STARTING SHORTLY
2022 Hurricane Season Outlook Interagency Congressional Briefing

May 25, 2022

NOAA -- Dr. Richard Spinrad, Under Secretary of Commerce for Oceans and Atmosphere, and NOAA Administrator

NOAA -- Ken Graham, Director, NOAA/NWS National Hurricane Center

FEMA -- Deanne Criswell, Administrator

ARC -- Brad Kieserman, Vice President of Disaster Operations and Logistics

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Briefing slides available at:
www.legislative.noaa.gov
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NOAA Serves Before, During and After the Storm

A Proclamation on National Hurricane Preparedness Week, 2022

May 1-7, 2022

Determine your risk.
Develop an evacuation plan.
Assemble disaster supplies.
Get an insurance checkup.
Strengthen your home.
Help your neighbor.
Complete a written plan.
Team NOAA: All In on Hurricanes

Office of Marine and Aviation Operations
Flying into and around the eye of the storm
Continuous satellite monitoring improves forecast modeling
National Environmental Satellite, Data, Information Service

National Ocean Service
Real-time and historical flooding info; aiding waterway navigation in the aftermath; finding vessels in distress
Today’s studies advance and improve tomorrow’s models
Oceanic and Atmospheric Research

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National Ocean Service
Oceanic and Atmospheric Research

Department of Commerce // National Oceanic and Atmospheric Administration // 4
2021 Atlantic Hurricane Season

- 21 named storms
- 7 hurricanes
- 4 major hurricanes
- 2 U.S. hurricane landfalls (1 major hurricane - Ida)
- 6 U.S. tropical storm landfalls
- More than 70 U.S. direct fatalities
- Over $78.5B in U.S. damage

In sum: Economic damage and risk to life and property grow each year, readiness, communication, and improving forecasts are vitally important
Our Accuracy Continues to Improve

72-hr Track Forecast

72-hr Intensity forecast
Our Accuracy Continues to Improve

NOAA Narrows the Cone of Uncertainty

[Map showing a comparison between the 2005 and 2021 cone of uncertainty, with 2005 in light gray and 2021 in dark blue.]

2005 Cone  2021 Cone
Forecast Accuracy

Hurricane Ida, 2021

From the first advisory, NHC track forecasts consistently showed Ida making landfall along the coast of southeastern Louisiana at or near major hurricane intensity.
Lessons & Successes

#1: Communication - Words Matter

• From 1963-2012, we averaged 25 deaths/year from storm surge.
• Since 2017, there have been just 8 surge fatalities total, including 1 last year (Ida).
• In the last 5 years, we’ve lost more people to carbon monoxide poisoning after a storm than we have from storm surge.
• Last year saw a continued large number of indirect fatalities (such as carbon dioxide, no A/C, cardiac arrest).
Lessons & Successes

#2: Little Wiggles Matter
Lessons & Successes

#3: Hurricanes Don’t Care About Your Timelines

- We teach and train Emergency Managers (~2000 since 1990/70 per year) and NWS and international meteorologists through the World Meteorological Organization at NHC.
- Mixture of virtual and in-person training for 2022
- One of the key lessons is that we should all be ready to do several days’ worth of planning in two, because Mother Nature doesn’t wait.

The Nation’s Strongest – 150 MPH or Greater
All But 1 Were Tropical Storms 3 Days Before Landfall
Storm Surge Prediction Improved for 2022

Figure 2. Causes of death in the United States directly attributable to Atlantic tropical cyclones, 1963-2012 (Rappaport 2014).

Experimantal Peak Storm Surge Forecast

<table>
<thead>
<tr>
<th>Peak Storm Surge Forecast</th>
<th>Feet above ground level</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 3 ft</td>
<td>up to 4 ft</td>
</tr>
<tr>
<td>up to 6 ft</td>
<td>up to 9 ft</td>
</tr>
<tr>
<td>up to 12 ft</td>
<td>more than 12 ft</td>
</tr>
</tbody>
</table>

Hurricane X
Wednesday August 26, 2020
04 PM CDT Advisory X
NWS National Hurricane Center

User's Notes: Water levels along the immediate coast could reach the following heights above ground level within the indicated areas. Elevated water levels will likely be accompanied by large and destructive waves. Colors are based on the highest values in the associated forecast peak surge range.
NOAA’s 2022 Hurricane Season Outlooks
All ranges of activity are given with a 70% probability.

