

Update on NWS use of Real Time CoCoRaHS Reports



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Four NWS Distribution Channels:

- MADIS – NOAA/NWS publicly available data repository
- River Forecast Center use – downloaded from MADIS or CoCoRaHS web site.
- Weather Forecast Office use – Daily data by several methods, significant weather reports alarmed on AWIPS system.
- Public Dissemination by NWS – via LCO, LSR, and PNS products.

Significant Weather Reports to NWS Forecast Offices

- Significant weather reports are forwarded to the Boulder NWS office as part of the form submission process when the report is entered.
- Reports are checked for timeliness and lightly filtered to remove 1/8 inch hail and lighter rainfall amounts (<.50 inch, <1 inch in an hour).
- Reports are then forwarded to the relevant NWS offices under the AWIPS product header DENCCRAHS and can be set to alarm at the forecaster workstations.

Weather Forecast Offices

NZUS45 KBOU 062311

CCRAHS

intense rain report from CoCoRAHS spotter:

09/06/2014 04:52 PM local time

County: Larimer CO

Stove Prairie 2 WNW (number CO-LR-251)

Latitude: 40.6263

Longitude: -105.3912

0.77 inches so far, with 0.66 inches in the past 31 mins

Flooding: Unusual

Comments:

Received NWS Boulder Sat Sep 6 17:11:32 2014 MDT

Report Filtering Criteria--Sent If:

- 0.50" in 15 minutes
- 0.75" in 30 minutes
- 1.00" in 60 minutes
- 1.50" in any time
- 0.25" diameter hail
- Snow > T
- Flooding greater than "minor"
- Mention of freezing rain, ice, or icing in comments
- Marked "STALE" if more than 60 minutes old
- Not sent if more than 28 hours old
- No filter for CA, AZ, NV, UT, NM

Why Filter?

Date ▲	Time	Station Number	Station Name	Average	Largest	Photo	State	County	View
7/5/2019	6:30 PM	CO-BO-149	Longmont 1.7 NNE	NA	1/2" Grape		-- CO	Boulder	
7/5/2019	7:10 PM	CO-BO-490	Boulder 1.5 WNW	3/4" Penny Size	1 1/4" Half Dollar Size		-- CO	Boulder	
7/5/2019	7:11 PM	CO-BO-491	Boulder 1.8 W	NA	NA		-- CO	Boulder	
7/5/2019	7:12 PM	CO-BO-472	Boulder 1.3 W	1/4" Pea Size	1" Quarter Size		-- CO	Boulder	
7/5/2019	7:30 PM	CO-BO-165	Boulder 1.8 ESE	1/4" Pea Size	1/2" Grape		-- CO	Boulder	
7/5/2019	7:30 PM	CO-BO-286	Boulder 3.5 S	1/4" Pea Size	1" Quarter Size		-- CO	Boulder	
7/5/2019	7:30 PM	CO-BO-446	Boulder 1.9 SSE	NA	1/2" Grape		-- CO	Boulder	
7/5/2019	7:33 PM	CO-BO-220	Boulder 4.7 ENE	3/4" Penny Size	1 1/2" Ping Pong Ball Size		-- CO	Boulder	
7/5/2019	7:35 PM	CO-BO-4	Boulder 2.9 S	1/2" Grape	1 1/4" Half Dollar Size		-- CO	Boulder	
7/5/2019	7:40 PM	CO-BO-446	Boulder 1.9 SSE	NA	1/2" Grape		-- CO	Boulder	
7/5/2019	7:40 PM	CO-BO-513	Lafayette 2.1 WNW	NA	2" Hen Egg Size		-- CO	Boulder	
7/5/2019	7:41 PM	CO-BO-8	Lafayette 0.4 WSW	7/8" Nickel Size	1 3/4" Golf Ball Size		-- CO	Boulder	
7/5/2019	7:45 PM	CO-BO-285	Erie 1.7 WNW	1/4" Pea Size	1/2" Grape		-- CO	Boulder	
7/5/2019	8:10 PM	CO-BO-165	Boulder 1.8 ESE	1/4" Pea Size	3/8"		-- CO	Boulder	
7/5/2019	8:28 PM	CO-BO-143	Longmont 2.1 N	5/8"	1 1/4" Half Dollar Size		-- CO	Boulder	
7/5/2019	8:30 PM	CO-BO-84	Longmont 2.6 NW	3/8"	3/8"		-- CO	Boulder	
7/5/2019	8:45 PM	CO-BO-220	Boulder 4.7 ENE	3/8"	5/8"		-- CO	Boulder	

Why Filter?

