

Developing an Accumulating Hail Climatology for the National Weather Service Hanford, CA.

30th Conference on Weather Analysis and
Forecasting/26th Conference on Numerical Weather
Prediction

100th AMS Annual Meeting

January 15th, 2020

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Presentation Outline

- Purpose for study.
- Results.
- IDSS/IBW Calls to Action.
- Develop database.

Reasoning for study

- Impacts to travel.
 - Prior Studies.
 - Icy roads within CWA.
- Impacts to National Parks:
 - Visitors to National Parks.
 - Hikers/Campers.



Fresno 4/12/2010



Piñon Pines 5/25/2019



San Joaquin Valley 4/11/2012

Environmental setup

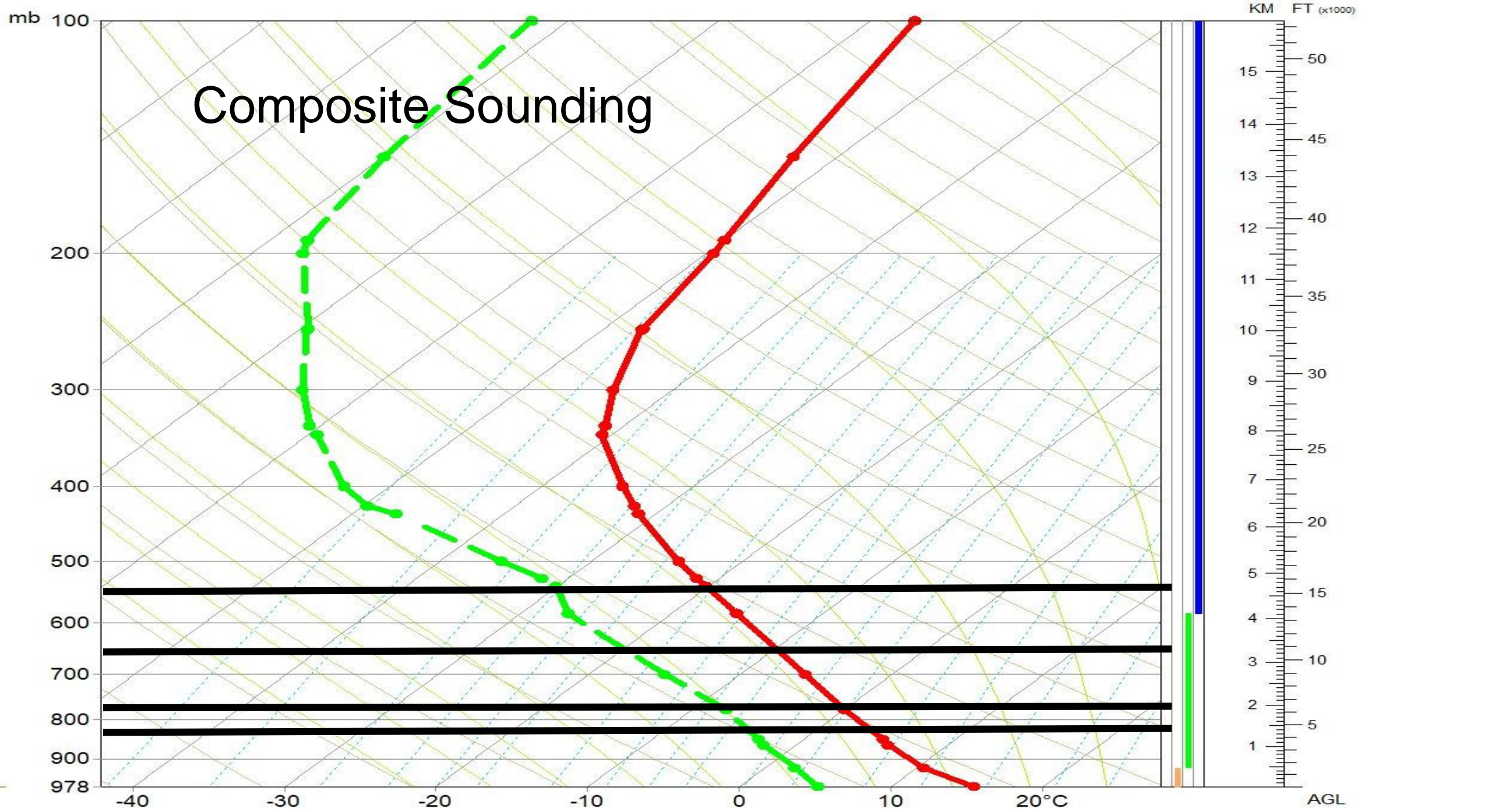
- Environmental Variables:

