

P220: Analysis of the March 30, 2011 Hail Event At Shuttle Launch Pad 39A

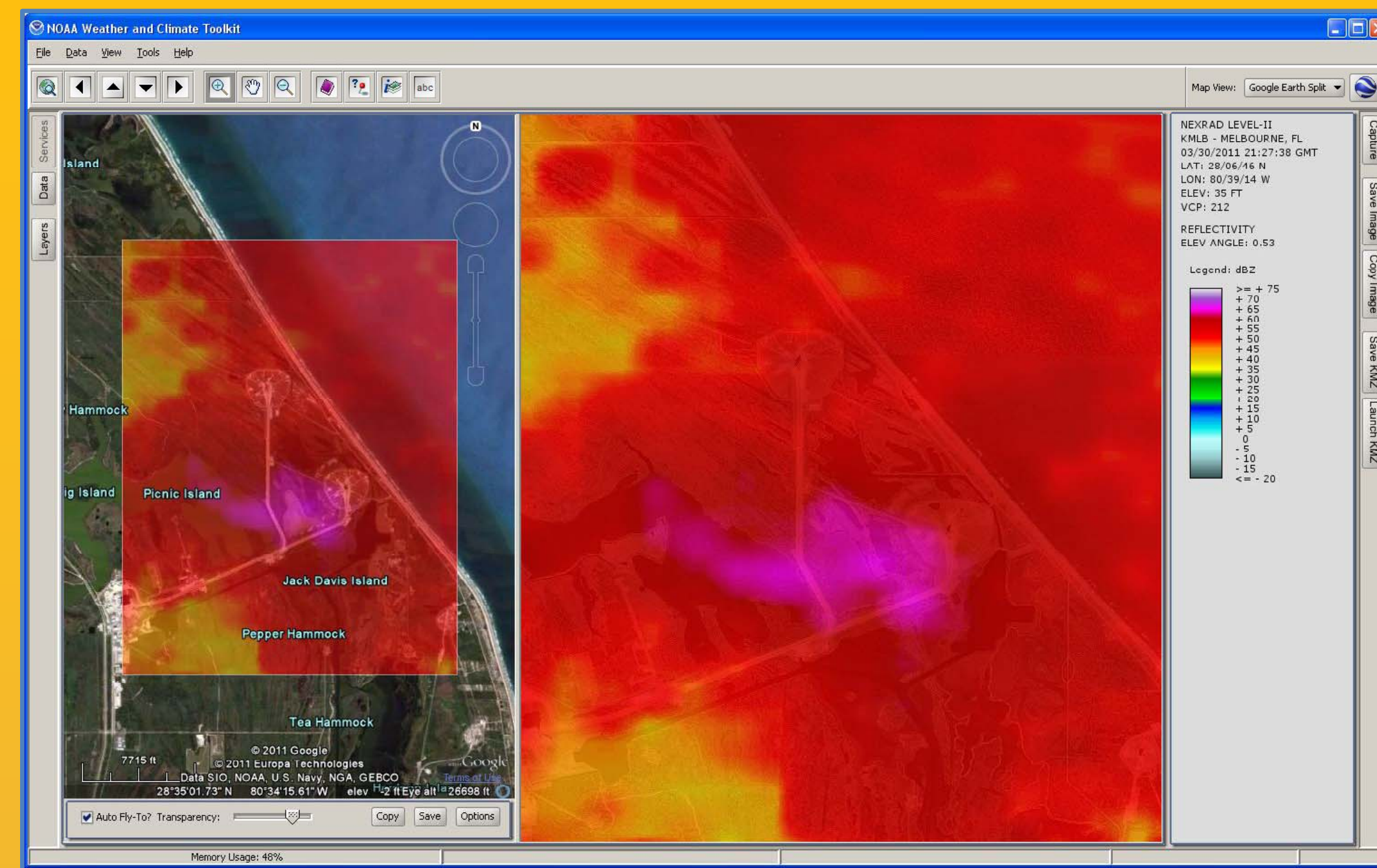
John E. Lane, Easi-ESC, Kennedy Space Center, FL

Nolan J. Doesken, Colorado State University, Ft. Collins, CO

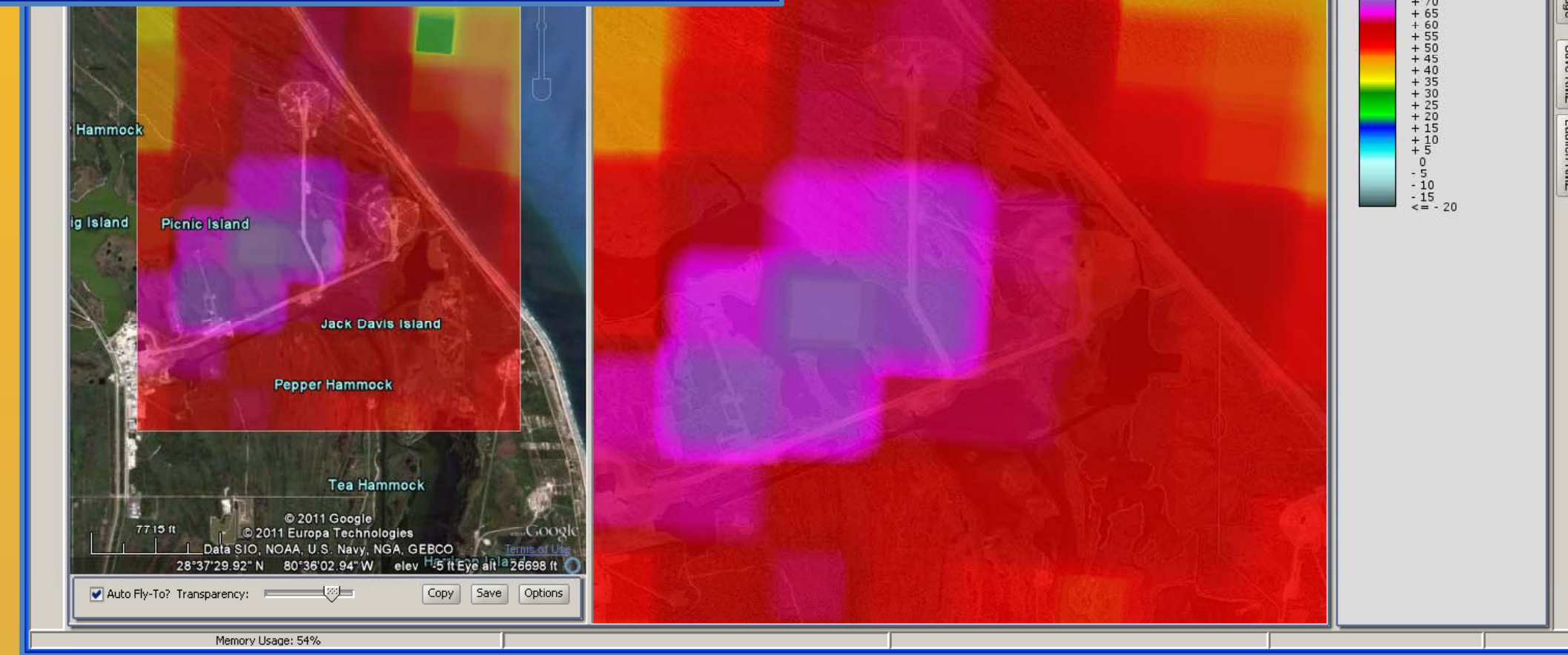
Takis C. Kasparis, Cyprus University of Technology, Lemesos, Cyprus

