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FLORIDA HURRICANES AND TROPICAL STORMS

1871-1993: An Historical Survey

Fred Doehring, Iver W. Duedall, and John M. Williams

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Our friend and colleague, Fred Doehring pictured below, died on January 5, 1993, before this manuscript was completed.

Until his death, Fred had spent the last 18 months painstakingly researching data for this book. Fred had a genuine interest in Florida Tech, and in helping students find information on weather.

We thoroughly enjoyed working with Fred and we are hopeful that this book will enhance hurricane awareness for all Florida residents.

We dedicate this book to his family.

Iver W. Duedall
Iver W. Duedall

John M. Williams
John M. Williams



The hurricane as a heat engine, is inefficient, hard to start, and hard to sustain; but once set in motion, once mature, is an awesome natural event!

From birth, the hurricane lives in an environment that constantly tries to kill it..... and ultimately succeeds

Dr. Robert C. Sheets
Director
National Hurricane Center
1990

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Preface

This book presents, by historical periods, a summary of the hurricanes and tropical storms that struck Florida's more than 1200-mile long coastline during the 122 years from 1871 through 1993.

Prior to the publication of this book, the only books or reports exclusively with Florida hurricanes were R.W. Gray's report, revised by Grady Norton in 1949, titled Florida Hurricanes, and a survey by Gordon E. Dunn and staff of the National Hurricane Center (NHC) also titled Florida Hurricanes.

Grady Norton and Gordon Dunn were important figures during the early creation of what is now known as the National Hurricane Center. Grady Norton was considered by many as one of the best hurricane forecasters. After Grady Norton's death in 1954, Gordon Dunn was named director of the NHC. After Gordon Dunn retired, Dr. Robert Simpson became NHC Director. He was followed by Dr. Neil Frank. The current NHC Director is Dr. Robert C. Sheets.

In addition to the report Florida Hurricanes, the very recent 1992 NHC report titled The Deadliest, Costliest, and Most Intense United States Hurricanes of this Century provides invaluable information on both historical and recent hurricanes affecting Florida and the United States.

Our primary goal in preparing this book was to update the historical work as it pertains to Florida, to consolidate and standardize technical terms published at the beginning of each hurricane season on hurricane tracking maps, and to introduce the following new material pertaining to Florida: (1) a detailed historical discussion, (2) a chronological listing of all Florida hurricanes, (3) 13 plates of hurricane and tropical storm tracks grouped into 10-year increments, and (4) a table showing the number of tropical storms and hurricanes by 10-year increments. The book is written on a non-technical level for the general reader who is interested in knowing when and where hurricanes affected Florida and the magnitude of damage inflicted by the storms. Those wishing more technical information on hurricanes can consult the references or contact the NHC directly.

Principal reference documents used in preparing this book, in addition to the ones mentioned above, came from the National Oceanic and Atmospheric Administration (NOAA) publication,

Historical Climatology Series 6-2, Tropical Cyclones of the North Atlantic Ocean, 1871-1986, and U.S. Weather Bureau publications, Climatological Data for Florida 1897-1965.

It should be noted that this book deals primarily with the characteristics of Florida Hurricanes and some eyewitness accounts. Amounts of precipitation associated with Florida hurricanes were not discussed in this book because of their frequent occurrence resulting from other systems such as tropical depressions or non-tropical systems. However, we should point out that precipitation from a hurricane can be very great and can cause major damage and flooding.

While tropical depressions can cause heavy flooding problems and damage, rainfall from tropical depressions is not discussed. Also, tropical waves and depressions are not named either.

We should mention that some of the direct quotes we use make reference to the earlier used term "Great Hurricane" and "Major Hurricane". The reader is referred to the glossary and tables for a detailed explanation of all terms, including the Saffir-Simpson Scale now in use to categorize hurricanes. In some instances, we have made inserts, indicated by [...], into quotations to provide clarification. The [...] notation was also used to provide an estimate of the damage in dollars, adjusted to 1990.

We are especially thankful to the reviewers of the original manuscript who pointed out several deficiencies and errors in the first writing and who provided important suggestions leading to an improved and accurate final manuscript and to friends, colleagues, assistants, and organizations whose help we could not have done without. Specifically, we thank Bill Mahan who encouraged us to prepare this book, Annette Bernard, Ann Bergonzoni, Derrick Doehring, Rosary Pedreira, Arnold Samreth, and Huan Feng for manuscript preparation, to Henry (Hank) Brandli for graciously providing us with his satellite images of Florida Hurricanes, to Rob Downey for the color photograph of Hurricane Andrew, to Anita Bromberg and John Reposo who assisted in the preparation of the plates showing the hurricane tracks, Victoria (Tori) Smith and Jeanette C. Sparks of the Florida Tech Evans Library for searching historical documents, to the Melbourne Office of the National Weather Service for providing the Doppler radar image of Hurricane Andrew, to Florida Sea Grant College who provided financial assistance to complete this work and to Jay Humphreys who read the

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