<table>
<thead>
<tr>
<th>Region</th>
<th>Atlantic</th>
<th>Eastern Pacific</th>
<th>Central Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Normal</td>
<td>65%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Near Normal</td>
<td>25%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Below Normal</td>
<td>10%</td>
<td>60%</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Atlantic**
Above-Normal Season Likely
14-21 Named Storms
6-10 Hurricanes
3-6 Major Hurricanes
115%-200% Median ACE
Averages are 14 NS, 7 H, 3 MH

**Eastern Pacific**
Below-Normal Season
10-17 Named Storms
4-8 Hurricanes
0-3 Major Hurricanes
45%-100% Median ACE
Averages are 15 NS, 8 H, 4 MH

**Central Pacific**
Below-Normal Season
2-4 Tropical Cyclones
Average is 4-5 TCs

These outlooks are for the overall seasonal activity. They are not a hurricane landfall forecast.
## NOAA 2021 Atlantic Hurricane Season Outlook Verification

<table>
<thead>
<tr>
<th>Season Activity and Type</th>
<th>May 2022</th>
<th>May 2021</th>
<th>Actual Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance Above Normal</td>
<td>65%</td>
<td>60% ✓</td>
<td>Above Normal</td>
</tr>
<tr>
<td>Chance Near Normal</td>
<td>25%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Chance Below Normal</td>
<td>10%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Total Named Storms</td>
<td>14 - 21</td>
<td>13 - 19</td>
<td>21</td>
</tr>
<tr>
<td>Hurricanes</td>
<td>6 - 10</td>
<td>6 - 10 ✓</td>
<td>7</td>
</tr>
<tr>
<td>Major Hurricanes</td>
<td>3 - 6</td>
<td>3 - 6 ✓</td>
<td>4</td>
</tr>
<tr>
<td>ACE - Accumulated Cyclone Energy (% Median)</td>
<td>110% - 190%</td>
<td>110% - 190% ✓</td>
<td>148</td>
</tr>
</tbody>
</table>

### Percent Correct Forecast

<table>
<thead>
<tr>
<th>May - Since 2008</th>
<th>August - Since 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS 64%</td>
<td>NS 64%</td>
</tr>
<tr>
<td>H 64%</td>
<td>H 64%</td>
</tr>
<tr>
<td>MH 79%</td>
<td>MH 71%</td>
</tr>
<tr>
<td>ACE 50%</td>
<td>ACE 64%</td>
</tr>
<tr>
<td>All 64%</td>
<td>All 66%</td>
</tr>
</tbody>
</table>
Predicted Sea Surface Temperature (SST) Anomalies

Predicted SST anomalies (°C) for August-October 2022
Expected Atlantic Conditions During August – October 2022

- Stronger, wetter West African monsoon
- High-activity era conditions (warm phase of AMO) and La Niña
- Above-average SSTs
- Near- or weaker-than-average vertical wind shear
- Weaker easterly trade winds

Atlantic Main Development Region
Ways to Stay Informed & Help Your Constituents

- Follow your local [NWS office](weather.gov) and NHC (hurricanes.gov) on [social media](weather.gov/socialmedia), and share relevant content.
- Model safe behavior, follow guidance from local authorities (i.e., don’t travel when not recommended).
- Do you have a [NOAA Weather Radio](weather.gov/NWR)?
- Become a [Weather Ready Nation Ambassador](weather.gov/WRN).
- Are you on our congressional email list? Get localized significant weather event information (email: matthew.borgia@noaa.gov).
Outline

- 2021 in Review
- New in 2022
- 2022 Outlook
- Partner Prep: FEMA
- Partner Prep: ARC
2022 Hurricane Season

Congressional Briefing | May 25, 2022
We Are Ready

**Workforce**
- 28 Urban Search and Rescue Teams
- 7,800 Surge Capacity Force Rostered
- 13,800 Overall Incident Management

**Equity**
- 95,000 people have received $350M dollars in Individual Assistance and 2,700 survivors received Direct Housing assistance due to policy changes

**Ready**
- 4 National IMATs
- 13 Regional IMATs
- 55 Federal Coordinating Officers

**Supplies**
- 26M+ Liters of Water
- 23M Meals (apx.)
- 825 Generators
- 1M Blankets (apx.)
- 74K+ Cots
FEMA’s Posture

- **Home Inspections**
  - Transitioning back to in-person inspections.
  - Will continue to support remote/virtual inspections upon request/when appropriate based on COVID concerns.

