

## **Ming-Dean Cheng**

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**Ming-Dean Cheng** became the Director of the Weather Forecast Center (WFC) of CWB on November 2, 2009 after serving as the Director of the Research and Development (R&D) Center of CWB since October 1, 1993. The WFC is responsible for the daily operational weather forecasts in Taiwan, while the R&D Center conducted a couple of research projects focusing on typhoon-track prediction and heavy rainfall weather systems. The R&D Center also offers the administrative supports of CWB for all aspects of its research projects, annual conference, Journal publication, and on-job training programs, etc.



Dr. Cheng received his undergraduate education at the National Taiwan university. He attended the graduate school at UCLA in 1982 and later obtained his Ph.D. degree on Atmospheric Sciences on the Fall of 1987 under the supervision of Professor Yanai. He worked for Professor Arakawa as a postdoctoral researcher in the same department at UCLA before he joined the Advanced Study Program at the National Center for Atmospheric Research at Boulder, Colorado on the Spring of 1989. His research interest is on the general area of cumulus parameterization for the use in a General Circulation Model especially on the inclusion of convective downdrafts in the Arakawa-Schubert cumulus parameterization. He returned to Taiwan and work for CWB on November, 1991.

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### **Severe Weather Monitoring and Forecasting at the Central Weather Bureau**

Weather forecasts always involve a great deal of uncertainties. Even with modern weather monitoring and forecasting tools, there are always chances that weather forecasters might miss or underestimate the significance of a potentially hazardous weather event. Especially, it usually takes a set of coincidences to make a “perfect storm so that some degree of forecast surprise is almost unavoidable. Therefore, to support the disaster mitigation operation, it is important to have at hand sophisticated real-time extreme weather monitoring system along side with traditional weather forecast systems and an effective and timely information dissemination system. At the Central Weather Bureau (CWB), a QPESUMS (Quantitative Precipitation Estimation and Segregation Using Multiple Sensor) system is developed to provide real-time, high resolution QPE (Quantitative Precipitation Estimate) with auto-warning capability. A set of nowcasting tools is also implemented into QPESUMS to assist forecasters to handle severe weather monitoring and forecasting problems. All information generated by the QPESUMS is disseminated to central and local disaster mitigation offices automatically by dual communication channels.