How would Social Impacts from Hurricane Ida differ with a Westward Shifted Landfall?

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Motivation

LinkedIn

- Hurricane Ida → Port Fourchon, LA; 29 August 2021; Category 4 (Saffir-Simpson scale)
- Different **impacts** if Ida had deviated **westward** before landfall (NHC, 2022)
  - **How would wind impacts look like at a census tract level?**
- **Identify vulnerable communities** and deliver forecasts & warnings effectively (NWS, 2023)

Methodology

SVI Data from the CDC
a) > Age 65
b) Racial & Ethnic Minorities
c) No internet
d) Mobile homes
e) Below 150% poverty

Wind Track Data
- NOAA Historical Hurricanes

Wind footprint model (Done et al., 2020)
- Actual Track (Control)
- Westward Deviation
  - 5 year avg. position error at 72 hr lead-time

RStudio
- Maps with SVI variables

Determine the extent of wind impacts at each census tract

Results

Ida Wind Track Deviation in Louisiana

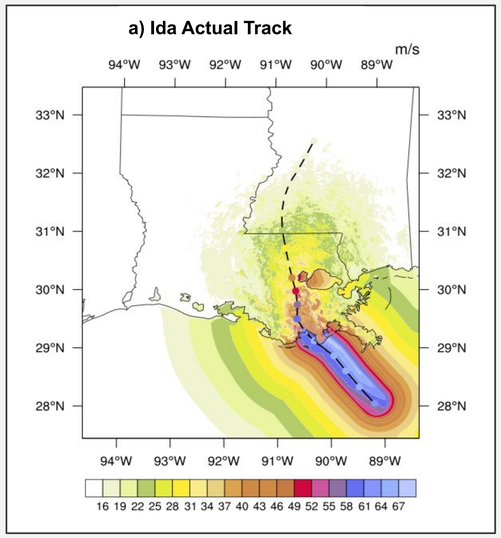


Figure 1

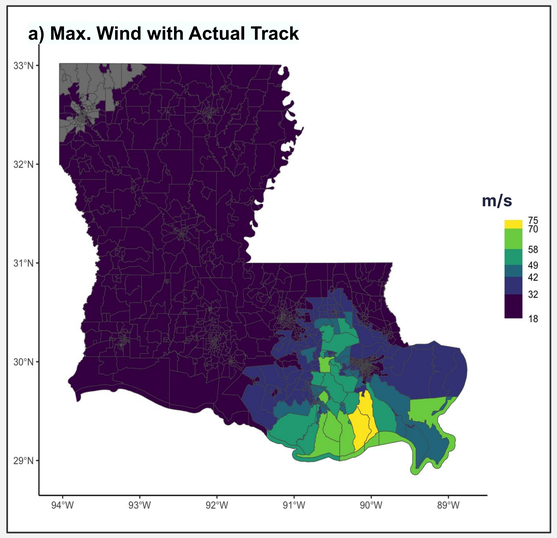


Figure 3

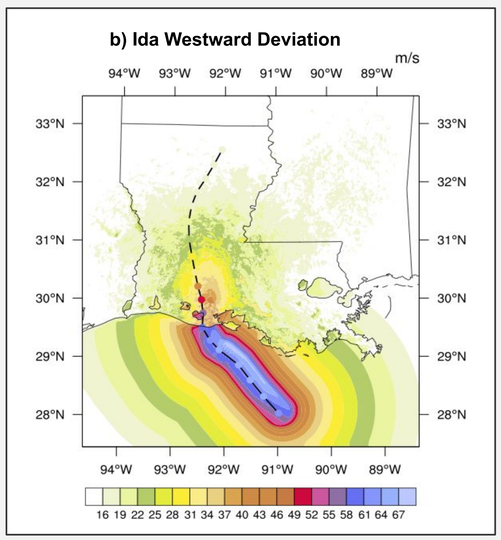


Figure 2

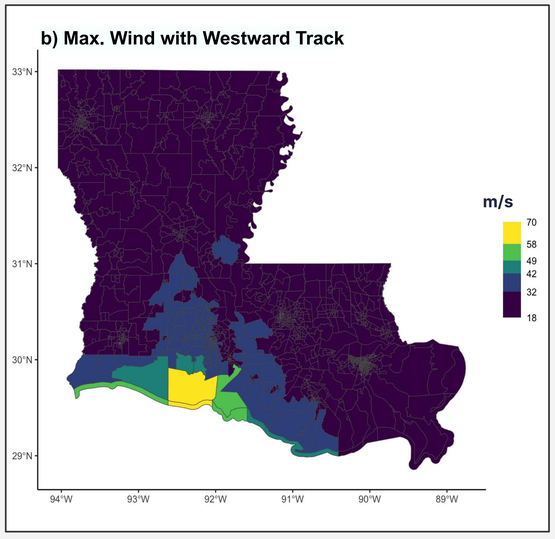
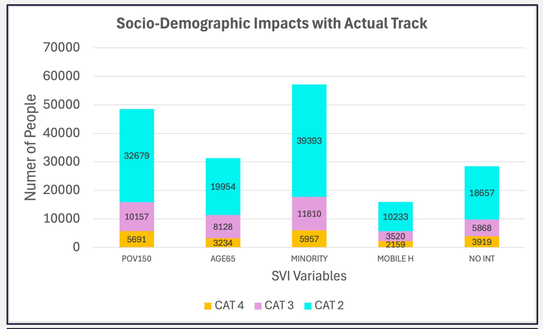


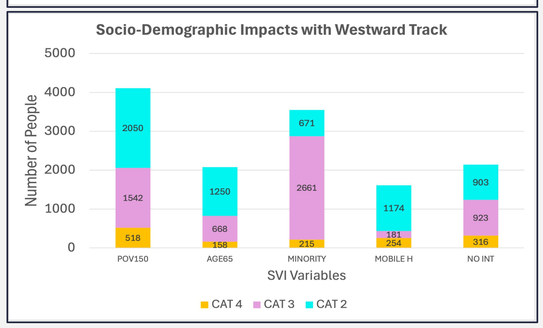
Figure 4

Hurricane Ida Wind with Actual Track (Figure 1) & Westward Deviated Track (Fugure 2) using a 72 hr forecast error based on Done et al. (2020) wind footprint model

Maximum Wind at each Census Tract with both Actual Track (Figure 3) & Westward Track (Figure 4)

Analysis





Conclusions & Future Work

- Westward track → winds likely influenced by land cover
- Counties experiencing the strongest winds:
  - Actual track: **Lafourche, Jefferson, Terrebonne, St. John the Baptist, St. Charles, Livingston, & Plaquemines**
  - Westward track: **Vermilion, Cameron, & Iberia**
- Social impacts from storm surge

Acknowledgements

Thank you to my mentors for their guidance and help throughout the entire project. To NSF NESSI for allowing me to participate in this amazing program and for their endless support. Last but not least, thanks to my cohort peers for making this summer an unforgettable experience.

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