

Preface to the Special Issue on the “Forecast and Evaluation of Meteorological Disasters” (FEMD)

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Meteorological disasters usually exert huge impacts on the development of both human society and the economy. According to statistics from the United Nations International Strategy for Disaster Reduction, the annual mean economic loss caused by meteorological disasters accounts for 3%–6% of the total amount of global GDP. China is a country that has been one of the most severely influenced by natural disasters, and more than 70% of natural disasters in China are mainly caused by a variety of meteorological disasters. Meteorological disasters in China happen over an extensive area, and are usually characterized by high frequency and long duration. The frequent occurrence of meteorological disasters raises the threat to peoples’ lives and properties even further, as well as the development of society and the economy. Accompanied by the global warming of the climate in recent times, the frequency of meteorological disasters has increased evidently and caused even more severe social and economic losses. For this reason, the monitoring, early warning, forecasting and risk assessment of such meteorological phenomena are in urgent demand. Developments in these areas will help mitigate and perhaps even prevent particular meteorological disasters from happening, at both national and regional levels. Such efforts are closely relevant to the state of the national economy and the protection of people’s livelihoods, as well as food security, ecological services and socioeconomic sustainability.

In recent years, Chinese scientists have paid increasing amounts of attention to the key scientific issues related to meteorological disasters and, as such, have made great progress. In 2012, Nanjing University of Information Science and Technology sponsored and established the Collaborative Innovation Center on the Forecast and Evaluation of Meteorological Disasters (CIC-FEMD) through collaboration with the Institute of Atmospheric Physics/Chinese Academy of Sciences, the National Meteorological Center, National Climate Centers and other institutes. CIC-FEMD aims to resolve some of the key issues related to the mechanisms and physical processes underpinning anomalous monsoonal and major meteorological/climatic extremes, sub-seasonal and seasonal climate prediction, the monitoring and forecasting of meteorological disasters, climate change and risk assessment, as well as theories and methodologies in the climate field, through joint research. This special issue of *Advances in Atmospheric Sciences* (AAS) publishes just some of the innovative research findings of CIC-FEMD. Needless to say, there have been so many more achievements, but regrettably we could not publish them all because of space limitations.

Moreover, we firmly believe that there will be even more breakthroughs in the future acquired through the efforts of CIC-FEMD and the scientific community beyond. We appreciate the work of both domestic and international colleagues and their long-term support of AAS, and indeed all of the editors and reviewers for their commitment to helping with the publication process.