
Contents: 1. Summary of the activities for three years
2. Topics (Report on the 3rd International Workshop)



¹ S. Yoden and F. Furutani (Kyoto University)

G-3. Mutual visits¹

In addition to the international workshops, MRI scientists visited partner institutions in Southeast Asia and exchanged the scientific information during the project period (Table G-3-1).

Table G-3-1. List of visits of MRI scientists to partner institutions

Partner institutions	Country/ Region	Visitors	Period	Report in Newsletter (I-1)
ITB	Indonesia	Saito and Hayashi	2008.2.11-12	No. 2
NTU	Singapore	Saito and Hayashi	2008.2.14-15	No.2
CSIR C-MMACS	India	Hayashi	2009.3.23-25	No.5
VNU	Vietnam	Saito and Kuroda	2009.10.6-9	No.6
HKO	Hong Kong	Saito and Honda**	2009.2.9-13*	

*Invitation by Hong Kong Observatory

**Yuki Honda (Numerical Prediction Division/JMA)

Prior to the project T. Hadi of ITB and T. Koh of NTU visited MRI on 19 March 2007 with Prof. Yoden of Kyoto Univ. and made presentations (Fig. G-3-1).



Fig. G-3-1. (Left) T. Hadi of ITB presents 'Numerical Weather Prediction in Indonesia: Demands, Prospects, and Challenges' at MRI. (Right) T.-Y. Koh of NTU presents 'Tropical Weather Research in Singapore'.

¹ K. Saito

G-4. Project web site at Kyoto University¹

The web site of the project in English is provided by Kyoto University to serve researchers in Southeast Asia (<http://www-mete.kugi.kyoto-u.ac.jp/project/MEXT/>). The web site provides the following contents: the motivations of the project, the summary of the major research subjects (downscale NWP, new data, and decision support system), topics, meetings, newsletters, the list of publications and presentations, reports of the project, and links to the related web sites. The top page (Fig. G-4-1) provides the general introduction of the project and the recent topics. The motivation of the project is written in the next page.



Fig. G-4-1. Top page of the web site of the project at Kyoto University.

On the pages of major research subjects, brief summaries are presented with schematic diagrams of (a) experimental downscale NWP in the tropics with regional meso-scale models, (b) assessments of the impact of new observational data on NWP with advanced data assimilation schemes, and (c) development of a unified data base and decision support system for prevention and mitigation of meteorological disasters. On the page of the topics, several reports on various topics are provided. The titles of the documents are shown below.

1. A session "Numerical Weather Prediction and Data Assimilation in Southeast Asia" (AS06) convened at the 5th Annual Meeting of Asia Oceania Geosciences Society (AOGS).
2. The International Symposium for Applications of "Kizuna" of Wideband InterNetworking engineering test and Demonstration Satellite (WINDS).
3. JSPS-LIPI workshop "Japan Indonesia Research Collaboration on Natural Disasters".

¹ S. Otsuka

4. A session "Applied Mesoscale Numerical Weather Prediction in Southeast Asia" (AS04) convened at the 3rd Annual Meeting of AOGS.
5. KAGI21 International Workshop "Regional Models for the Prediction of Tropical Weather and Climate"

On the page of the meetings, the programs of all the international and domestic workshops held by the project are provided. On the page of the newsletters, all the newsletters published by the project (volume 1-6) are distributed in the PDF format (Fig. G-4-2). The annual reports that are submitted to Japan Science and Technology Agency are also downloadable from the web site.



Fig. G-4-2. Download page of the newsletters.

G-5. Project web site at MRI¹

The project web site on MRI's contribution was prepared as a part of the MRI's web page. The web site provided the following contents: News (topics), development of NWP models and application, meetings, information on NHM for the users outside JMA and links to the related web sites. The top page (Fig. G-5-1) provides the outline of the research and recent topics.