View Data : View Significant Weather Report US Units ▾

Significant Weather Report

Station Number:	CO-ME-69
Station Name:	Grand Junction 4.0 W
Date:	8/11/2019 12:55 PM
Submitted	8/11/2019 1:05 PM
Notes:	Also some brief pea-sized hail. No thunder heard.
Taken at Registered Location:	True
Precip Duration Minutes:	10
New Precip Amount:	0.07 in.
Total Precip Amount:	0.07 in.
New Snow Depth:	0.0 in.
Total Snow Depth:	0.0 in.
Flooding:	No

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Flooding: No

Significant Weather Report

Station Number: CO-PW-34
Station Name: Lamar 2.9 S
Date: 1/16/2019 3:45 PM
Submitted: 1/16/2019 6:32 PM
Notes: We were much cooler than the forecast. Started cooling off before lunch and fog moved in around 3:45pm. Never saw the sun today.
Taken at Registered Location: True
Precip Duration Minutes: 0
New Precip Amount: NA
Total Precip Amount: NA
New Snow Depth: NA
Total Snow Depth: NA
Flooding:

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Station Number: CO-PW-34
Station Name: Lamar 2.9 S
Date: 2/5/2019 12:39 PM
Submitted: 2/05/2019 12:40 PM
Notes: Why is it so hard to forecast the temp?
Taken at Registered Location: True
Precip Duration Minutes: 0
New Precip Amount: NA
Total Precip Amount: NA
New Snow Depth: NA
Total Snow Depth: NA
Flooding:

Real Time Reports

2015 Statistics

- 8539 Reports: 6044 Rain/Snow, 2495 Hail.
- Sampled Jan/Feb/Jul/Aug reports nationwide. Based on this, estimate that 5200 reports were forwarded to NWS offices within an hour of the event time.

Real Time Reports

2015/2019 Statistics

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- 6904 Reports: 4634 Rain/Snow, 2270 Hail.

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Based on this, estimate that 5200 reports were forwarded to NWS offices within an hour of the event time.
- 2019 Estimate: 5400 Timely reports

Real Time Reports

2015 Statistics

- Sampled WFO Boulder's area:
 - 74% of winter reports arrived within an hour
 - 65% of reports timely and related to warnings
- 48% of summer reports arrived within an hour
- 10% of reports timely and related to warnings

Real Time Reports

2015/2019 Statistics

- Sampled WFO Boulder's area:
 - 74% of winter reports arrived within an hour
 - 65% of reports timely and related to warnings
- Colorado and New Mexico:
 - 90% of winter reports arrived within an hour
 - 35% of reports timely and related to warnings
 - 48% of summer reports arrived within an hour
 - 10% of reports timely and related to warnings
 - 55% of summer reports arrived within an hour
 - 40% of reports timely and related to warnings

