## Handout 2: An Unusual Hurricane Season 2022

According to **Scientific American**: "Hurricane activity in the Atlantic Ocean typically begins to ramp up in earnest around mid-August. But at that time this year, there wasn't a storm to be seen anywhere across that vast stretch of ocean. Those quiet weeks capped off a nearly two-month lull that had forecasters scratching their head after initial predictions of a busy season. …. But by the end of September, it seemed like a switch was suddenly flipped. Four named storms formed within nine days, and two of them—Fiona and Ian—became destructive major hurricanes. The 2022 hurricane season's 180-degree turn provides an object lesson in the competing influences that can either keep a lid on storm formation in the Atlantic or turn the region into what [hurricane researcher at Colorado State University] Klotzbach calls a "powder keg."

**Discuss:**

- How do you feel about what you just read?
- How do you think communities vulnerable to tropical storms and hurricanes felt as the proverbial "switch was flipped"?
- What does Klotzbach say about hurricane seasons in general and this year's hurricane season in particular?
- What do you think he means when he uses words like "predictions of a busy season," "180 degree turn," and "powder keg?" What does that language imply? How do you think that might impact communities vulnerable to tropical storms and hurricanes?

**The Grid** continues: "Climate change is undoubtedly altering hurricanes and their traditional season in a number of ways that often combine to make the storms more damaging than in the past. But Klotzbach said this particular off-and-on season is more likely due to natural variability. Hurricanes are big, relatively infrequent events, and up or down years, or strangely clustered storms, don't say much about the changing climate on their own….. This year, specific conditions in August — in particular, strong wind shear, the change in wind direction and speed across varying altitudes — made it difficult for tropical storms to form. "In September, we've had much more conducive conditions, with shear running near to below average," Klotzbach said. "Midlevel moisture has also increased somewhat, allowing for conditions where hurricanes can develop and thrive."

**Discuss:**

- How do you feel about what you just read?
- How do you think communities vulnerable to tropical storms and hurricanes are feeling about what Klotzbach is saying?
- What does Klotzbach say about hurricane seasons in general and how that relates to this year's hurricane season in particular?
- What do you think he means when using words like "off-and-on season," and "natural variability?"

Adds the **New England Journal of Medicine**: "Climate change has been linked to changes in Atlantic hurricane behavior, making storms more destructive to the built environment and vital infrastructure, more harmful to the physical and mental health of island-based and coastal populations, and more deadly in their aftermath. These escalating effects … represent a double environmental injustice:
[1.] socioeconomically disadvantaged and marginalized populations sustain disproportionate harm and loss, with more hazardous storms [worsening] inequity; and
[2.] while the populations most vulnerable to Atlantic hurricanes, especially those in small-island states, contribute virtually nothing to climate change, they are among those most exposed to risks that are worsened by the carbon emissions from higher-income countries [and communities]."

**Discuss:**

- How do you feel about what you just read?
- How do you think communities vulnerable to tropical storms and hurricanes feel about climate change and the implications of that on their communities?
- What does The New England Journal of Medicine say about climate change and changes in Atlantic hurricane behavior?
- What do you think the term "environmental injustice" mean?
- What is the double environmental injustice that is outlined in this paragraph?

The **North American Congress on Latin America** (NACLA) adds:

"On September 20, 2022, many people in Puerto Rico experienced the five-year anniversary of Hurricane María without electricity and running water. Fiona, a category 1 hurricane, dealt yet another devastating blow to the archipelago's centralized energy system, which relies on imported fossil fuels. When Fiona made landfall on September 18, only households and businesses with rooftop solar or generators were able to keep the power on. The dangerous storm damaged and destroyed roads, bridges, and water infrastructure, downed electric transmission and distribution lines, caused landslides, and flooded entire neighborhoods, leaving many without safe and healthy living conditions."

**Discuss:**

- How do you feel about what you just read?
- How do you think the people of Puerto Rico feel right now?
- What does The North American Congress on Latin America say about the five-year anniversary of Hurricane Maria? How did Fiona make things even worse?
- What does the paragraph say about fossil fuels versus solar energy?
- Who do you think might have access to back up generators and/or solar panels on their roofs. Who relies on the government energy grid?
- How does that relate to environmental injustice even on the island of Puerto Rico itself?