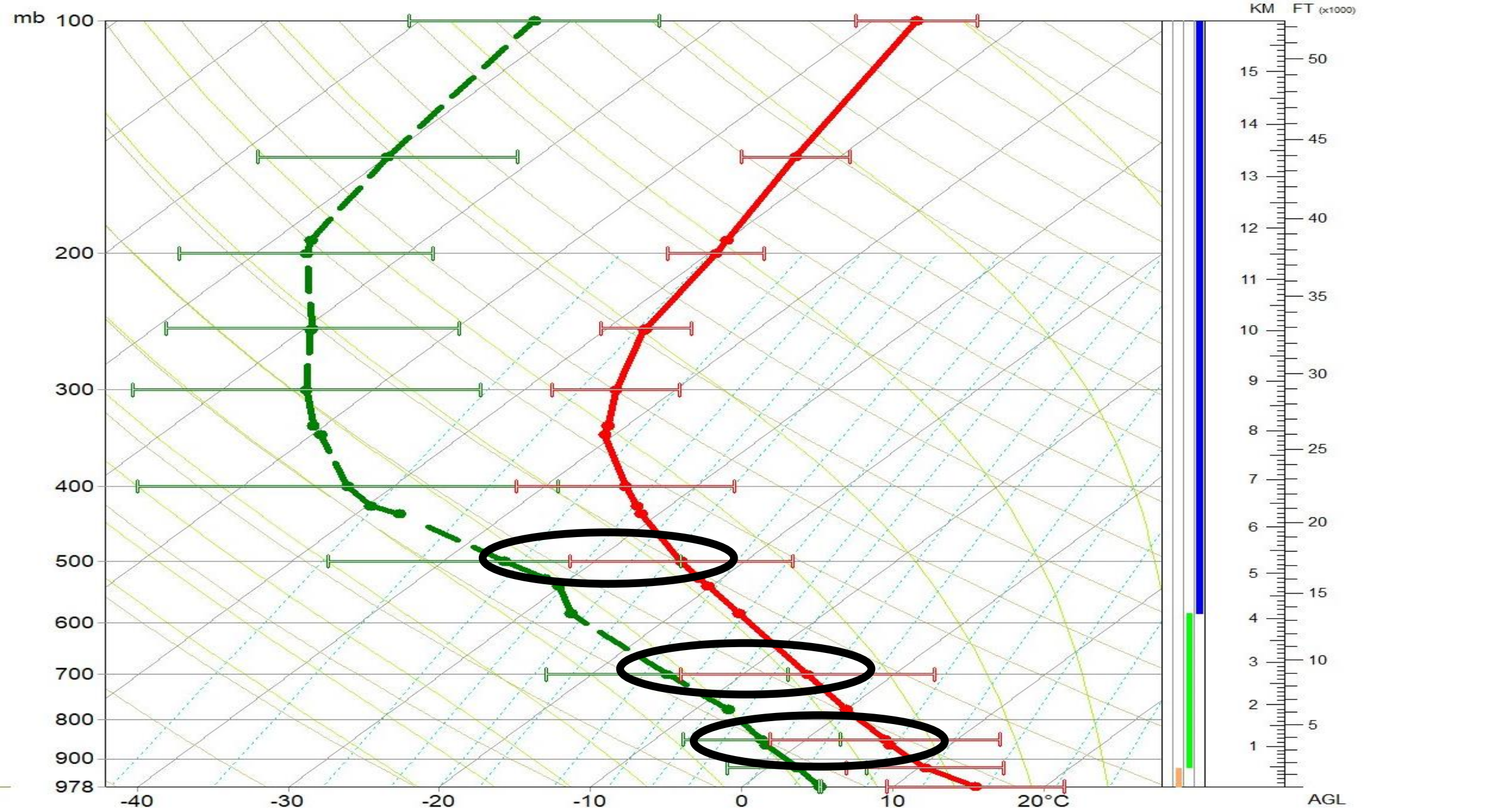
- Freezing levels: 0°C ; -10°C ; -20°C .
- Temperatures: 500mb; 700mb; 850mb.
- Wet bulb Zero Height.
- 700-500mb Lapse Rate

