



AMERICAN
LITERATURE

Hurricane warning!

from the Esri Geolnquiries™ collection for American Literature

Target audience – American literature learners

Time required – 15 minutes

Activity	Explore the geographic context of <i>Isaac's Storm</i> by Erik Larson and <i>Their Eyes Were Watching God</i> by Zora Neale Hurston.
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English Standards	<p>CCSS: ELA-LITERACY.RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.</p> <p>CCSS: ELA-LITERACY.RI.9-10.2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</p> <p>CCSS: ELA-LITERACY.RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences drawn from the text.</p>
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Learning Outcomes	<ul style="list-style-type: none">Students will be able to describe the usual course of Atlantic hurricanes.Students will be able to identify key risk factors that contribute to large-scale devastation from tropical storms.
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Map URL: <http://esriurl.com/litGeolnquiry6>

Ask

Where are Atlantic hurricanes born?

- Click the link above to launch the map.
- With the Details button depressed, click the button, Legend.
- Click the Bookmarks button and choose Global Hurricane Trends.
- ? What is the continent nearest the birthplace of hurricanes? [*Africa*]
- To answer the following questions, use the legend for layer, Average Sea Surface Temperature.
- ? What is the temperature of the sea surface where hurricanes are born? [*28°C–29°C*]
- ? What is the relationship between warm waters and the birth of hurricanes? [*Hurricanes draw their energy from warm (> 26°C), humid air.*]

Acquire

What was the path of the Great Galveston hurricane of 1900?

- ? Where do the paths of hurricanes usually trend? [*Storms trend west, then northeast.*]
- With the Details button depressed, click the button, Content.
- Click the checkbox to the left of the layer name, Historic Major Hurricane Tracks (turning layer off).
- Turn on the layer, 1900 Galveston Hurricane.
- Click points to open pop-up windows for wind speeds.
- ? What were the wind speeds of the hurricane as it crossed Haiti, Cuba, and then made landfall at Galveston? [*Haiti: 40; Cuba: 40; Galveston: 143*]
- ? Why did this storm gain wind speed over the Gulf of Mexico? [*High sea temperatures fueled the storm.*]



Explore

What factors created a disaster in Galveston?

- Turn off the layer, Average Sea Surface Temperature.
- Click the button, Bookmarks. Select the Galveston bookmark.
- Turn on the layer, Galveston and Okeechobee.
 - Average hurricane-force winds can extend 100 miles from the eye.
- Optional: Measure the distance from the eye to the city of Galveston. [*15 miles*]
- Describe the extent of damage to Galveston.
- Click the red flag to read more about the devastation. [*6,000 to 12,000 deaths; 3,600 properties destroyed*]
- Turn off the layers, Galveston Hurricane.



Analyze

Describe the path of the Okeechobee hurricane of 1928

- Select the bookmark, Lake Okeechobee.
- Turn on the layers, 1928 Lake Okeechobee Hurricane.
- ? What were the wind speeds of the hurricane as it crossed Puerto Rico and made landfall in Florida?
[*Puerto Rico: 161; Florida: 143*]
- ? What was the wind speed as the hurricane crossed Lake Okeechobee? [*115 to 143*]
- Describe the extent of damage to the Lake Okeechobee area.
- Click the yellow flag to read more about the devastation. [*Surge 20ft; 2,500 deaths*]



Act

How can governments and communities prepare for future hurricane damage?

- Turn off the Okeechobee layers.
- Turn on the two layers, Earth At Night and Historic Major Hurricane Tracks.
- Zoom and pan to the eastern USA seaboard; the lights at night are a proxy for population concentrations.
- ? Where are population concentrations? [*Along coastlines*]
- ? What are the interactions between low-lying lands, high population density, and hurricane paths? [*As more people move to subtropical, low-lying lands along sea coasts, there is more threat to humans and property.*]

ZOOM TO A BOOKMARK

- Click Bookmarks.
- Click a bookmark name to zoom to a map location and scale.

USE THE MEASURE TOOL

- Click Measure, select the Distance button, and from the drop-down list, choose a unit of measurement.
- On the map, click once to start the measurement, click again to change direction, and double-click to stop measuring.
- Hint: Position the area of interest on the map so that it is not obscured by the Measure window.

Next Steps

DID YOU KNOW? ArcGIS Online is a mapping platform freely available to public, private, and home schools. A school subscription provides additional security, privacy, and content features. Learn more about ArcGIS Online and how to get a school subscription at <http://www.esri.com/schools>.

THEN TRY THIS...

- Explore the Katrina, A Decade of Change in New Orleans story map: <http://esriurl.com/Geo3214>.
- To examine historical storm tracks from 1842 to present day, visit <https://coast.noaa.gov/hurricanes>.
- To bring historical hurricane tracks into ArcGIS Online, visit <http://www.nhc.noaa.gov/gis>.



TEXT

REFERENCES

This GIS map has been cross-referenced to material in sections of the following books.

- Isaac's Storm, Erik Larson

- Their Eyes Were Watching God, Zora Neale Hurston