David W. Sharp, National Weather Service, Melbourne, FL

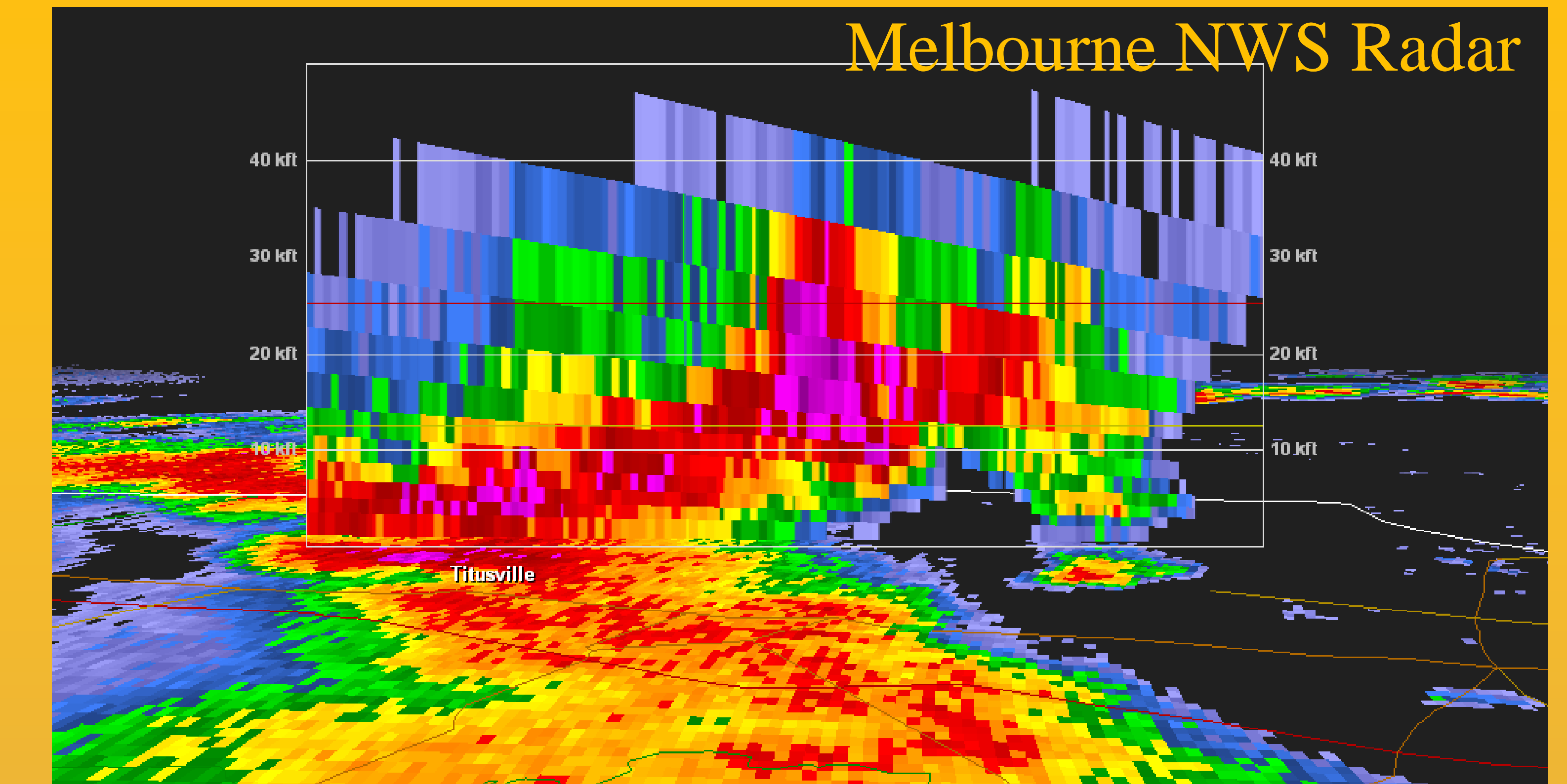
STS-134 Event
(March 30, 2011)



STS-117 Event
(February 26, 2007)

