

A. Preface

This technical report describes activities by the Meteorological Research Institute (MRI) for the research project “International Research for Prevention and Mitigation of Meteorological Disasters in Southeast Asia”, conducted in cooperation with Kyoto University and research institutions in Southeast Asia. This project was proposed by Professor Shigeo Yoden of Kyoto University, and was endorsed in 2007 by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) as one of the research projects in the Asia S & T Strategic Cooperation Program, supported by the Special Coordination Funds for Promoting Science and Technology from fiscal years 2007 to 2009. The main purposes of the project were to strengthen collaboration in atmospheric science research in Southeast Asia and to show the feasibility of disaster mitigation by numerical weather prediction (NWP) through development of a unified data base and a decision support system.

As described in Section B-1, the three main participants of this project were Kyoto University, MRI, and Institut Teknologi Bandung (ITB) in Indonesia. MRI also collaborated with Nanyang Technological University (NTU) of Singapore, Vietnam National University of Hanoi (VNU), the Council of Scientific & Industrial Research Centre for Mathematical Modelling and Computer Simulation (CSIR C-MMACS) of India, and the Hong Kong Observatory (HKO). As a major participating institution in Japan, MRI conducted operational model development, described in Section B-2.

We thank many people for their help in making possible our participation in the project. In particular, we are grateful to Dr. T. Nishigaki and Mr. S. Ogawa of Japan Science and Technology Agency (JST), whose help was indispensable. We appreciate Ms. F. Furutani of Kyoto University for her assistance in the project and preparation of manuscripts for this technical report. We also thank Associate Prof. T. Hadi of ITB, and Prof. T. Awaji, Prof. T. Tsuda, Prof. T. Satomura, Prof. H. Ishikawa and Associate Prof. T. Takemi of Kyoto University for their suggestions and help throughout this research project. Mr. N. Kohno contributed to the storm surge simulations described in Sections D-1, D-3, and D-8. We also thank coauthors, Mr. K. Bessho and Mr. Y. Honda of JMA, Dr. T. Nakazawa of the World Meteorological Organization (WMO), and Mr. K. Sawada of the Meteorological College for Section D-8, Mr. S.T. Lai of HKO and Mr. S. Sumdin of the Thai Meteorological Department for Section D-9, Dr. P. Goswami of CSIR for Section C-9, and Dr. C.-K. Teo of NTU for Section E-1. We extend thanks to Ms. M. Murazaki, Dr. T. Tsuyuki and Dr. Y. Yamada of MRI, and Dr. C.F. Lo of NTU, for their review comments on the manuscript.

This report describes only a part of the activities relating to MRI’s participation in this research project. A review paper on the project has been published in *Tenki*, the Bulletin of the Meteorological Society of Japan (Yoden et al., 2008), and a detailed achievement report in Japanese on the activities of the project has been uploaded on the JST website (see Section I-3).

The report is organized as follows. Section B presents an overview of the project. Section C reports downscaling numerical experiments in Southeast Asia and verifications. Section D presents numerical experiments for tropical cyclones, including forecast/data assimilation experiments for cyclone Nargis, which hit southern Myanmar in May 2008. Section E covers observations and NWP in Southeast Asia. Section F presents the experimental development of a decision support system for prevention and mitigation of meteorological disasters based on ensemble NWP data. Section G

discusses the international partnerships in the project. Section I, the appendix, includes newsletters, users' guide to the decision support tool, and links to related published papers.

Sections B-1, G-1 and G-2-1 were written mainly by Yoden; Sections D-1 and D-2 by Kuroda; Sections C-1, C-2 and E-3 by Hayashi; Sections C-3 and C4 by Seko; Section D-4 by Kunii; Section D-5 by Shoji; Sections D-6 and D-7 by Ueno; Section D-8 by Kawabata; Sections D-9 and E-2 by Wong; Sections F-1, G-3 and I-2 by Otsuka; Section C-5 by Koseki; Section C-6 by Duc and Xin; Section C-7 by Trilaksono; Section C-8 by Gouda; and Section E-1 by Koh. Other sections were written mainly by Saito.