

Bacon, J. and Gross, D.J. (2018, September 13) "Hurricane Florence's force begins battering North Carolina; 'life threatening conditions" *USA Today*.

Link

<https://www.usatoday.com/story/news/nation/2018/09/13/hurricane-florence-nears-coast-life-threatening-situation/1287785002/>

## Part A. Tenant of the Nature of Science

### **Scientific Investigations use a Variety of Methods.**

A variety of tools and methods are used in the article to make measurements and observations on the track of the storm, the wind forces and the projected impact time. (The National Hurricane Center, Accuweather hurricane expert Dan Kottlowski, U.S. weather monitoring station.) Additional sources are cited on how to prepare for the storm or potential dangers and the impact to the area. (Federal Emergency Agency (FEMA) administrator Brock Long, FEMA associate director Jeff Byard, South Carolina Gov Henry McMaster Duke Energy, Myrtle Beach Mayor Brenda Bethume, President Donald Trump, and North Carolina Gov. Roy Cooper.) Personal observations are included from civilians - one who experienced Hurricane Matthew two years ago - Ray Stickley, another who wanted to experience a hurricane - Barry Freed, and an elderly couple who did not want to evacuate - Don and Lydia Stauder.

### **Scientific knowledge is based on Empirical Evidence.**

The article contains the following empirical evidence allowing one to develop a pattern and relationship between wind gusts, location and impact of storm.

Sustained winds from hurricane Florence, decreased from 140 mph to 105 mph on Thursday (Sept 13) and are hitting the North Carolina coast with 75+ mph winds. The hurricane has not made landfall yet.

The U.S. Weather monitoring station reported wind gusts of up to 97 mph at Cape Lookout, North Carolina, and 99 mph at Fort Macon, North Carolina.

The storm was about 100 miles east-southeast of Wilmington, North Carolina and 155 miles east of Myrtle Beach, South Carolina as of 5 pm EDT.

The strength, track and forward speed of Florence will determine the scope and amount of rainfall and severity of inland flooding.

### **Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena.**

The article includes a map which models the path, location, projected time and wind gusts (Category) of hurricane Florence when it hits areas in the Carolina region.

It also makes references to cause and effect relationships:

The tract, strength and speed of the hurricane will determine scope and amount of rainfall and severity of inland flooding.

Rain (up to 40 inches) and 13 feet storm surges will cause flash and river flooding.

Up to 7 inches of rain in the northwestern mountain could cause landslides and dangerous conditions.

Lingering storm - winds - will lead to downed trees and power lines.

## Part B. Common Core Practices

### **M1 Make Sense of the Problem and Persevere in solving them.**

The article includes the following information to help analyze givens, constraints, and relationships.

Hurricane -force winds from hurricane Florence hitting the North Carolina coast on Thursday (Sept 13) Torrential rain, inland flooding and storm surges headed toward the mainland.

Hurricane force (75+ mph) winds already battering North Carolina Coast (8pm, Sept 13) and not expected to hit landfall until morning (Sept 14).

Strength, tract and force of Florence will determine the scope, amount of rainfall and severity of flooding.

Storm surges beat the rain in some North Carolina areas causing flooding.

Up to 7 inches of rain in the northwestern mountains could mean landslides and dangerous conditions.

13 feet storm surges - "life threatening" and up to 40 inches of rainfall "catastrophic"

### **MP3 Construct Viable arguments and critique the reasoning of others.**

The following statements in the article allow you to track the storm and wind gusts. Allowing you to analyze the situation - to determine location and speed of hurricane and wind gusts associated with it at various points along its path and to critique the reasoning of the information being reported.

Location -The storm was about 100 miles east-southeast of Wilmington, North Carolina and 155 miles

east of Myrtle Beach, South Carolina as of 5 pm EDT. It is expected to make landfall in the morning.

Wind - Sustained winds, decreased from 140 mph to 105 mph on Thursday (Sept 13).

Hurricane force (75+ mph) winds battering the North Carolina Coast (8pm, Sept 13) and the

hurricane is not expected to hit landfall until morning (Sept 14)

Wind gusts of up to 97 mph were reported at Cape Lookout, North Carolina, and 99 mph at

Fort Macon, North Carolina.

Size - Hurricane- force winds extended almost 80 miles from the center at 5pm (Sept 13).

#### **MP4- Model with mathematics**

The article includes a map which projects the path of hurricane Florence, and category of the storm based on the wind gusts which are indicated along segments of the map and includes a projected time of impact.