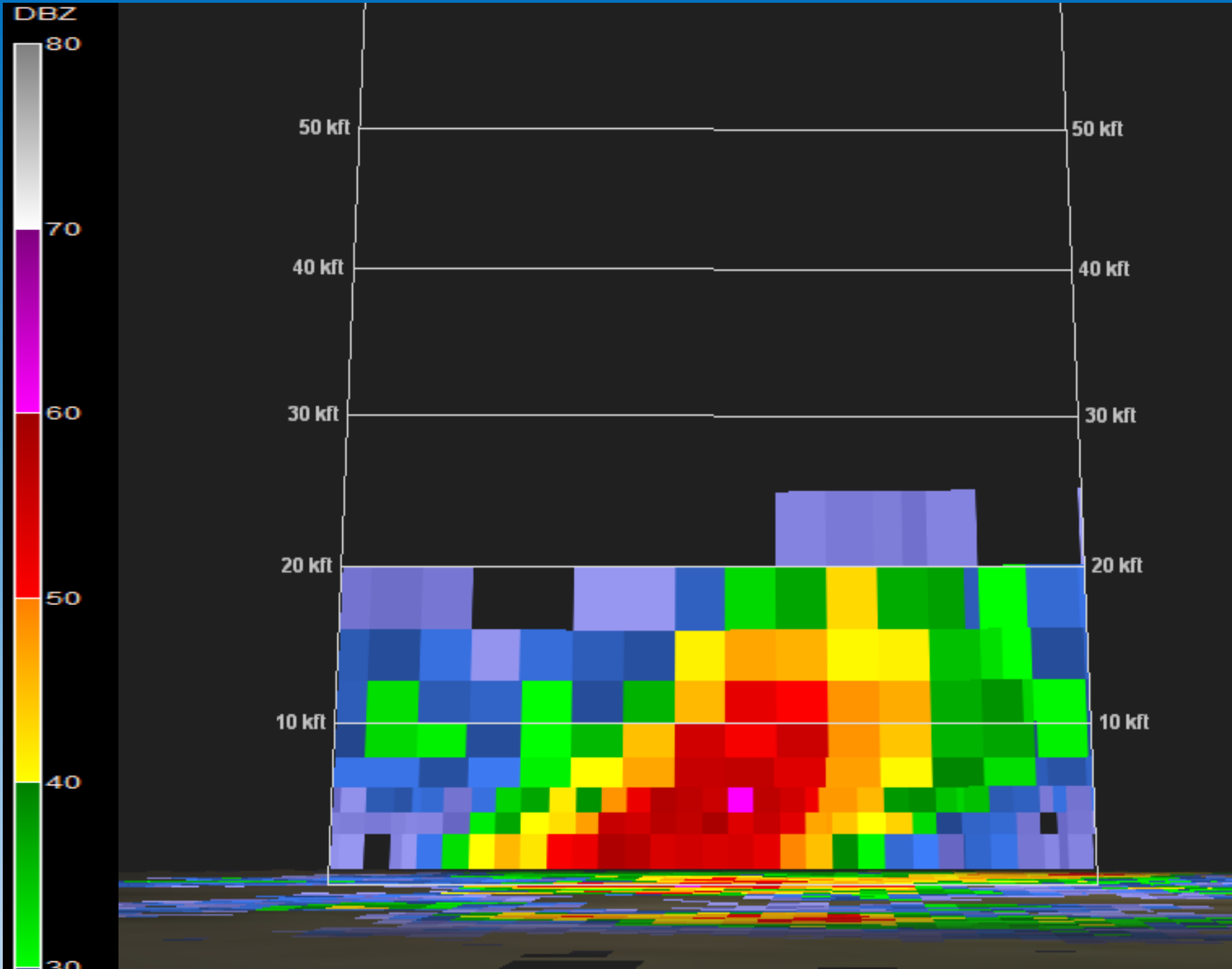
- Radar Variables:

- Reflectivity
- Dual Pol.

