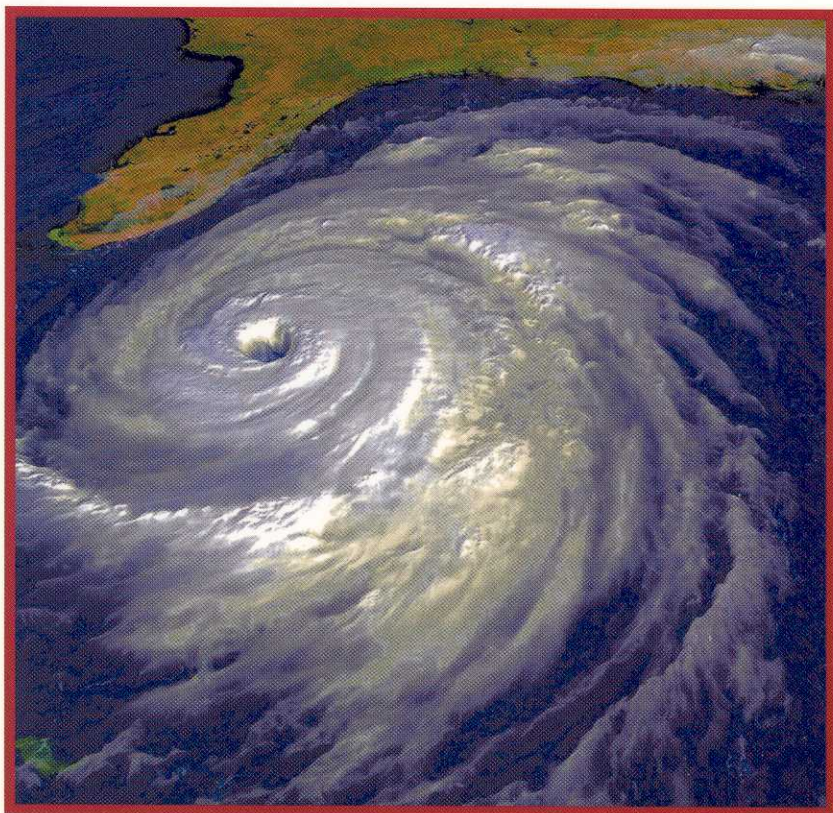


# HURRICANE!



## **Coping with Disaster**

**Robert Simpson**  
*Editor*

# Foreword

On average, 80 tropical cyclones occur around the globe every year. While most spend their entire existence over the open ocean, a few make landfall, often causing considerable damage and loss of life. In 1998, Hurricane Mitch caused the loss of over 10,000 lives in Central America. While the United States is better prepared to cope with such natural disasters, they continue to pose one of the most serious threats to our society, particularly as population growth escalates along U. S. coastal areas.

This book discusses the astonishing achievements made during the 20th Century in improving our understanding and ability to monitor and predict these storms. The Editors of the Volume have pioneered many of these accomplishments, and are the most appropriate individuals to assemble the collection of chapters that appear here. Rick Anthes is universally recognized for his seminal tropical cyclone and regional numerical modeling developments, while Mike Garstang is internationally known for his pioneering observational studies of tropical weather systems. During his tenure as Director of the National Hurricane Center, Bob Simpson was responsible for implementing the latest models and observational concepts for tracking and predicting hurricanes and tropical storms. His adoption of new understanding and new technologies in this role has contributed significantly to the reduction in loss of life in the Western Hemisphere during the late 20th Century. The chapter authors selected by the Editors reflect continual advancement in our ability to cope with hurricanes. Most of the authors are world-renowned authorities on hurricanes. Bill Gray's innovative seasonal hurricane forecasts receive wide media distribution each year, while his observational analyses of tropical cyclones have provided a fundamental scientific basis for progress in understanding during the late 20th Century. As he reports in his chapter, worldwide tropical cyclones caused three times as much damage as earthquakes, and resulted in about one and a half times more deaths than earthquakes, in the years 1953-1992. The loss of life would be even greater, however, if it were not for the operational tropical cyclone forecast centers around the world. Bob Sheets and Neil Frank served as Directors of the National Hurricane Center and continue to apply their experience and dedication to this life-saving profession.

Mark DeMaria, Hugh Willoughby, Kerry Emanuel, and Jim Gross are extending hurricane modeling of track and intensity change. Chris Velden, Greg Tyrrell, Greg Holland, Dave Emmitt, Elizabeth Ritchie and their colleagues are advancing the ability to monitor hurricanes with a variety of on-site and remote sensing technologies. These tools are essential for improvements in monitoring these storms, and as initial value data for numerical models.



The transfer of improved scientific understanding as well as technological advancements for the benefit of society is exemplified by the studies of Mary Frances Myers, Gilbert White, Herbert Saffir, and Roger Pielke, Jr. We need this capability for guidance of the public, as well as emergency managers and engineers. Herbert Saffir, for example, worked with Bob Simpson to create the widely respected Saffir/Simpson Scale that describes hurricane damage potential. This scale provides a numerical damage potential associated with tropical cyclones, which can be used in both warnings and in the design of structures in coastal regions exposed to these storms. Joanne Simpson, who is one of the outstanding scientists of the 20th Century, contributes her extensive knowledge of hurricanes to this Volume. Her work encompasses a broad spectrum, including both observational and modeling studies. Ed Rappaport uses extensive knowledge of the history of hurricane research and applications to educate the reader on the role of this work in the broad societal context of the last 100 years. During this period, society experienced the advantages of such new technologies as reconnaissance aircraft, radar, and satellites - tools adapted within the atmospheric science community to vastly improve the monitoring and prediction of hurricanes.

The editorship and authorship of this Volume guarantee that this publication will be a classic throughout the 21st Century.

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