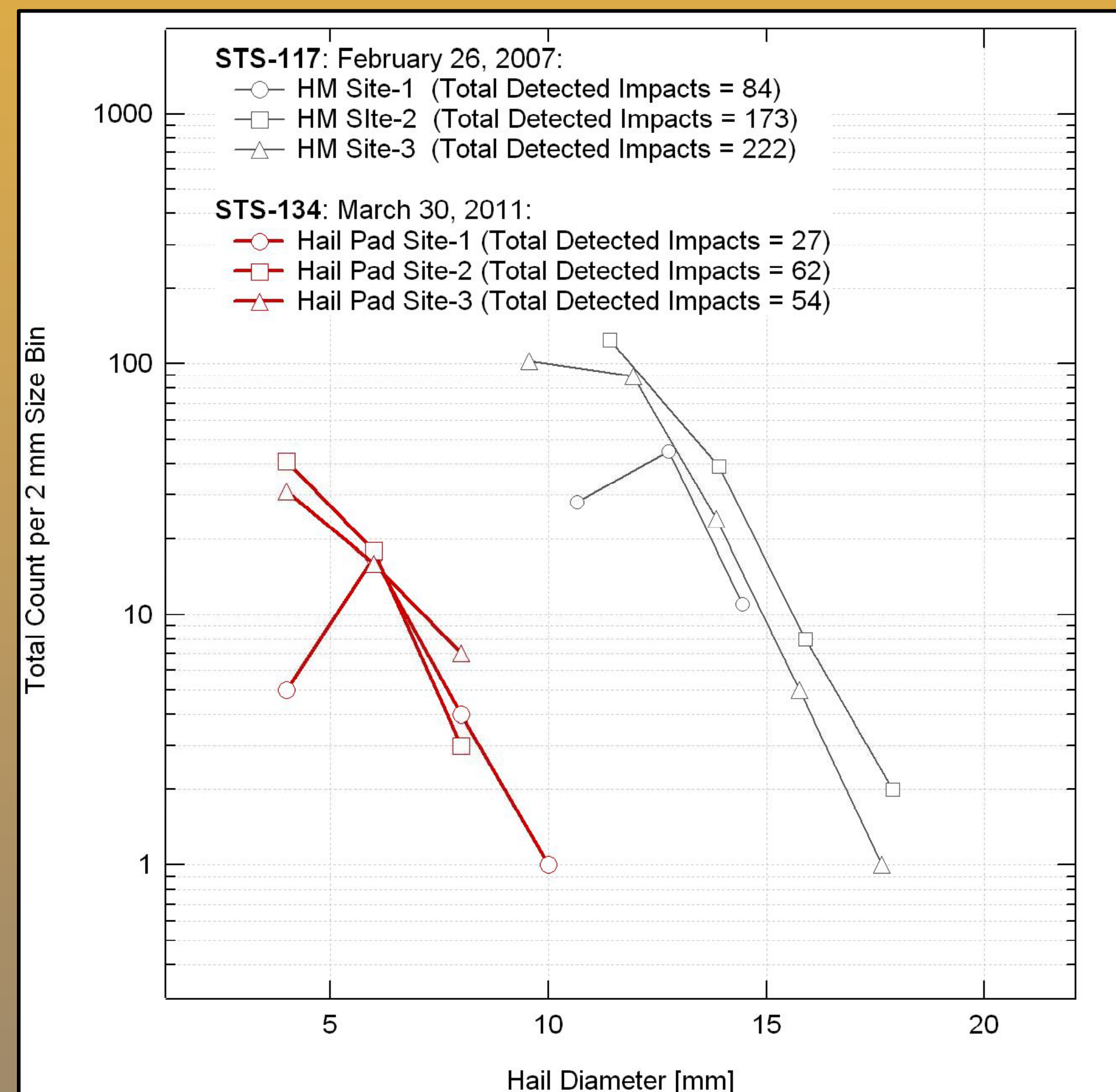


- During the late afternoon of March 30, 2011 at approximately 21:25 GMT, hail monitor stations at Pad 39A recorded pea size hail while STS-134 Endeavour was preparing for its final flight into space.
- The maximum hydrometeor size detected by the composite measurement of the three hail disdrometers and three hail pads surrounding the launch pad structure was estimated to be no larger than 12 mm, corresponding to the 6 sq. ft. total sensor measurement area.
- Damage to external tank was minimal and repair was not required.