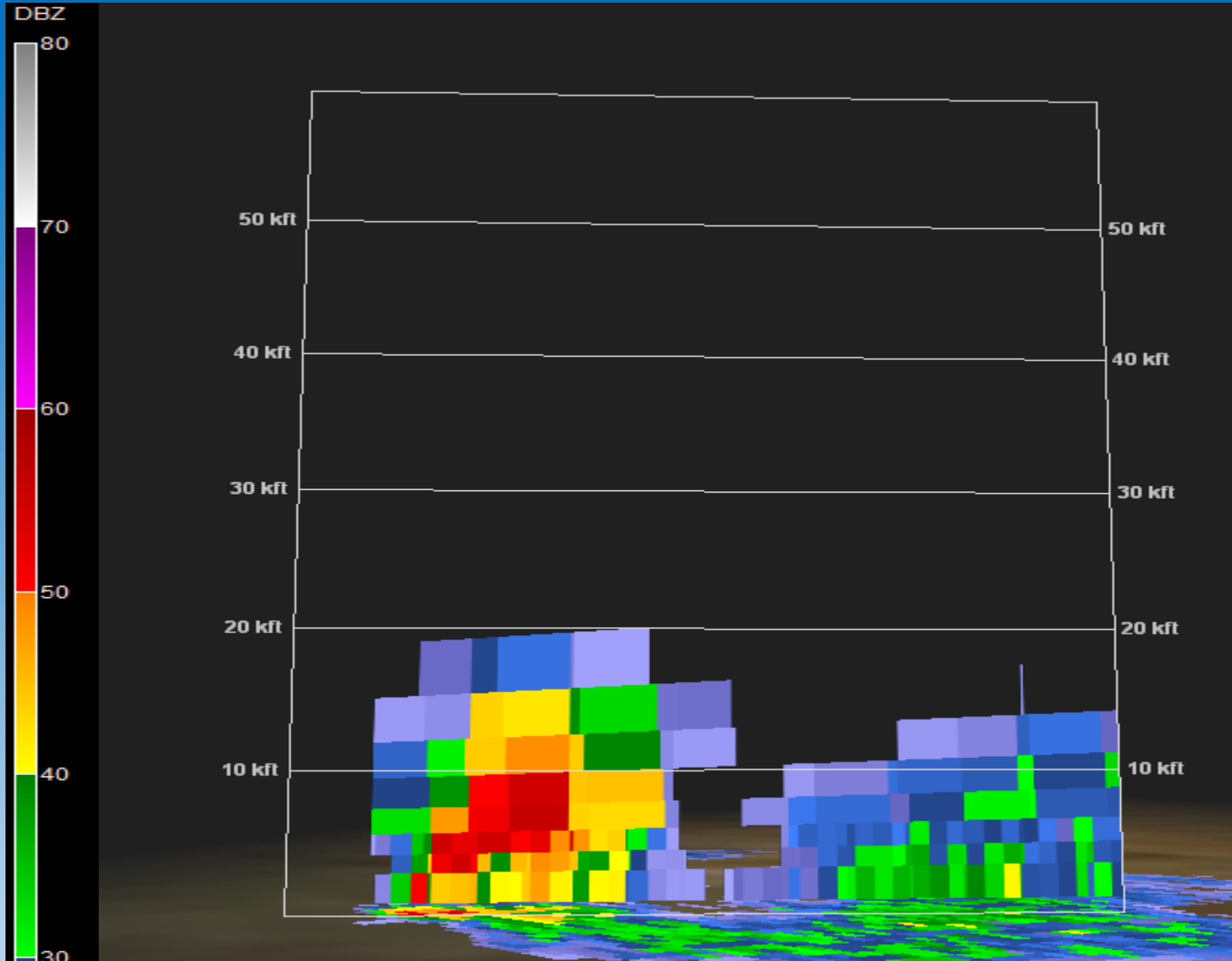






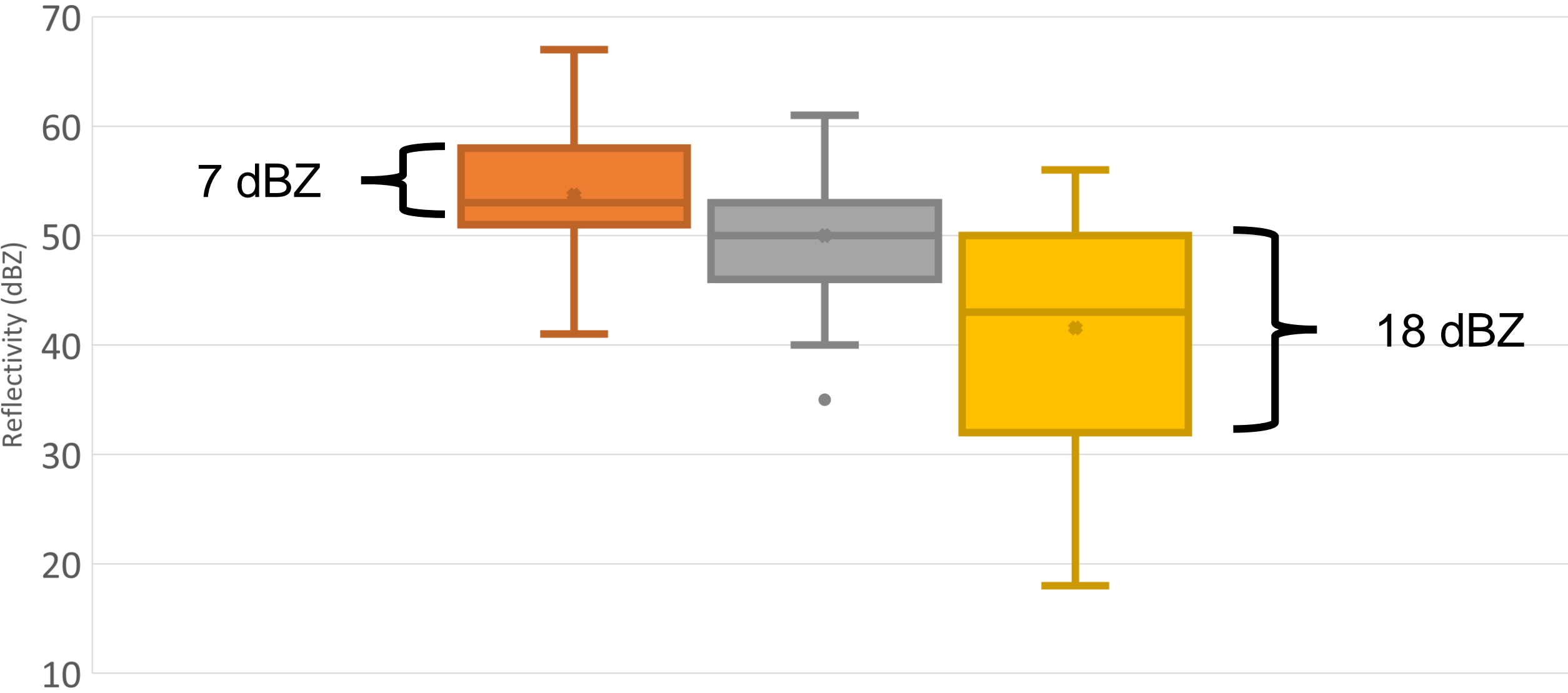


Fresno, CA
4/12/2010
-Size: 1"
-Acc. 2" to 3"



Clovis, CA
1/23/2010
-Size: 0.25"
-Acc. 1.5 -2"