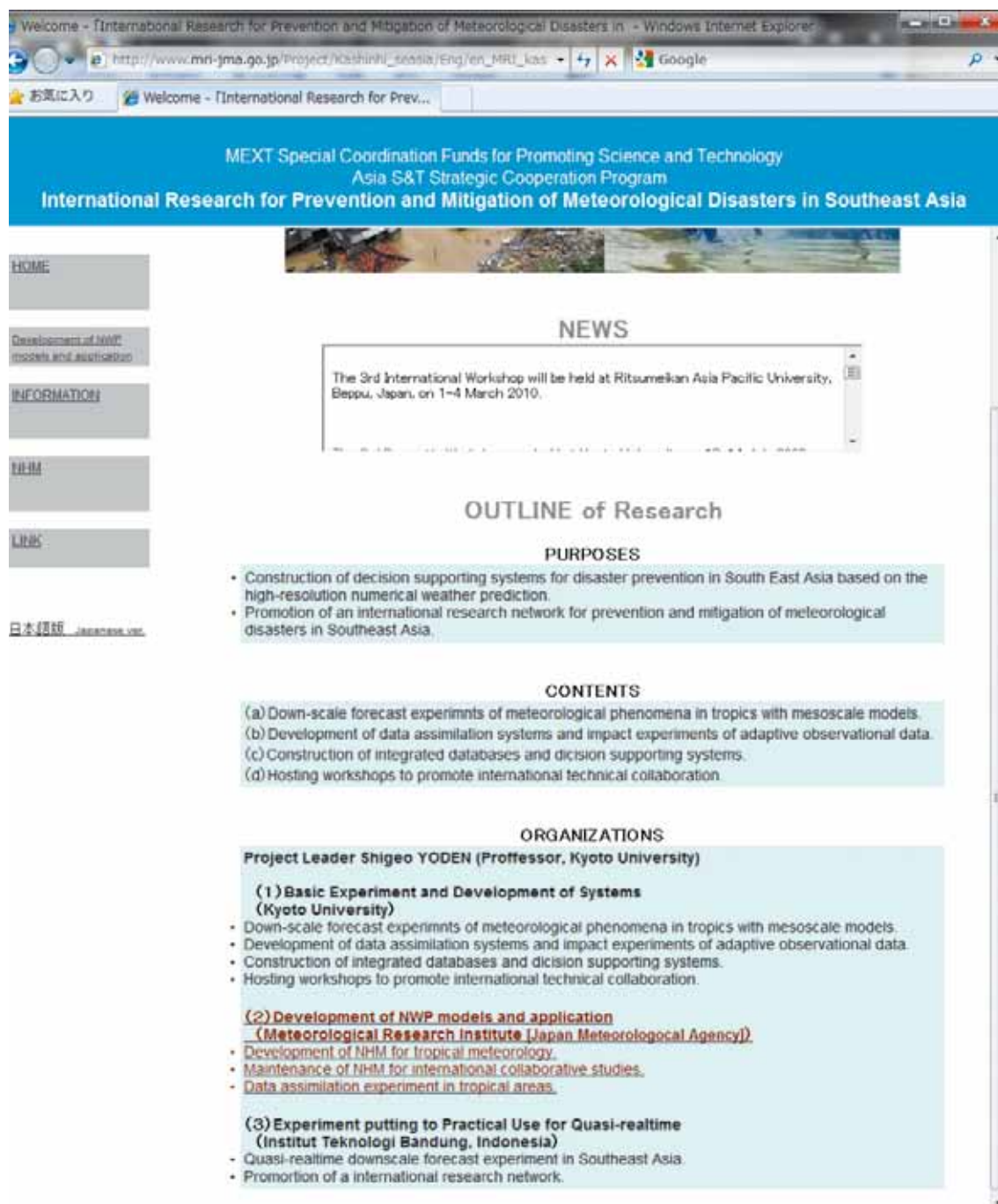


Fig. G-5-1. Top page of the web site of the project at MRI.
(http://www.mri-jma.go.jp/Project/Kashinhi_seasia/Eng/en_MRI_kashinhi.htm)

¹ K. Saito and T. Kuroda

On the pages of information, meeting programs, JMANHM information, and links are provided (Fig. G-5-2). The contents of JMANHM information include NHM user's guide (tutorials on NHM), a sample letter to ask for the permission to use NHM, publications and links to JRA25 and to Ruby-NusDaS (Fig. G-3-2).