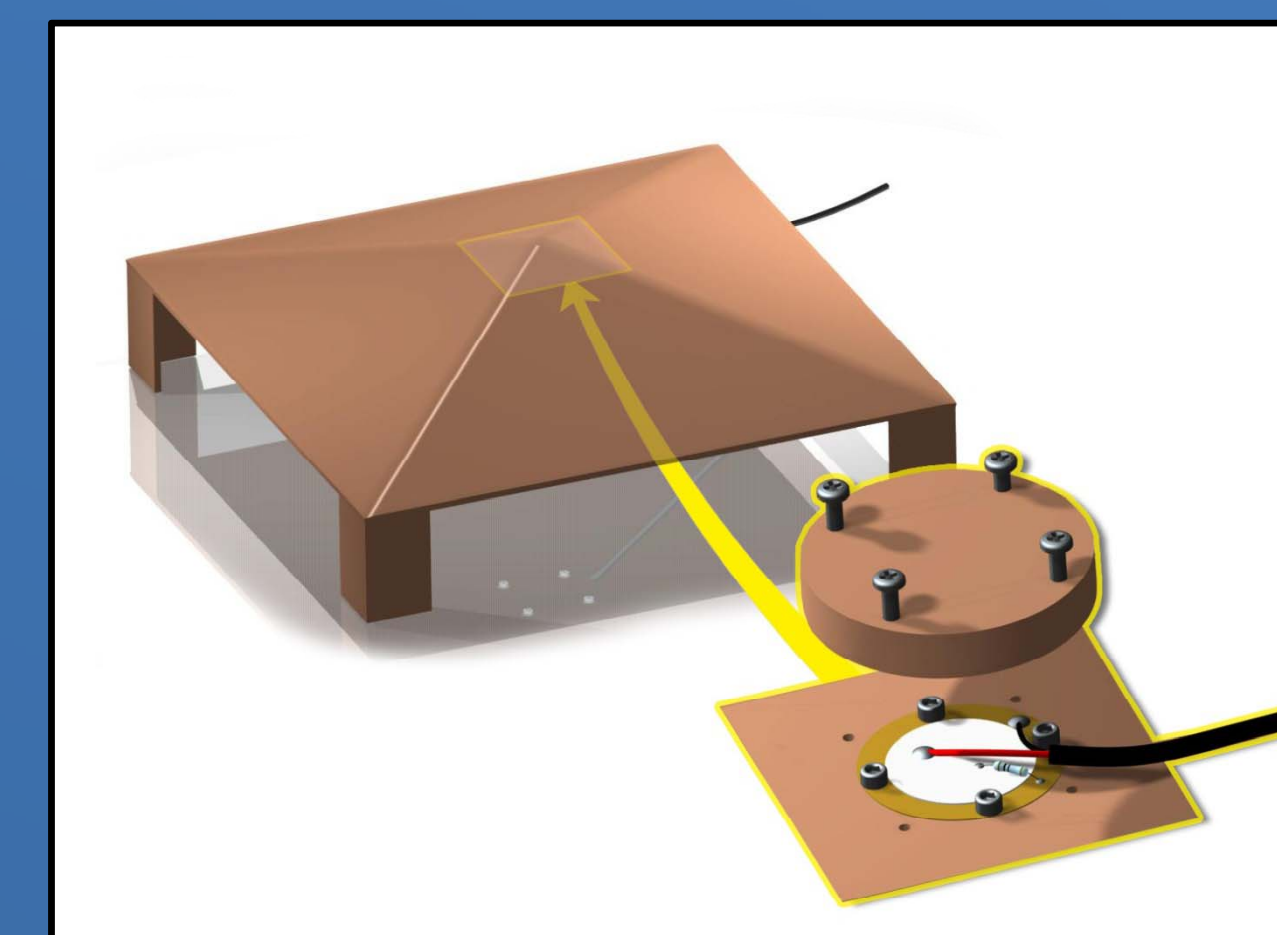


The viewing angle of the image is from the inland direction (origin west of Titusville and KSC) looking east (into the image). Note the hail (very high dBZ; purple) descending to the surface near Titusville, and the elevated hail aloft (between 10-30 kft) extending NW-SE from near Titusville toward KSC (aloft).