Real Time Reports

2015 Statistics

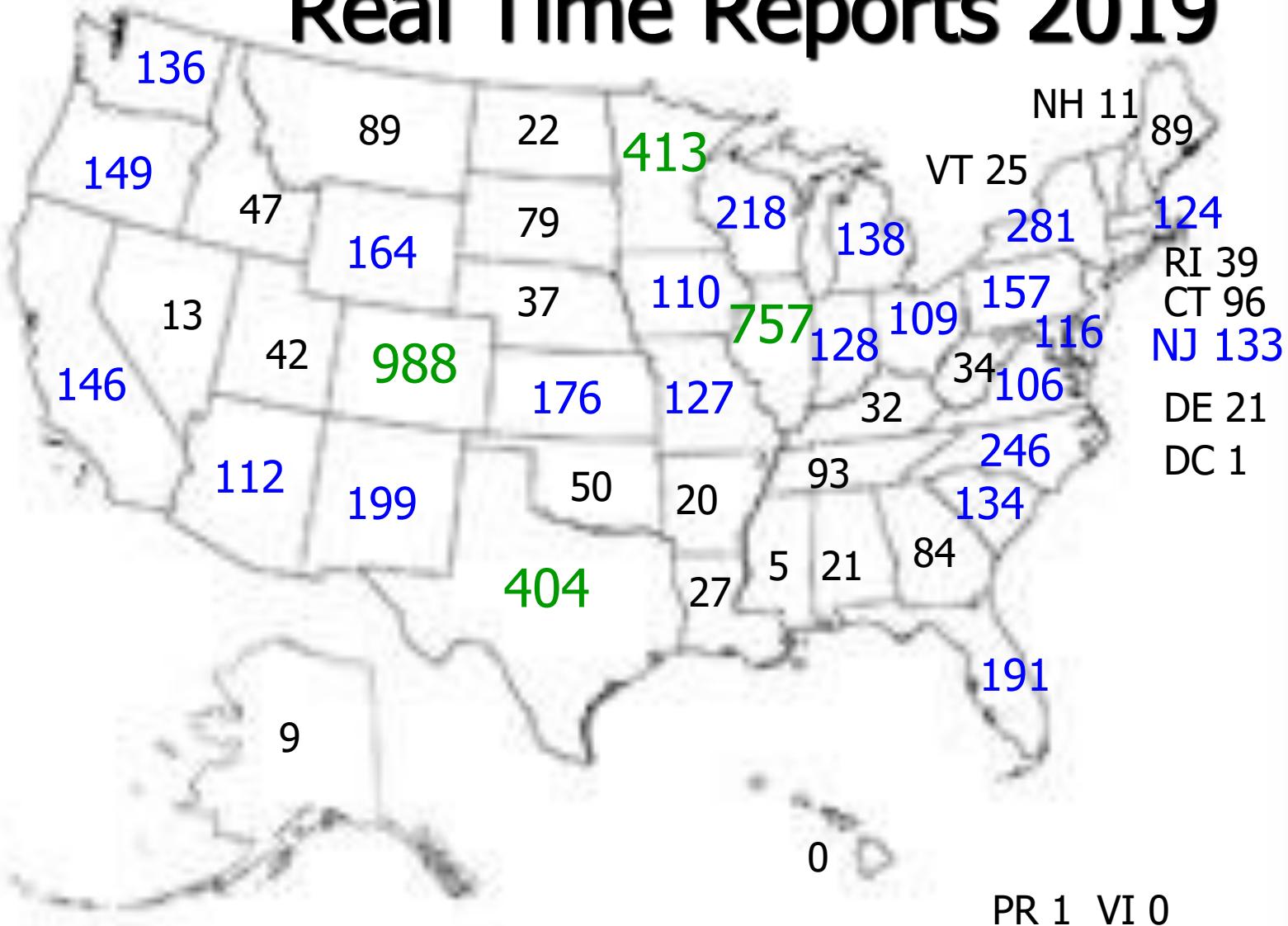
- Assuming a conservative 20% for the winter reports and 10% for the summer reports, that would mean that nationwide 1750 reports were received in a timely manner and related to warnings in 2015.

Real Time Reports

2015/2019 Statistics

- Assuming a conservative 20% for the winter reports and 10% for the summer reports, that would mean that nationwide 1750 reports were received in a timely manner and related to warnings in 2015.
- A 30% estimate may be conservative:
2200 timely reports in 2019 related to warnings.

Real Time Reports 2019



Real Time Reports Issues?

- Awareness:
 - NWS Offices don't all know about this despite reminders
 - Volunteer reporting varies considerably
- Filtering Confusion:
 - Generally accepted once it's explained
- Worth rewriting? Hasn't been yet?