Reflectivity at Freezing Levels

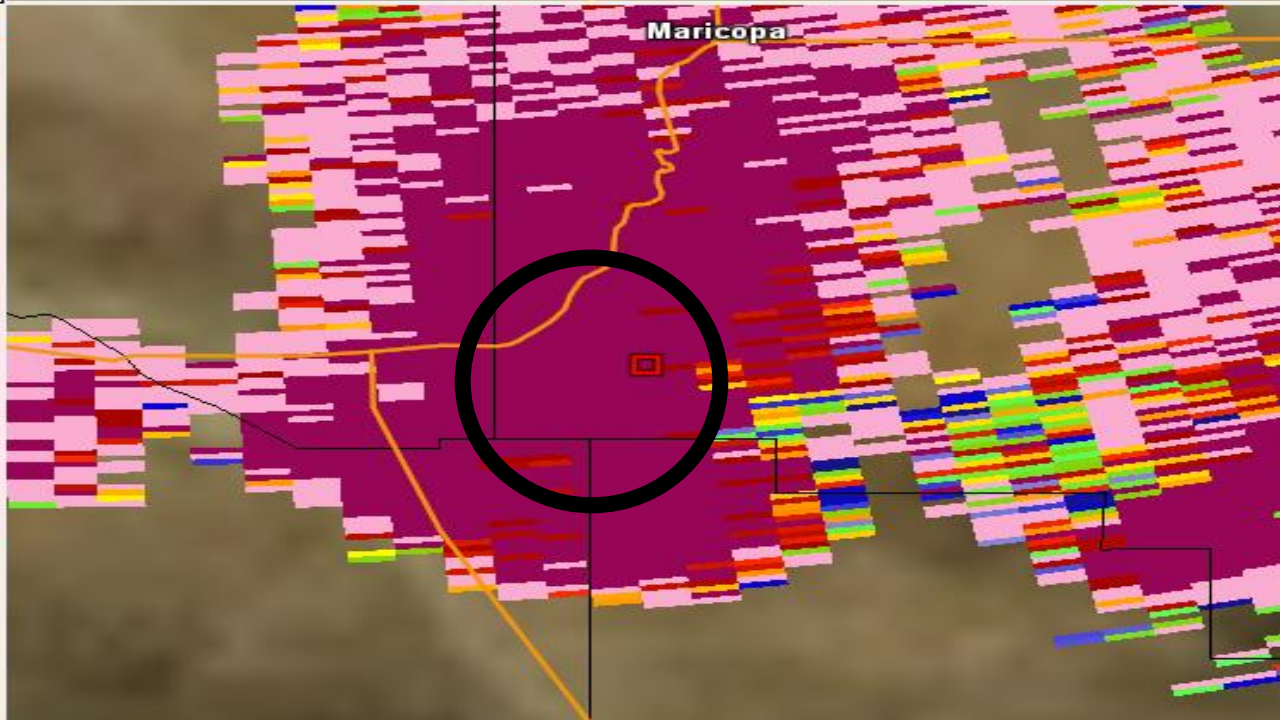
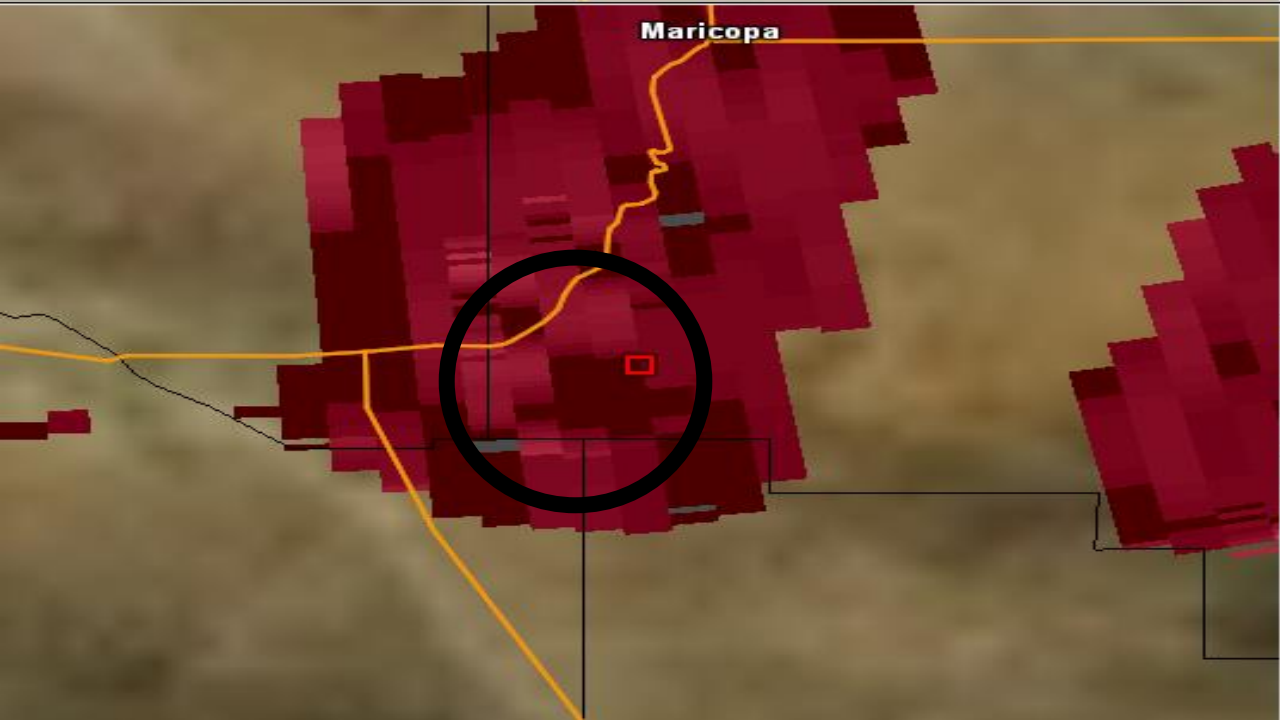
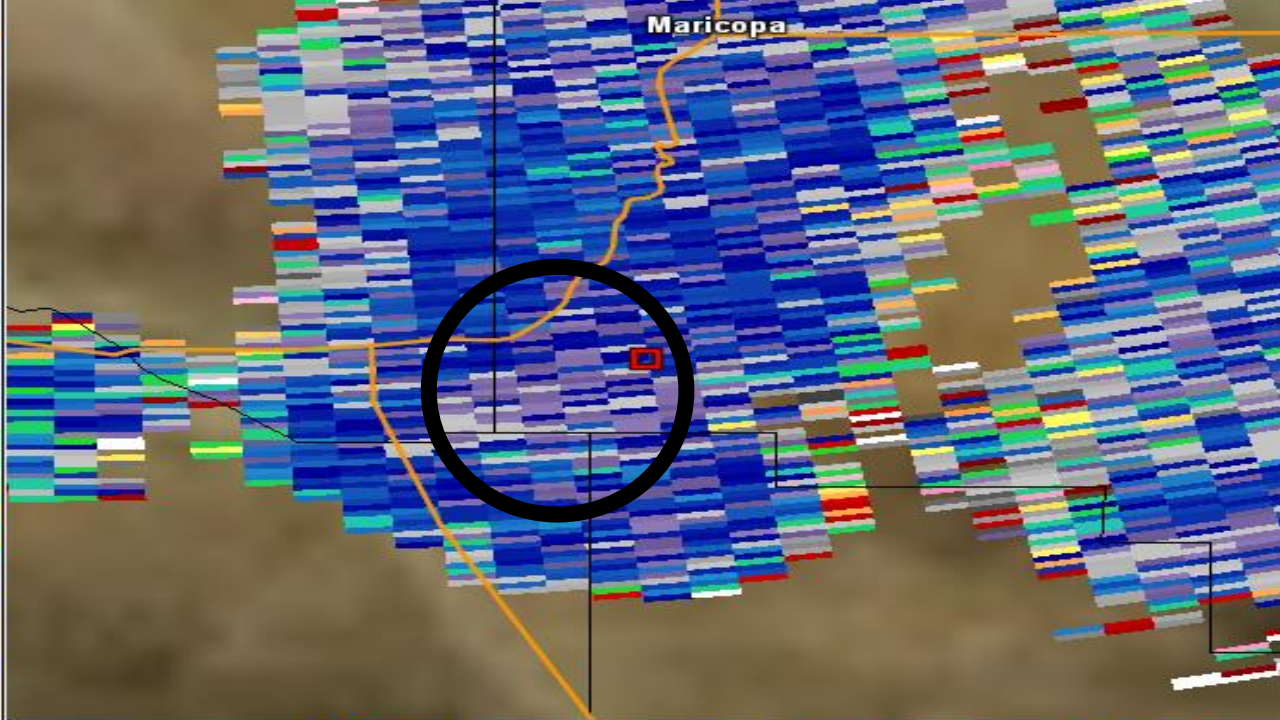
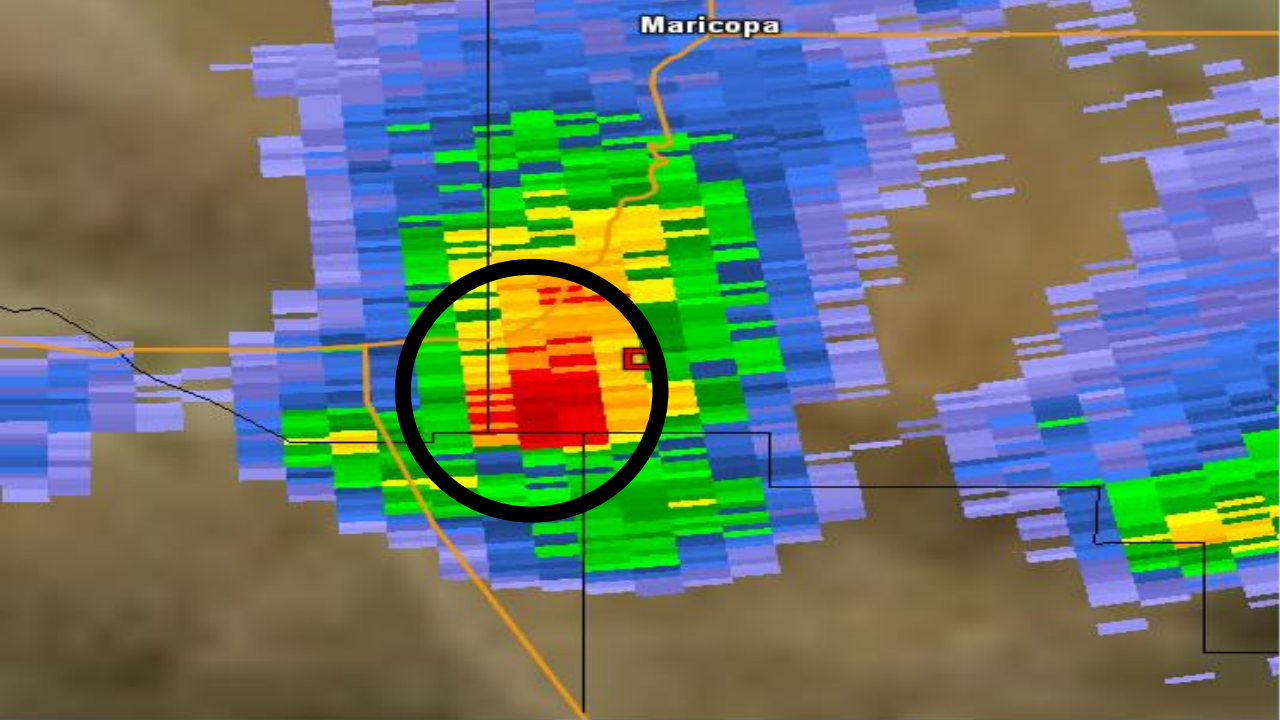


■ Reflectivity at 0C ■ Reflectivity at -10C ■ Reflectivity at -20C

Dual-Pol Characteristics

- Number of cases with Dual Pol data: 15
- Dual Pol Variables
 - CC: Mean: 0.99
 - KDP: Mean: 0.47 dB
 - ZDR: Mean: 0.34 deg/km
- Relation to previous studies.
 - Small, dry hail





Summarized Results

- Low freezing levels & wet-bulb zero height.
- Upper-level temperatures.
- Large variance in reflectivity at -20C level.
- Dual-Pol.

IDSS/Calls to Action

- Calls to action with Significant Weather Advisories
- IDSS
 - Partner emails.
 - Social media.
 - Core partners: Caltrans, CHP, Park Service

Develop a Database

- Details of Event.
- Sub-severe criteria: Only if hail accumulates.
- Inventory reports.



Thank You!!



Questions?

