Objectives:

- Describe the Lightning Potential Index.
- Raise Public Awareness
- Demonstrate the utility of the LPI as a useful lightning predictor.
- Future goals.

What is the Lightning Potential Index (LPI)?

- The lightning methodology described in the accompanying poster presentation describes in detail the parameters used including:
  - Precipitation Potential Placement (PPP)
  - A combination of precipitable water and humidity
  - Elevated Moisture Transport magnitude and humidity
  - Used to capture representation of the ice crystal growth regime
  - The magnitude of these moisture parameters are combined with CAPE and other severe parameters
- This methodology is then scaled into the Lightning Potential Index (LPI) as shown in this poster

Forecast

<table>
<thead>
<tr>
<th></th>
<th>48 Hours</th>
<th>24 Hours</th>
<th>00 Hours</th>
<th>1 Hour Lightning Overlay With Topography</th>
<th>1 Hour Lightning Overlay With Satellite Visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>00Z September 21</td>
<td>![Image]</td>
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<td>00Z September 22</td>
<td>![Image]</td>
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Here is an example of a two day event demonstrating the utility of the LPI

- The LPI forecasts are shown in the left three columns valid at the date/time on the left
- One-hour lightning is shown in column 4 (over terrain), and combined with satellite in column 5
- The LPI in these examples tends to have a good handle on the temporal and spatial scale
- LPI tended to “over-predict” the intensity of the observed lightning
- Limitations on Available Data Sets in GFE (e.g., most Unstable CAPE 1-6 km AGL and objective observations is a better CAPE parameter).
- Some of the implied over-prediction by the LPI may be an artifact of the fact that the forecasts are a 3-hour smoothed LPI while the lightning observations are one-hour totals.

Lightning Fatalities for 2014 by State

<table>
<thead>
<tr>
<th>State</th>
<th>Lightning Fatalities</th>
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Future Goals

- Develop a robust verification scheme to quantify the utility of the LPI
- Does the scale that defines Low, Moderate, High, Extreme need adjustment?
- Examine if a blended model approach provides a better forecast?
- Demonstrate the usefulness of the LPI over other areas
- Suggestions on Lightning Verification?