

Introduction to Texas Hurricanes

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The table below lists information about 15 hurricanes or tropical storms which struck the Texas coast during the 20th century. Data comes from G. Bomar (1995) Texas Weather, University of Texas Press. By plotting this information in scatter diagrams and analyzing the results, you should be able to make some basic conclusions about past Texas hurricanes and predict the impact of the ones which will strike the coast in the future. Diagrams may be plotted on graph paper or through an Excel spreadsheet.

1. Graph wind velocity and barometric pressure.
 - a. Is there a correlation between the two variables, or does this resulting a random scatter?
 - b. What is the relationship between barometric pressure and wind velocity?
 - c. Which variable is the causative agent?
2. Graph wind velocity and number of deaths.
 - a. How does this plot compare to the first one?
 - b. Is there a correlation between wind speed and the number of resulting deaths?
3. Make another graph with the data used in #2, but omit the 1900 hurricane which had 6000 deaths.
 - a. How does this change the scatter pattern?
 - b. Is there now a correlation indicated between wind velocity and deaths?
 - c. How strong a correlation is this relationship?
 - d. What other factors might account for low vs. high mortality caused by the landfall of a hurricane?
4. Graph barometric pressure and deaths, omitting the 1900 hurricane.
 - a. Is there a correlation indicated on this scatter diagram?

Summarize your conclusions:

What is the relationship between wind velocity and barometric pressure? One might predict that the stronger the storm, the more fatalities will result. Does your data support this prediction? The 1900 Galveston hurricane caused at least 6000 deaths, but winds of only 125 mph were recorded. What other factors might explain such massive destruction? How might this data be faulty?

Name/Date	Max Wind	Bar. Press. (mb)	Deaths
1900	125	936	6000
1915	120	950	275
1919	120	948	284
Audrey/1957	100	958	9
Debra/1959	80	984	0
Carla/1961	150	931	34
Cindy/1963	60	996	3
Beulah/1967	140	948	15
Celia/1970	130	941	11
Fern/1971	78	983	2
Allen/1980	115	945	2
Alicia/1983	115	962	18
Bonnie/1986	87	990	3
Chantal/1989	80	986	3
Jerry/1989	75	983	3