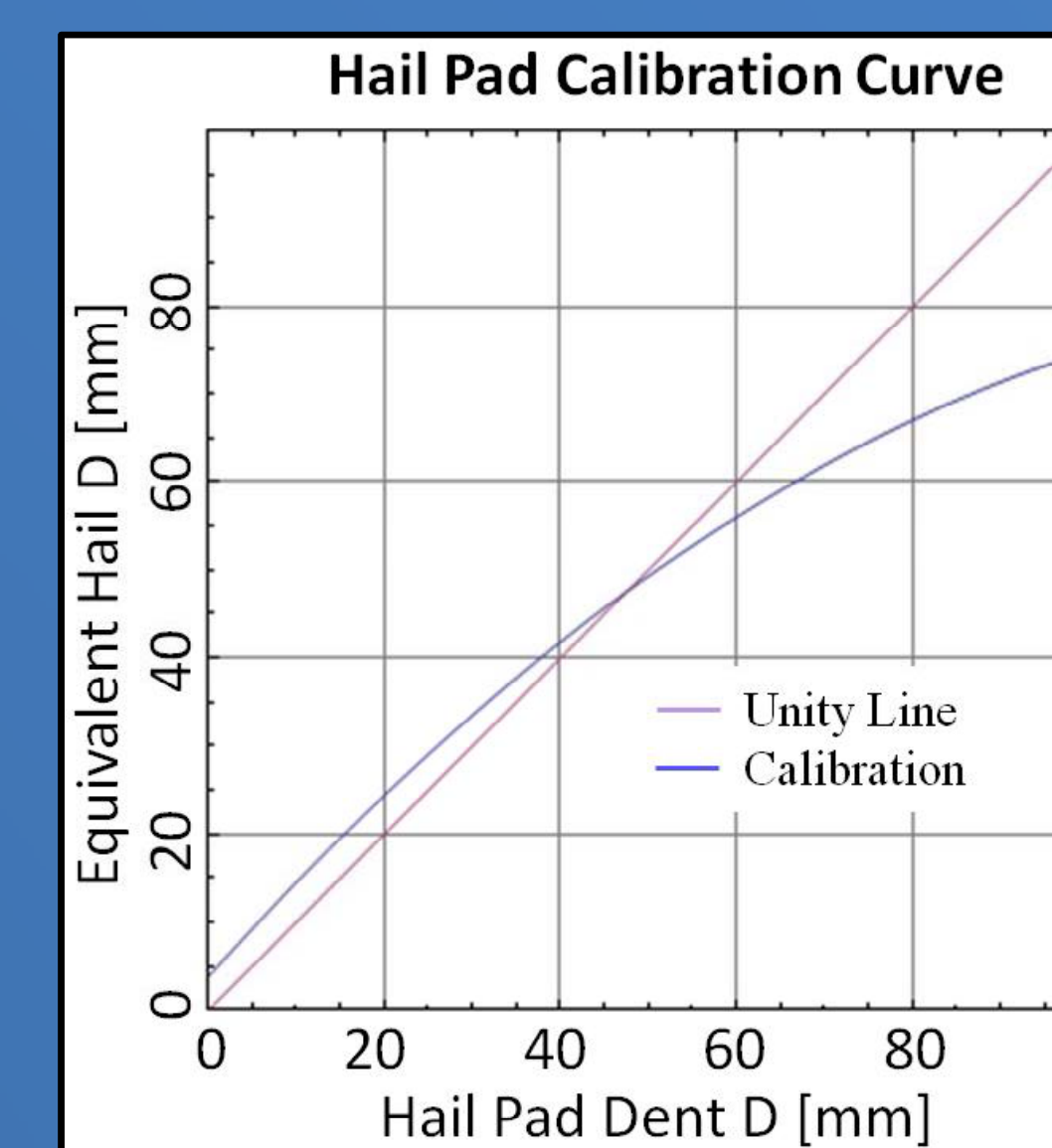
Storm Total Hail Distribution



KSC Hail Disdrometer



