

= Atlantic hurricane reanalysis project =

The Atlantic hurricane reanalysis project of the National Oceanic and Atmospheric Administration seeks to correct and add new information about past North Atlantic hurricanes . It was started around 2000 to update HURDAT , the official hurricane database for the Atlantic Basin , which has become outdated since its creation due to various systematic errors introduced into the database over time . This effort has involved reanalyses of ship observations from the International Comprehensive Ocean @-@ Atmosphere Data Set (ICOADS) as well as reanalyses done by other researchers over the years . It has been ongoing for fourteen years now , and should last another four years .

= Inaccuracies and omissions in existing data =

= = Errors = =

HURDAT contains a number of errors which need to be corrected , such demonstrated by the outliers in the a pressure vs. wind speed graph of datapoints in the database (right) . Some of these errors have existed since the database 's creation during NASA 's Apollo Program , where it was used to help produce probabilities of tropical cyclone @-@ induced winds in critical areas such as Cape Kennedy (now Cape Canaveral) .

= = New information = =

A significant amount of new data for systems between 1851 and 1886 became available after a major basin @-@ wide reanalysis in 1996 , a project led by Jose Fernandez @-@ Paratagas with the collaboration of Henry Diaz . The new data was constructed using old newspaper articles and the hemispheric weather map series . Hurricane histories for individual states had been constructed by the 1990s as well , which proposed new storms and increased the knowledge of tropical cyclones already in the database . Due to this profusion of relevant information not included in HURDAT , and evolving definitions for tropical and subtropical cyclones over the decades , the project was started around 2000 to update the official database . Since then , the International Comprehensive Ocean @-@ Atmosphere Data Set has been utilized to check for older ship reports which were either not utilized nor available to previous researchers .

= = Incompleteness of dataset = =

As early as 1957 , it was recognized that an increasing trend in the number of tropical cyclones each season in the Atlantic Basin was at least partially tied to increasing observations and better records . By analyzing the density of ship tracks over time , it has been estimated that between 1900 and 1966 , an average of two storms per year are missing from HURDAT . This is mainly due to a lack of satellite imagery and lack of reconnaissance aircraft prior to 1943 . An additional storm per year is likely missing prior to the advent of new technologies . These technologies include satellite @-@ derived Quikscat winds , satellite @-@ derived temperature profile information , and Robert Hart 's cyclone phase space diagrams , which have led to a recent increase in tropical cyclone detection . Quikscat was launched in 1999 , and has been credited with allowing Chantal to be named during the 2007 Atlantic hurricane season . The last two help determine whether or not a low pressure area is an extratropical cyclone , subtropical cyclone , or tropical cyclone .

Christopher Landsea noted that the efforts to reanalyze the Atlantic hurricane database will not be able to recover observations of open ocean tropical cyclones that were just never taken . Researchers cannot assume that the Atlantic tropical cyclone database presents a complete depiction of frequency of events before the advent of satellite imagery in the mid @-@ 1960s . Moreover , newly available advanced tools and techniques are also contributing toward monitoring

about one additional Atlantic tropical cyclone per year since 2002 . Thus large , long @-@ term ' trends ' in tropical cyclone frequency are primarily manifestations of increased monitoring capabilities and likely not related to any real change in the climate in which they develop .

= = Progress = =

The project has currently reanalyzed storms from the period 1886 to 1955 , and has extended HURDAT back to 1851 . In 2001 , data for the years 1851 ? 1885 were added to the official database from the Fernández @-@ Partagás series of publications . Also , a paleotempestology conference was held at the University of South Carolina which proposed to increase the scope of HURDAT from a starting year of 1851 to a start of 1800 . The conference also discussed ways of exchanging information for the inclusion of older tropical cyclones , such as via compact disc or a Wikipedia @-@ style website . While the reanalysis has mostly proceeded sequentially , notable exceptions have been made for the reanalysis of some significant tropical cyclones . In 2002 , for the tenth anniversary of Hurricane Andrew , the reanalysis was completed for the hurricane , which upgraded the cyclone to a Category 5 hurricane . In 2014 , a similar reanalysis was completed for Hurricane Camille .

Work by Michael Chenoweth , in collaboration with Cary Mock , increased knowledge of tropical cyclones in the Caribbean Sea for 1750 to 1786 . Chenoweth conducted a basin @-@ wide reassessment for old source material from the 1700 to 1855 period by using surface weather observations mainly in the form of ship reports , newspapers , and various diaries and journals from the region around the Caribbean Sea .

= = = Future efforts in other basins = = =

There is agreement within tropical cyclone circles of doing an " Atlantic @-@ style " reanalysis for other ocean basins . Some efforts are underway to start similar reanalyses across the western and eastern north Pacific Ocean , but are likely to take longer to complete . This is due to the need for coordination between the multiple Regional Specialized Meteorological Centres , which have the responsibility for tracking and forecasting tropical cyclones across that ocean . These tropical cyclone reanalyses are important , as theories concerning climate change and tropical cyclone trends hinge upon the quality of these databases .

= = = World Wide Web = = =

= = = Books = = =

Michael Chenoweth . The 18th Century Climate of Jamaica . American Philosophical Society : Philadelphia , 2003 .