

Working Group on Tropical Meteorology Research (WGTMR) Monsoon Panel Report (Draft)

WWRP JSC February 2011

1. Publications

A meeting report of the Fourth WMO International Workshop on Monsoons (IWM-IV) held in Beijing October 20-25, 2008 was submitted to Bulletin of American Meteorological Society in 2009. The report, entitled "*BRIDGING WEATHER AND CLIMATE IN RESEARCH AND FORECASTS OF THE GLOBAL MONSOON SYSTEM*", was accepted for publication in May 2010 and will be published by BAMS in February 2010. The preprint is attached (Appendix A).

Editing of the book, "*The Global Monsoon System: Research and Forecast, 2nd Edition*", was completed in November 2010. This book of 34 invited chapters in 560 pages by leading scientists around the world was based on the discussions of monsoon research and forecasting topics at IWM-IV and the subsequent peer review and revision process. It represents a complete rewriting of the first edition published in March 2005 (WMO Technical Document 1266). The book will be published in March 2011 as Vol. 5 of the World Scientific Series on Asia-Pacific Weather and Climate (WSS-APWC). The Table of Contents (Appendix B) and the Foreword by WMO Secretary General (Appendix C) are attached

The Monsoon Panel has arranged to continue its working relationship with the World Scientific Publishing Company and reorganized the WSS-APWC Editorial Board. In cooperation with the Tropical Cyclone Panel, the book series just published Vol. 4, "*Global Perspectives on Tropical Cyclones: From Science to Mitigation*", which is based on IWTC-VI. WSPC has entered into agreements with WMO to make both Vol. 4 and Vol. 5 available to NMHSs in the tropical and monsoon regions through WMO channels.

2. Monsoon Data Centers

In September 2009 the WWRP JSC approved three proposals to establish monsoon data centers to facilitate the archiving and exchange of field observational data and special data for monitoring extreme events. They are Center for Monsoon Field Campaign Legacy Data Sets (Colorado State University, USA); Monsoon Radar Meteorology Data Information Center (Nagoya University, Japan); and Center for Extreme Events Monitoring in Asia (EAMAC/Beijing Climate Center, CMA, China). The USA and the China Centers have been established, and the reports from them are attached (Appendixes D and E, respectively). The establishment of the Japan Center was interrupted due to an unexpected technical staff resignation, but Professor Hiroshi Uyeda has just indicated that recruitment and hiring of a new staff is well underway and he expects the effort to establish the center will be revived soon.

3. Meetings and Plans of Monsoon Rainfall RDP and IWM-V

The Monsoon Panel held a meeting during the Third WMO QPE/QPF and Hydrology Meeting in Nanjing, October 2010, to discuss a proposed initiative as a WWRP RDP to study the heavy

rainfall system in southern China during the East Asian summer monsoon by China Meteorological Administration. The southern China summer heavy rainfall is a major component of the Meiyu-Beiu-Changma rainfall system that affects a large part of Southeast and East Asia including Indochina Peninsula, southern and eastern China, Korea and Japan, and the adjacent oceanic regions. The rainfall system often causes severe floods with major life and property losses. It was decided that the 2011 heavy monsoon rainfall workshop and associated training, originally scheduled for Busan, Korea, will be moved to Beijing in the summer or fall 2011 and hosted by CMA in order for international experts to discuss a CMA draft proposal. It is expected that this workshop will help finalize the CMA proposal before submission to the WWRP JSC. Monsoon rainfall experts from several regions, including Japan, Korea and U.S., have expressed strong interest in participation.

The next IWM, IWM-V, is scheduled to take place in late 2012. This series of quadrennial workshops has been the keystone activity of the Monsoon Panel and has developed into the most important forum where monsoon researchers and NMHS forecasters discuss topics of common interest and directions of future research that can improve forecasting. The Malaysian Meteorology Department has expressed an interest to host the workshop, subject to the approval by the Government of Malaysia.

Appendix A

BRIDGING WEATHER AND CLIMATE IN RESEARCH AND FORECASTS OF THE GLOBAL MONSOON SYSTEM

Bulletin of American Meteorological Society, February 2011

(pdf file attached)

Appendix B

THE GLOBAL MONSOON SYSTEM: RESEARCH AND FORECAST, 2nd Edition
World Scientific Series on Asia-Pacific Weather and Climate, Vol. 5

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FOREWORD

(M. Jarraud)

Secretary-General
World Meteorological Organization

Status Report

Center for Monsoon Field Campaign Legacy Data Sets

December 2010

Director and PI: Richard H. Johnson

Project Scientist: Paul E. Ciesielski

In 2009, the Department of Atmospheric Science at Colorado State University established a Center for Monsoon Field Campaign Legacy Data Sets as a WWRP Project. The website for this project is at http://johnson.atmos.colostate.edu/wwrp_monsoon/. At present, the following field campaigns are included on this website: ATEX, BOMEX, GATE, WMONEX, ASTEX, TOGA COARE, SCSMEX, SALLJEX, NAME, NAMMA, and TIMREX. The primary products on this website are raw and plotted sounding data, as well as analyses derived from the soundings themselves.

The upper-air sounding datasets for TOGA COARE, SCSMEX, NAME and TIMREX have undergone numerous checks and corrections to enhance their quality. Corrected data for TIMREX will soon be added to the website (Ciesielski et al 2010).

Currently, some of the sounding data for several of the monsoon-related experiments in the list are missing or incomplete. We intend to fill in missing data as we obtain it in connection with an ongoing joint project between CSU and NCAR EOL (Co-PI: Steve Williams) to recover sounding data from past field programs, which is being funded in the United States by NSF and NOAA. We are also working with NOAA's NCDC to locate, inventory, and rescue some of the historical data sets.

