Disorganized Coastal Storm
November 10th and 11th, 2015

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NOAA/National Weather Service
Taunton, MA
GFS valid 12z on November 11th
- Surface low relatively weak
- Limited temp gradient/frontogenesis

Satellite Imagery at 12z November 11th
- Hurricane Kate robbing moisture from our coastal storm
925 MB Analysis

- North to Northeast at 40 to 50 knots along the coast
- Land/Sea Interface and subtle coastal front resulted in 1 to 2+ inch rainfall amounts across portions of Eastern Plymouth County
- Wind Advisory criteria confined to immediate coast
Subtle Coastal Front at 13z on November 11th

Surface Winds from 360 degrees north of boundary, while they were 020 to 030 degrees south of coastal front.

Temperatures in the upper 40s north of boundary with middle 50s south of front.

Land/Sea interface, coastal front, and surface temp differential lead to rainfall enhancement across Eastern Plymouth County.
Closed 850 MB Low

- Modest 25 to 30 Knots of ENE flow mainly south of the MA turnpike and along the coast

- Band of heavier rain with 1 to 2.50” affected Cape Cod, just northwest of the 850 mb Low with better low level flow.

- Periods of disorganized showers across most other locations with lack of stronger mid level forcing/thermal gradient.
Often a good sign for banding, but in this case very weak wind fields resulted in limited mid level forcing.

- 700 mb winds generally 15 knots or less.
Model QPF quite variable from run to run, probably a result of uncertainty on Hurricane Kate and lack of a stronger thermal gradient we often see with our coastal storms.

ECMWF just one example shown below, but model QPF is often one of the models worst fields, even though we rely on it so much.
- 1 to 2.50 inches of rain across Cape and Islands, result of being just to the northwest of the 850 mb low with 30 knots of inflow.

- Another area of heavier rainfall occurred across Eastern Plymouth County, from land sea interface and coastal front.

- Lack of stronger mid level forcing, kept rainfall across the rest of the area between 0.25 and 0.75 inches.
### Rainfall Reports

<table>
<thead>
<tr>
<th>Location</th>
<th>Rainfall (in)</th>
<th>Date</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHATHAM</td>
<td>2.69</td>
<td>659 AM 11/12</td>
<td>CO-OP OBSERVER</td>
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<td>WEST CHATHAM</td>
<td>2.37</td>
<td>953 AM 11/11</td>
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<td>2 WSW MASHPEE</td>
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<td>1 NNW YARMOUTH</td>
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<td>800 AM 11/12</td>
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<td>1 W ORLEANS</td>
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<td>1 SSW WAQUOIT</td>
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<td>3 E FALMOUTH</td>
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### Wind Reports

#### Peak Wind Gust

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<th>Comments</th>
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#### Sustained Wind

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</table>
Rainfall amounts of 1-2.50 inches were confined to Eastern Plymouth County, Cape Cod and the Islands.

Heavier rainfall amounts occurred across the southeast New England coast, where stronger low level forcing/land sea interface, and subtle coastal front were in play.

Rainfall amounts across the rest of the region were generally between 0.25 and 075 inches. This likely a result of lack of stronger mid level forcing, relatively weak thermal gradient, and some moisture robbed by Hurricane Kate.

North to northeast flow of 40 to 50 knots at 925 mb, confined marginal wind advisory criteria to the immediate Eastern MA coast.