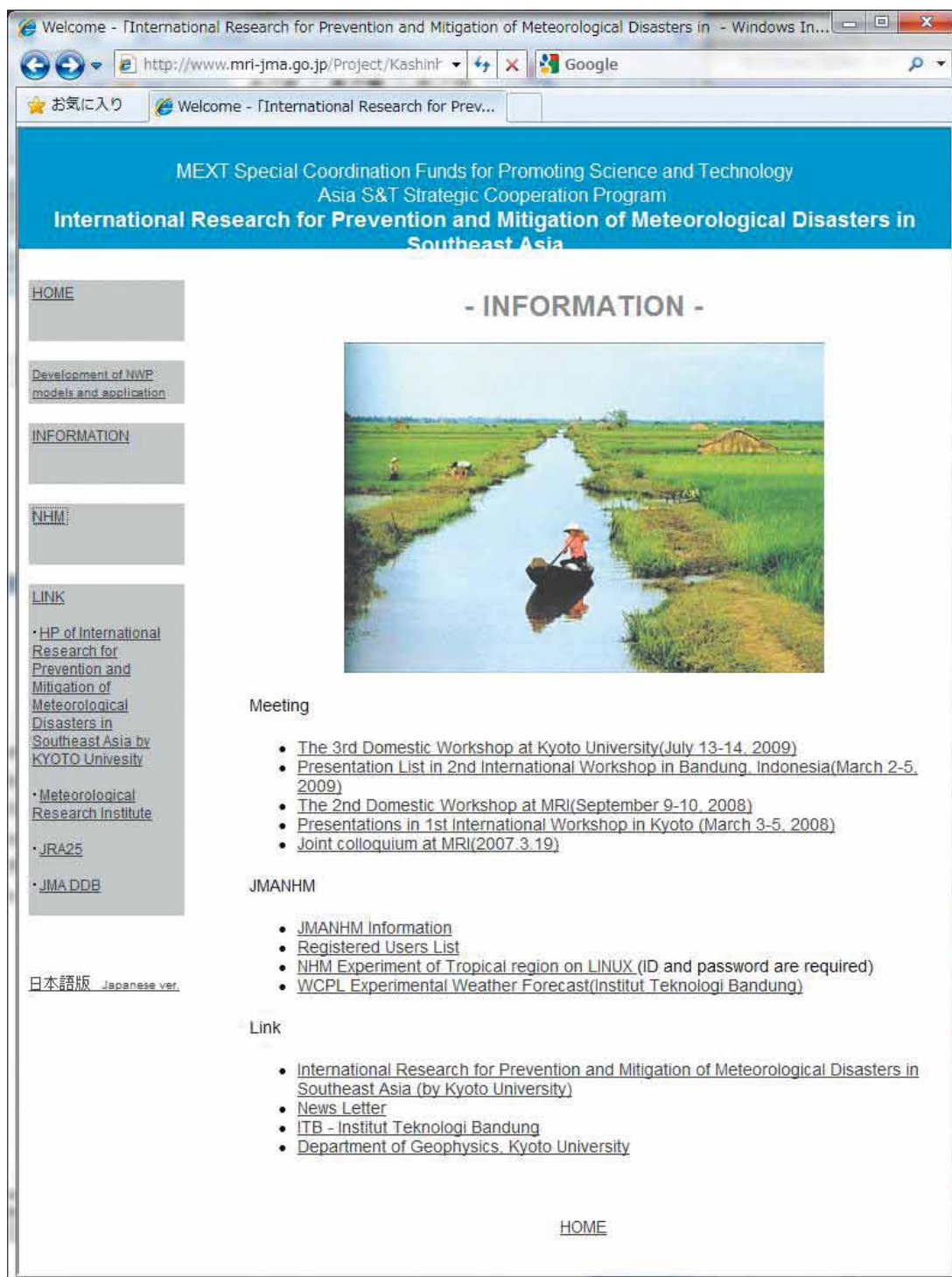


Fig. G-5-2. Information page.

(http://www.mri-jma.go.jp/Project/Kashinhi_seasia/Eng/en_MRI_kashinhi.htm)