Executive Summary

1. Introduction

2. Hurricane terminology, structure and mechanisms
    - 2.1 Hurricane processes
        - 2.2 Factors contributing to landfall impacts
        - 2.2.1 Wind damage
        - 2.2.2 Storm surge
        - 2.2.3 Rainfall

3. Historical variability and trends
    - 3.1 Global
    - 3.2 Atlantic
    - 3.3 Pacific
    - 3.4 Conclusions

4. Detection and Attribution
    - 4.1 Detection
    - 4.2 Sources of variability and change
        - 4.2.1 Atlantic
        - 4.2.2 Pacific
    - 4.3 Attribution – physical reasoning
    - 4.4 Attribution - models
    - 4.5 Conclusions

5. Landfalling hurricanes
    - 5.1 Continental U.S.
    - 5.2 Caribbean
    - 5.3 Global
    - 5.4 Water – rainfall and storm surge
    - 5.5 Hurricane spawned tornadoes
    - 5.6 Damage and losses

6. Attribution: recent U.S. landfalling hurricanes
    - 6.1 Detection and attribution of extreme weather events
    - 6.2 Sandy
    - 6.3 Harvey
    - 6.4 Irma
    - 6.5 Florence
    - 6.6 Michael
    - 6.7. Conclusions

7. 21st century projections
    - 7.1 2050 – multidecadal variability
    - 7.2 2100 – manmade climate change
    - 7.3 Landfall impacts

8. Conclusions