Hail Impact Transducer

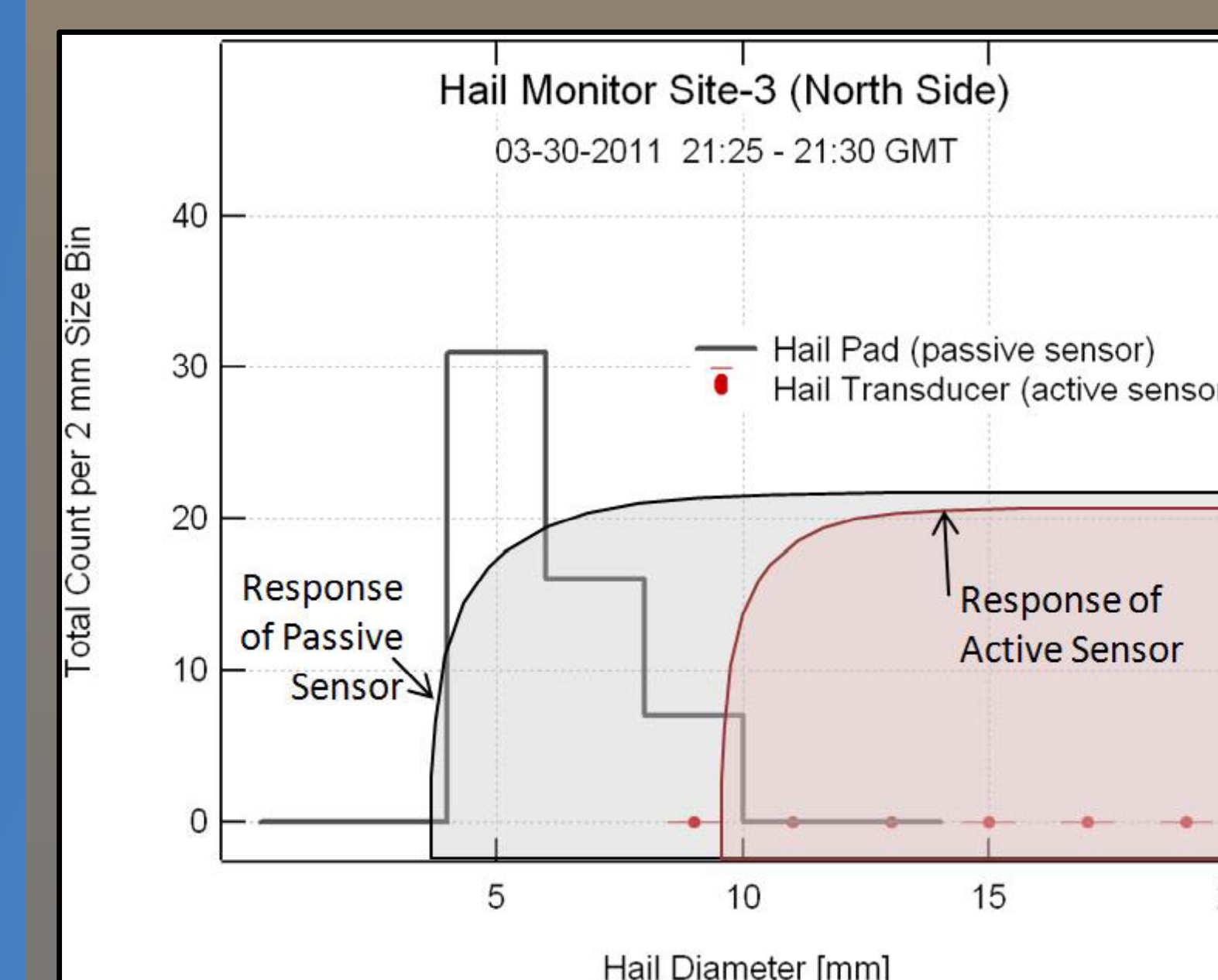
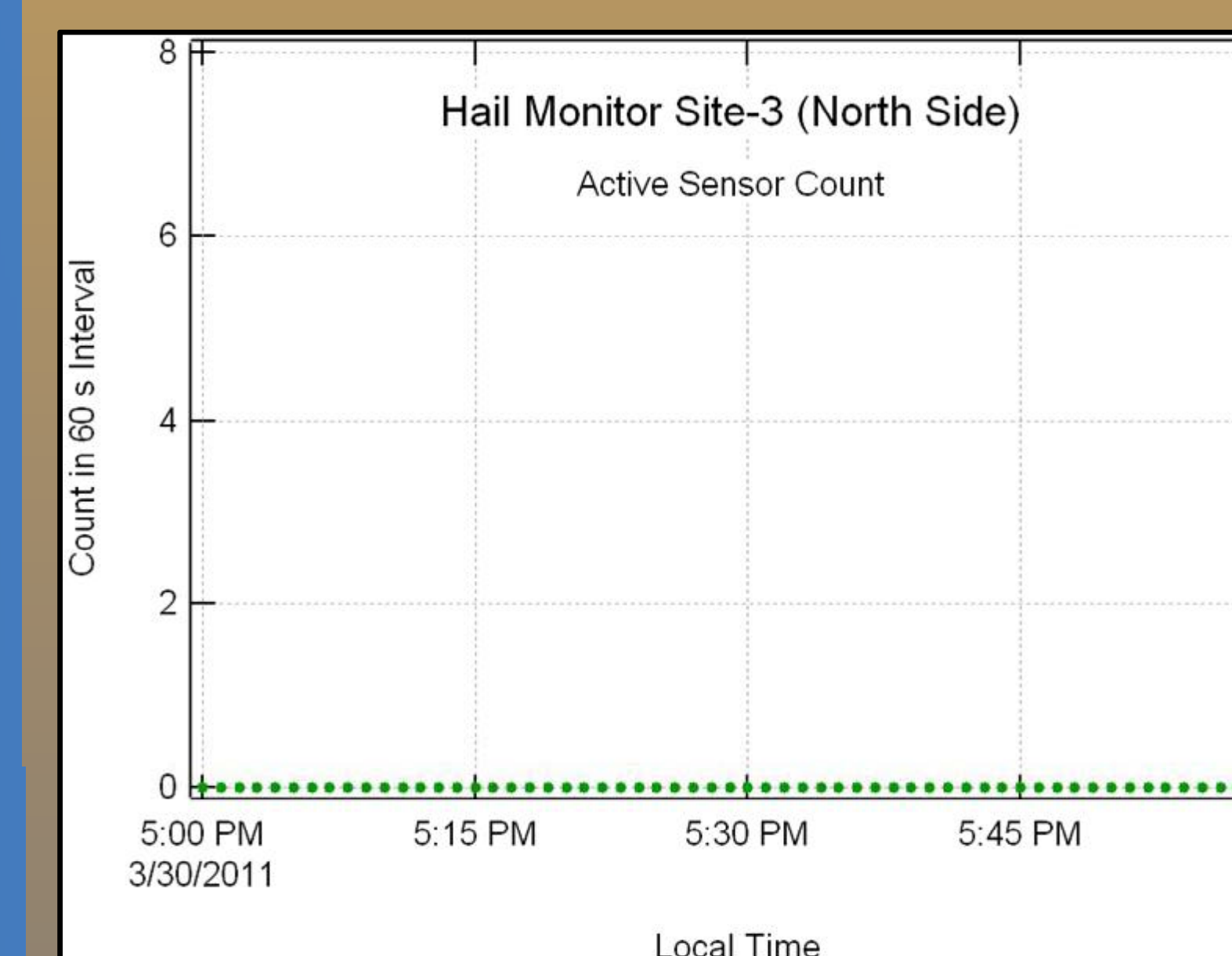


