**Methodology of Data Collection**

- Severe and significant hail reports from the NOAA/NCEI Storm Events Database were catalogued for the states of Ohio, Kentucky, and Indiana, yielding 203 severe hail (2018) and 37 significant hail (2016-2018) reports.
- MRMS-derived large hail indicators considered:
  - **Severe Hail Index (SHI)**
  - **Max 30-minute Hail Swaths (derived from MRMS)**
- **Probability of Severe Hail (POSH)**
  - POSH = 29 ln(SHI/WT) + \(0.5\)
  - WT is the warning threshold, which is a function of the maximum hail size (Smith and Waldvogel, 1989).
- **Max 30-minute Hail Swaths (derived from MRMS)**
  - Maximum Expected Size of Hail (MESH)
  - MESH = 2.54SHI\(^{0.5}\)

**Severe and Significant Hail Reports Considered For Study**

**Max MRMS Reflectivity (dBZ) at -20°C Isotherm: Hail Size Comparison**

- **The rate of increase of isothermal reflectivity from T-12 to T was, on average, nearly double for significant events opposed to severe events.**

**Warning Threshold Considerations**

- **Significant Hail Event Lead Time**
  - MESH > 2", 13 minutes
  - MESH > 1.75", 0 minutes

**MRMS Large Hail Indicators Through Time: Severe vs. Significant**

- **MESH**: Values for all events (severe and significant) generally increased leading up to the time of the event (T) before decreasing slightly after time T.
- **POSH**: Values generally maximized around time T for all events, and was, on average, about 20% higher for significant events opposed to severe events at time T.
- **SHI**: On average, the SHI was nearly double for significant events than for severe events. The SHI more than doubled from T-32 to T for both severe and significant events.

**Acknowledgements**

A special thank you is extended to Seth Binasu (SOO, NWS Wilmington OH) and Kevin Kacan (Meteorologist, NWS Detroit MI) for their assistance with this project.

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