The January 30, 2019 Northeast US Snow Squall Event: An Operational Perspective
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**Background**

*Intense, long lived snow squalls impacted a large portion of the mid-Atlantic and Northeast on 1-30-19*

*This project performs a case study on this event at NWS WFO Mount Holly, NJ and attempts to draw conclusions for operational best practices regarding snow squalls*

*Squalls formed on a sharp Arctic front ~24 hours after another cold front/mixed precipitation event*

*“Prime” front prevented ptype issues: precip was all snow, cold enough for instant accumulation*

*Optimal environment ahead of Arctic front (~100J CAPE, high RH in BL, strong forcing, lift in DGZ)*

**Forecast Funnel**

*Well forecast event! Snow squall potential mentioned in forecast/AFD 4 days ahead of time*

*Well handled by global and hi-res models, likely due in part to strong forcing*

*Morning SPS, multiple postings on social media*

*Messaging challenge due to preceding storm, morning SPS, multiple postings on social media*

**As it Happened**

*Squalls too shallow (~7-10kft) to be seen by either KCCX or KDIX radar for an extended period over PA*

*Dramatic changes in radar appearance even as squall intensity didn’t change; satellite presentation much more consistent*

*Limited observations (especially ASOS/AWOS) over interior PA, few spotter/public reports, some webcams but of varying use*

*90 minute “radar drop out” in which squalls became invisible to radar; a long time with convection*

*How would you feel if you couldn’t see a severe thunderstorm on radar for an hour and a half?*

**Snow Squall Warnings**

*2018-2019: First full winter of operational snow squall warnings: forecasters still getting a feel for the product*

*Differences in how adjacent WFOs handled squalls (SPS vs. SQW); communication important in active weather*

*Technical problems at PHI prevented SQW issuances*

*Warnings issued by LWX, unfortunate but unforeseeable; SQW would not have even been an option a year prior*

SQW (via LWX) still issued with 30+ minute lead time for Philly/suburbs

**Impacts**

*Widespread 0.5-1” of snow in 20-40 minutes with 1/4 mile visibility and subsequent rapid freeze*

*Multiple accidents in PA including 27 vehicle fatal pileup on Route 22 in Berks County just after 1PM*

*Downstream warnings were vital! Less impact in Philadelphia area; widespread social media, broadcast attention as squalls approached the metro area*

**Lessons and Conclusions**

*Forecasters must think in a convective mindset when dealing with snow squalls!*

*Antecedent conditions are critical for squall impact*

*For shallow squalls, radar has severe limitations; aggressive sourcing of other observations (satellite, webcams, EMS scanners) and ground truth is critical*

*SQW is a fantastic product! Let’s increase awareness + visibility of it; social media is a great tool for this*

*We still face challenges with snow squall communication and improving public understanding*

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