Although we do not have exact numbers, there are numerous inquiries and requests for the sounding data listed on this website. Most requests are probably for TOGA COARE data, although many investigators are also interested in accessing SCSMEX, NAME, and TIMREX sounding data.

During the coming months, we intend to add data for another monsoon experiment – the 2006 AMMA over West Africa. Efforts are still underway by the European community to correct the humidity data from AMMA, but once we receive the corrected data, we will place it on our website.

Ciesielski, P. E., W.-M. Chang, S.-C. Huang, R. H. Johnson, B. Jong-Dao Jou, W.-C. Lee, P.-H. Lin, C.-H. Liu, and J. Wang, 2010: Quality controlled upper-air sounding dataset for TiMREX/SoWMEX: Development and corrections. *J. Atmos. Ocean. Tech.*, (in press)

Status Report

Center for Extreme Events Monitoring in Asia (CEEMA)

Beijing Climate Center/East Asian Monsoon Activity Center
December 2010

In 2010 the Center for Extreme (Weather and Climate) Events Monitoring in Asia (CEEMA) was established by the East Asian Monsoon Activity Center/Beijing Climate Center as a WWRP-endorsed Project hosted by the China Meteorological Administration. The following progresses have been made:

1. A website for CEEMA has been established

The links are at:

BCC

<http://bcc.cma.gov.cn/en/>

CEEMA:

http://bcc.cma.gov.cn/Website/index.php?ChannelID=28&show_product=1

NEWS on establishment of CEEMA:

<http://bcc.cma.gov.cn/Website/?ChannelID=2&NewsID=877>

2. An initial Objective Identification Technique for Regional Extreme Weather and Climate Events (OITREE) has been developed

A new technique for identifying regional weather and climate extreme events – the Objective Identification Technique for Regional Extreme Events (OITREE) – is a crucial tool for the Center. The initial versions of its two key technologies, partitioning daily affected area and identifying the continuity of the daily affected area for an event, have just been developed. Based on historical daily station data, OITREE can be applied in different types of extreme events within a certain region, identifying not only the area affected by the extreme events, but also the intensity and lasting period of it.

In addition, four single indices - extreme intensity, accumulated intensity, impacted area and lasting period, and an integrated intensity, have also been developed to measure each extreme event.

3. Applications of the technique (OITREE) in China is underway

In 2010 OITREE was applied in a study on China’s drought events. Fig. 1 shows frequency variations of drought events during 1957-2009 and that there exists an obvious increase trend for drought events. Fig. 2 shows the affected area with intensity distribution for the 2009/2010 Southwest China drought. According to the integrated intensity, the 2009/2010 Southwest China drought is the severest drought event in record for Southwest China and the second severest drought event in record for China.

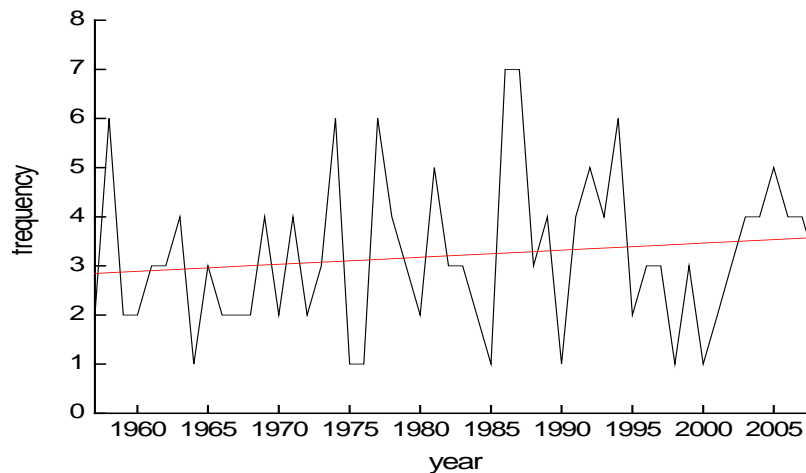


Fig. 1 frequency variations of drought events during 1957-2009 in China

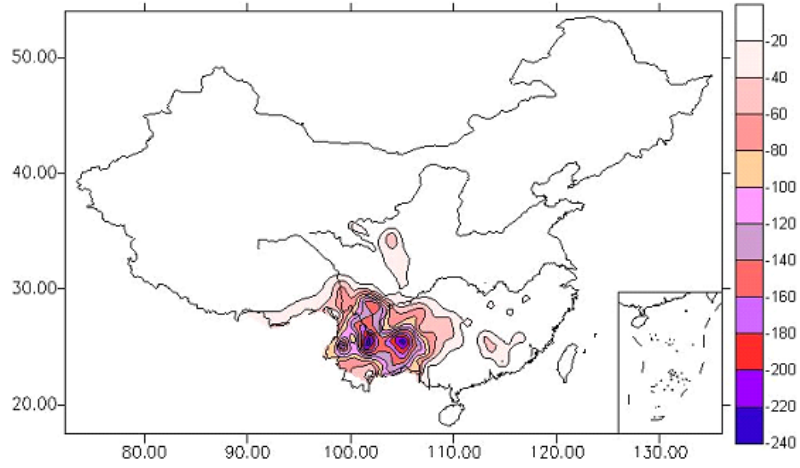


Fig. 2 the affected area with intensity distribution of the 2009/2010 Southwest China drought event

This application of the initial OITREE is now extended to the studies of heavy-rainfall, heat-wave, and cold-wave events. We will continue to refine the techniques as the results of these applications in China are evaluated, and eventually a relatively mature OITREE will be used for research and operational applications to monitor and assess the extreme events in Asia.