

The Atlantic Hurricane Re-analysis Project:  
Results for the first 60 years - 1851 to 1910

By

Christopher W. Landsea \*  
Craig Anderson \*\*  
Noel Charles \*\*\*  
Gilbert Clark \*\*\*  
Jason Dunion \*  
Paul Hungerford \*\*\*  
Charlie Neumann \*\*\*\*  
Mark Zimmer \*\*\*  
Jose Fernandez-Partagas \*\*\*\*\*

\* NOAA/AOML/Hurricane Research Division, Miami, Florida  
\*\* NOAA/Climate Diagnostics Center, Boulder, Colorado  
\*\*\* Florida International University, Miami, Florida  
\*\*\*\* SAIC, Miami, Florida  
\*\*\*\*\* Deceased

This presentation reports on the results on the first 60 years of the re-analysis of the North Atlantic hurricane database (or HURDAT). The original database of six-hourly positions and intensities were put together in the 1960s in support of the Apollo space program to help provide statistical track forecast guidance. In the intervening years, this database - which is now freely and easily accessible on the Internet from the National Hurricane Center's (NHC's) Webpage - has been utilized for a wide variety of uses: climatic change studies, seasonal forecasting, risk assessment for county emergency managers, analysis of potential losses for insurance and business interests, intensity forecasting techniques and verification of official and various model predictions of track and intensity. Unfortunately, HURDAT was not designed with all of these uses in mind when it was first put together and not all of them may be appropriate given its original motivation.

One limitation of HURDAT is that there are numerous systematic as well as some random errors in the database which need correction. Additionally, analysis techniques have changed over the years at NHC as our understanding of tropical cyclones has developed, leading to biases in the historical database that have not been addressed. Another difficulty in applying the hurricane database to studies concerned with landfalling events is the lack exact location, time and intensity at hurricane landfall. Finally, recent efforts into uncovering undocumented historical hurricanes in the late 1800s and early 1900s led by Jose Fernandez-Partagas have greatly increased our knowledge of these past events, which have not yet been incorporated into the HURDAT database.

Because of all of these issues, a re-analysis of the Atlantic hurricane database has been completed that extends the digital record back to 1851 and revises the hurricane database up through 1910. Currently, work is underway to re-analyze the years from 1911 through the recent era. Results thus far emphasize that the multidecadal nature of the Atlantic hurricane has been a prominent feature for at least the last 150 years.