Hail Pad Calibration

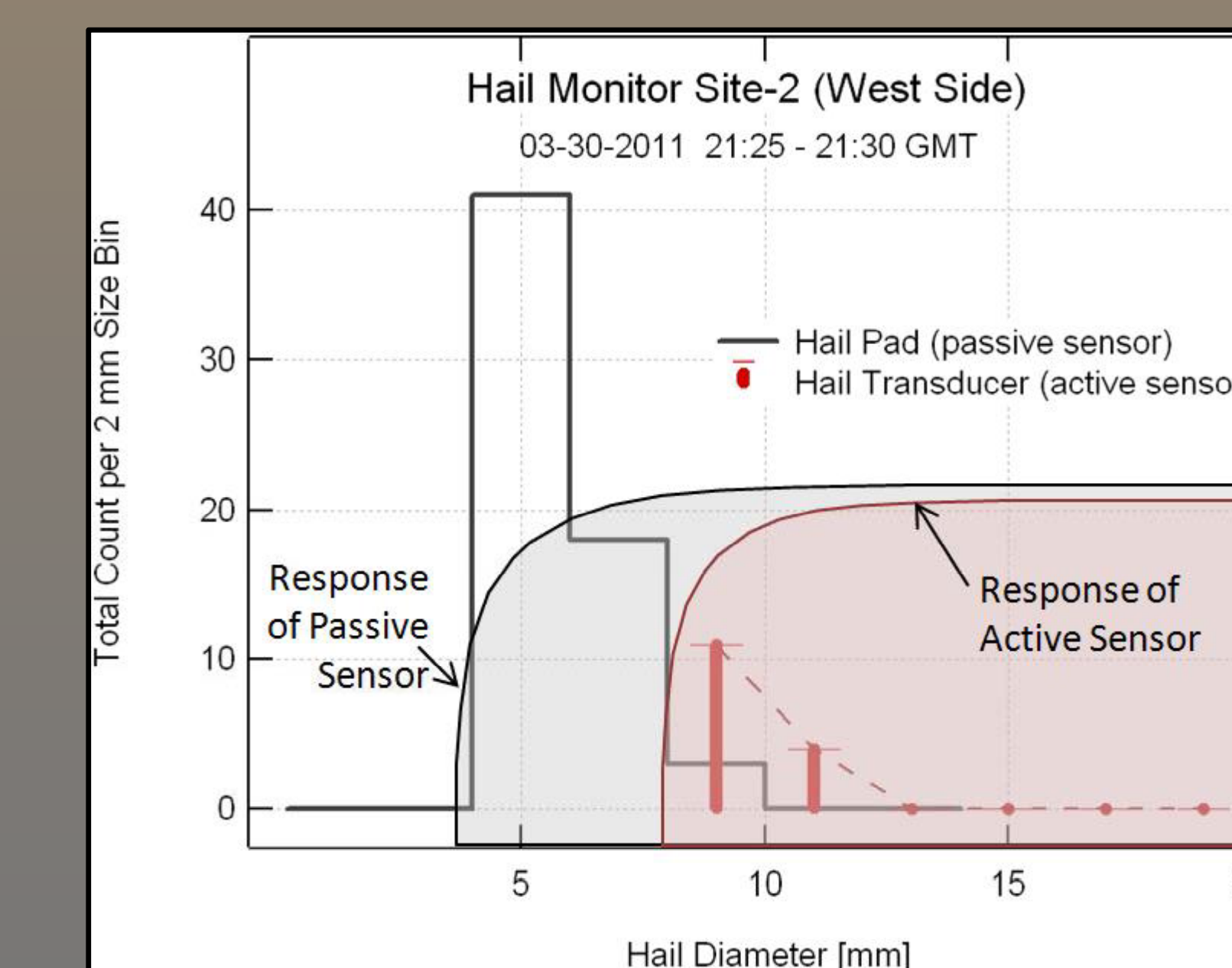
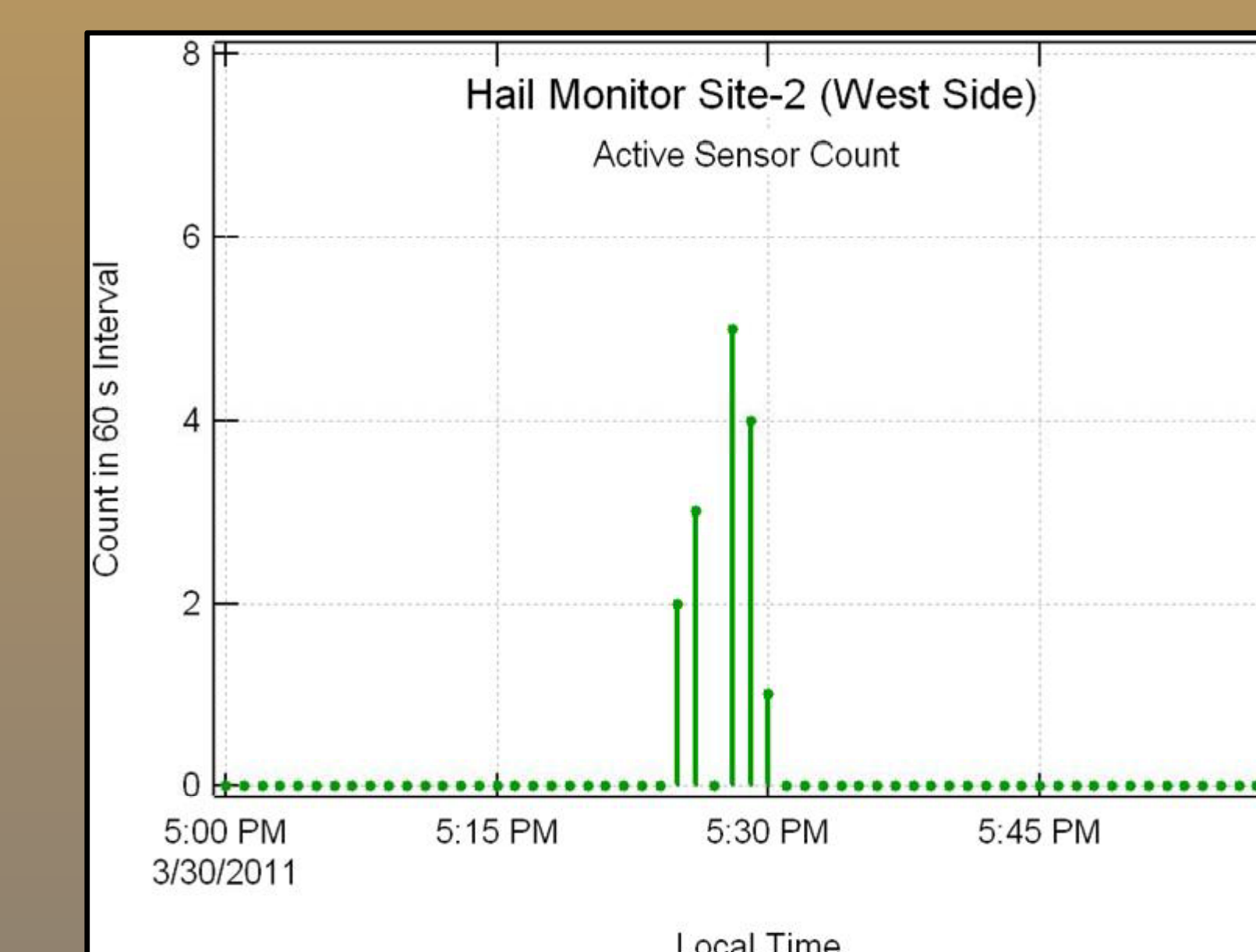


