PARISE 2013

How will 1-min PAR updates impact NWS forecasters’ warning decision processes during severe hail and wind events?

- 12 NWS forecasters
- Control (5-min updates) and experimental (1-min updates) groups

Case 1: Marginally severe hail event

Case 2: Severe hail and wind event

Results

**Warning Lead Time**

<table>
<thead>
<tr>
<th>Cases 1 and 2 combined</th>
<th>Median lead time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>17.3 min</td>
</tr>
<tr>
<td>Experimental</td>
<td>21.5 min</td>
</tr>
<tr>
<td>Difference</td>
<td>4.2 min</td>
</tr>
</tbody>
</table>

(Statistically significant, p=0.0252)

**Decision Types**

- Misinformed
- Mastery
- Mistakes
- Smart
- Uninformed
- Doubt
- Paralysis
- Hesitation

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### Example: Tornado Warning Decision

<table>
<thead>
<tr>
<th>Time</th>
<th>Control-Uninformed</th>
<th>Experimental-Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>2053</td>
<td>Kidney bean shape, strong midlevel mesocyclone.</td>
<td>Kidney bean shape, strong midlevel mesocyclone.</td>
</tr>
<tr>
<td>2058</td>
<td>Circulation tightening and deepening, anticipate mesocyclone will stretch down to surface. <strong>Don’t wait until gate-to-gate at 0.5° because would be too late.</strong></td>
<td>Broad rotation at higher levels… Going back a couple of frames can see it has strengthened aloft… Too high to issue on but something to watch. Still noticing broad rotation further aloft but nothing yet developing at the surface that would indicate any kind of tornadic issues.</td>
</tr>
</tbody>
</table>

**Issue Tornado Warning**  
**Correctly Reject Tornado Warning**

### Summary

- Experimental participants obtained a **significantly longer median warning lead time** than control participants.
- Experimental participants made **more mastery** (i.e., confident and correct) **decisions** than control participants.
- Information perceived via 1-min PAR updates had a **substantial impact on the warning decision process**.