- **Emergency Sheltering**
  - Most states will return to congregate sheltering.
  - FEMA will continue to support non-congregate options (e.g., hotels, motels.)
  - Pandemic shelter kits restocked and ready to go.
Overview of Updated Policies – Equity in Disaster Recovery

- Expanded Ownership/Occupancy Documentation

- Revised threshold for Direct Housing eligibility

- Worked with SBA to increase the income level for loan referral prior to receiving FEMA assistance

  - For ownership, more than 42,000 survivors received an additional $202.0M in assistance.
  - For occupancy, nearly 54,000 survivors received an additional $142.2M in assistance.
  - Led to more than 2,740 lower income applicants that were eligible for direct housing.
  - More than 86,000 survivors received $129.7M in assistance.
  - Nearly 70,000 survivors received more than $23M in assistance.
  - More than 19,000 survivors received $32M that previously would have been referred to SBA.
FEMA’s Improved Communications: Updated Text-to-Shelter Feature & App

- **Text-to Shelter Feature**
  - Users can now text “shelter” and their ZIP code to 43362 to look up the three closest open shelters within 200 miles.
  - Users can also text “DRC” and their ZIP code to 43362 to get a list of nearby Disaster Recovery Centers.
  - Feature works in all 50 states and U.S. territories.

- The **FEMA App** is being updated with a new look and new features that allow users to personalize their experience.
The Time to Prepare is Now

- Hurricane season is just days away. There are actions your constituents can take today to prepare themselves, their families, and their pets
  - Visit Ready.gov/hurricanes and make an emergency plan
  - Sign up for emergency alerts and warnings
    - Download the FEMA App
  - Review insurance policies
  - Know your evacuation zone and follow the instructions of local officials

Take advantage of the toolkit at www.Ready.gov/fema-app-toolkit to share information with your constituents, using your social media accounts
Helping People Before, During, and After Disasters.
Outline

- 2020 in Review
- New in 2021
- 2021 Outlook
- Partner Prep: FEMA
- Partner Prep: ARC
Disaster Cycle Services

2022 Hurricane Season Readiness Update
Mission Ready
2020 and 2021: We Were Ready

- Hurricane Laura (TX, LA, AL, MS, AR)
- California Forest Fires
- Oregon Forest Fires
- Hurricane Ida (LA, AL, MS, PA, NJ, NY)
- California Forest Fires
- Kentucky Tornados

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<tbody>
<tr>
<td>Disaster Responders</td>
<td>3,875</td>
<td>3,822</td>
<td>3713</td>
<td>3,335</td>
<td>1,101</td>
<td>834</td>
</tr>
<tr>
<td>Client Overnight Shelter Stays</td>
<td>922,413</td>
<td>245,232</td>
<td>173,489</td>
<td>43,780</td>
<td>18,314</td>
<td>17,914</td>
</tr>
</tbody>
</table>
2022: We Are Ready

- **Over 38,000 affiliated volunteers and over 17,000 volunteers ready to deploy nationwide**
  - Encourage volunteerism **now** before disaster fatigue sets in later in the season

- **Prioritizing sheltering & care for socially vulnerable displaced populations**
  - Congregate shelters likely to be primary mode of sheltering
  - Masks required in all Red Cross shelters
  - Shelters as a “hub” for community services and information-as-a-service
  - **Lack of affordable housing** will continue to be our biggest challenge to transitioning shelter residents

- **Presence is a mission** – mobile mass care services in communities
  - Pre-positioning
  - Feeding
  - Distribution of emergency supplies
  - Disaster Health, Mental Health, and Spiritual Care
  - Information-as-a-service

- **Red Cross may provide several forms of financial assistance**
  - Damage-based
  - Shelter resident transition
  - Health & mental health needs
  - Fatality assistance
  - “Bridge” assistance
THANK YOU FOR YOUR TIME AND INTEREST

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2022 Atlantic Hurricane Season Outlook

- **Season probability**
  - Above-normal: 65%
  - Near-normal: 10%
  - Below-normal: 25%

- **Named storms**
  - 14-21

- **Hurricanes**
  - 6-10

- **Major hurricanes**
  - 3-6

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

May 2022