Diameter Size Displays

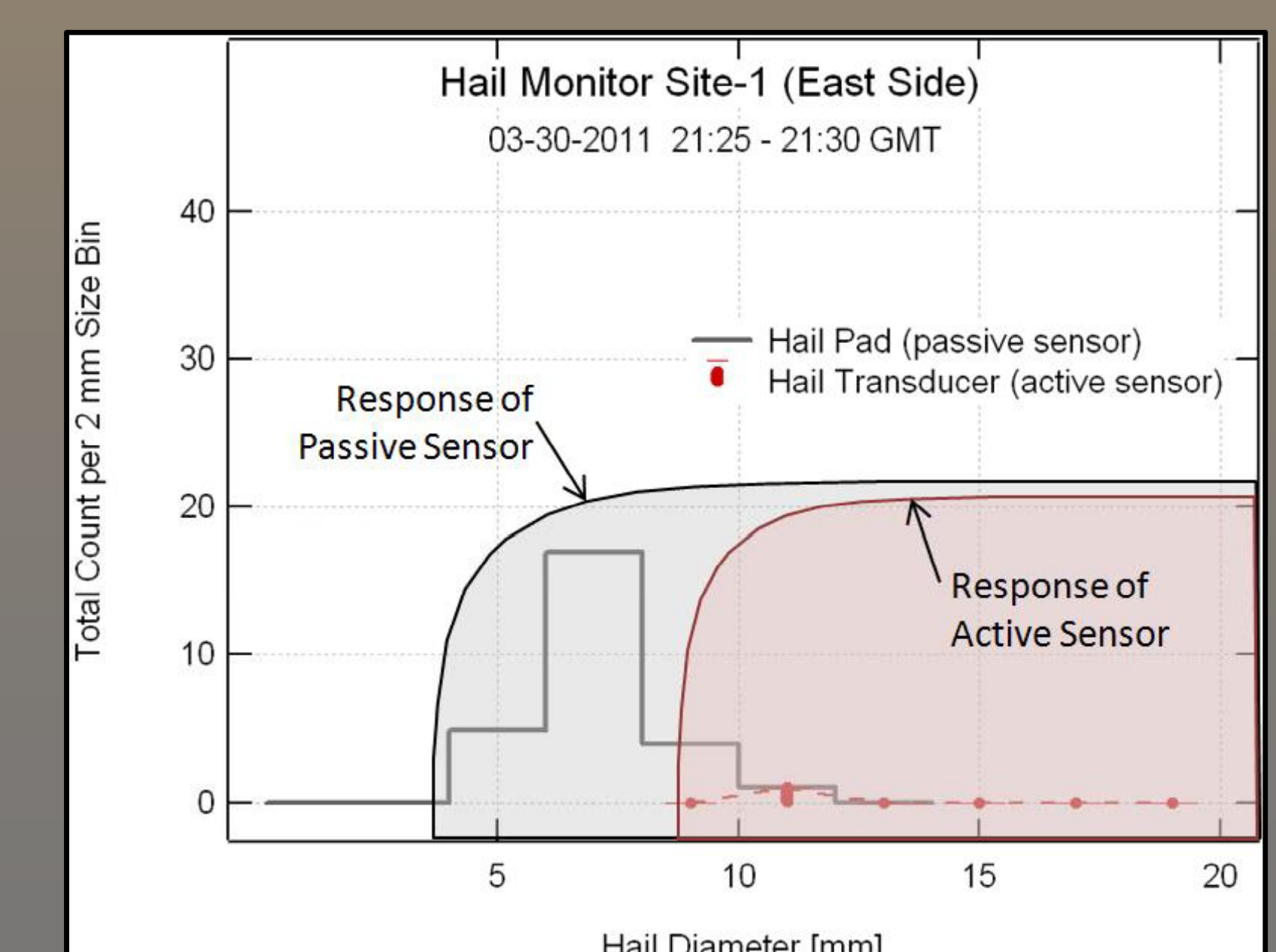
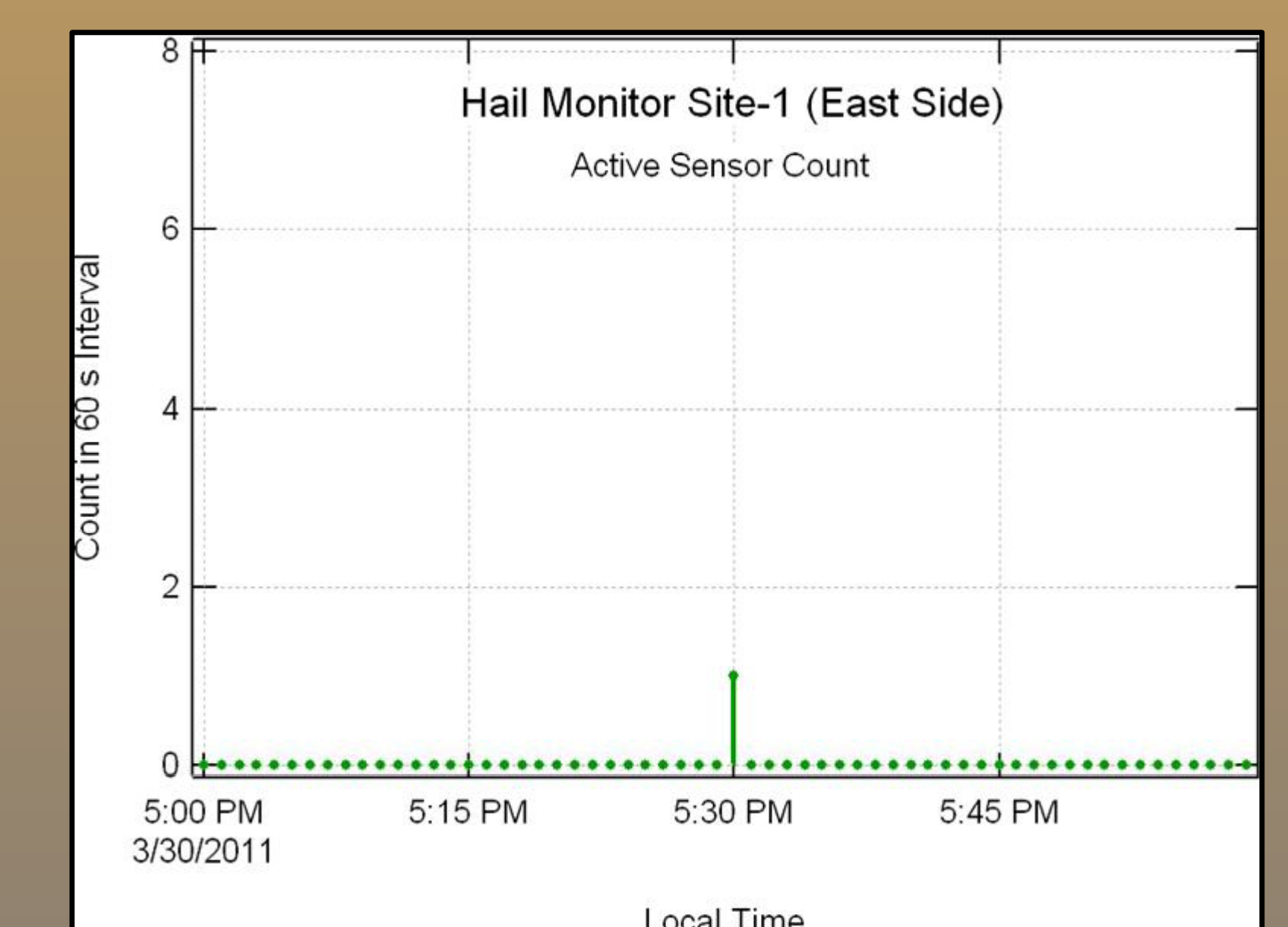
Site-3 Hail Pad



Site-2 Hail Pad



Site-1 Hail Pad



Hail Monitor System – Pad 39A



Kennedy Space Center, FL