



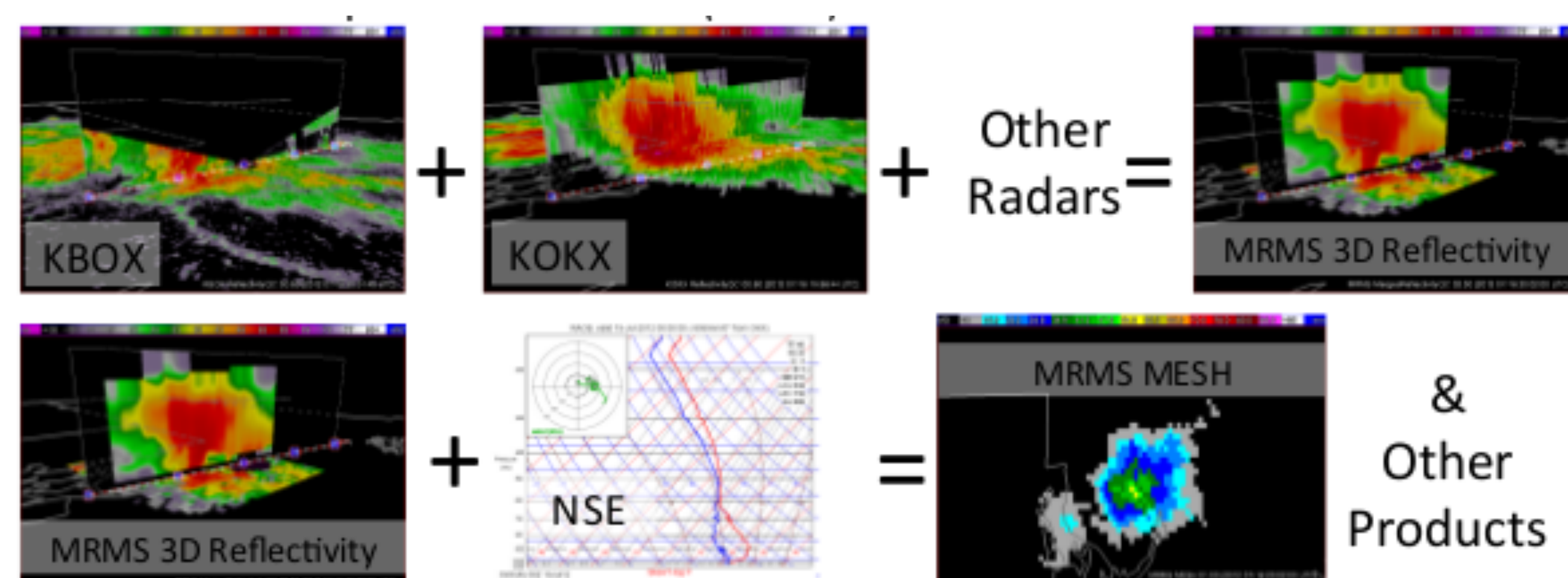
A Multi-Radar, Multi-Sensor-based Hail Climatology for the CONUS: 2000-2011

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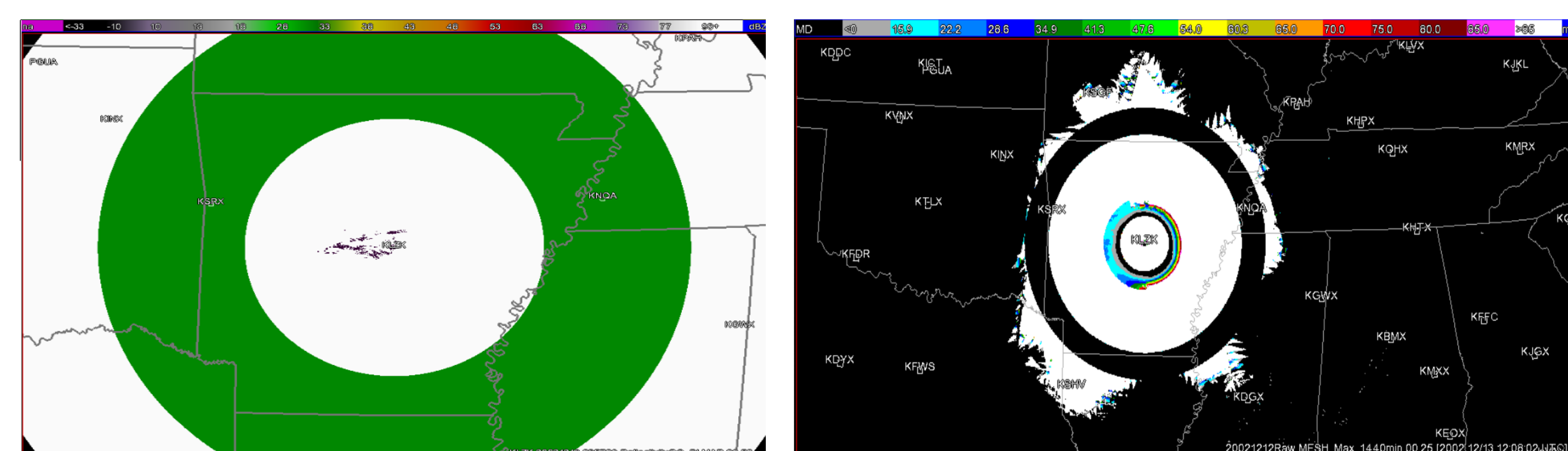


Introduction

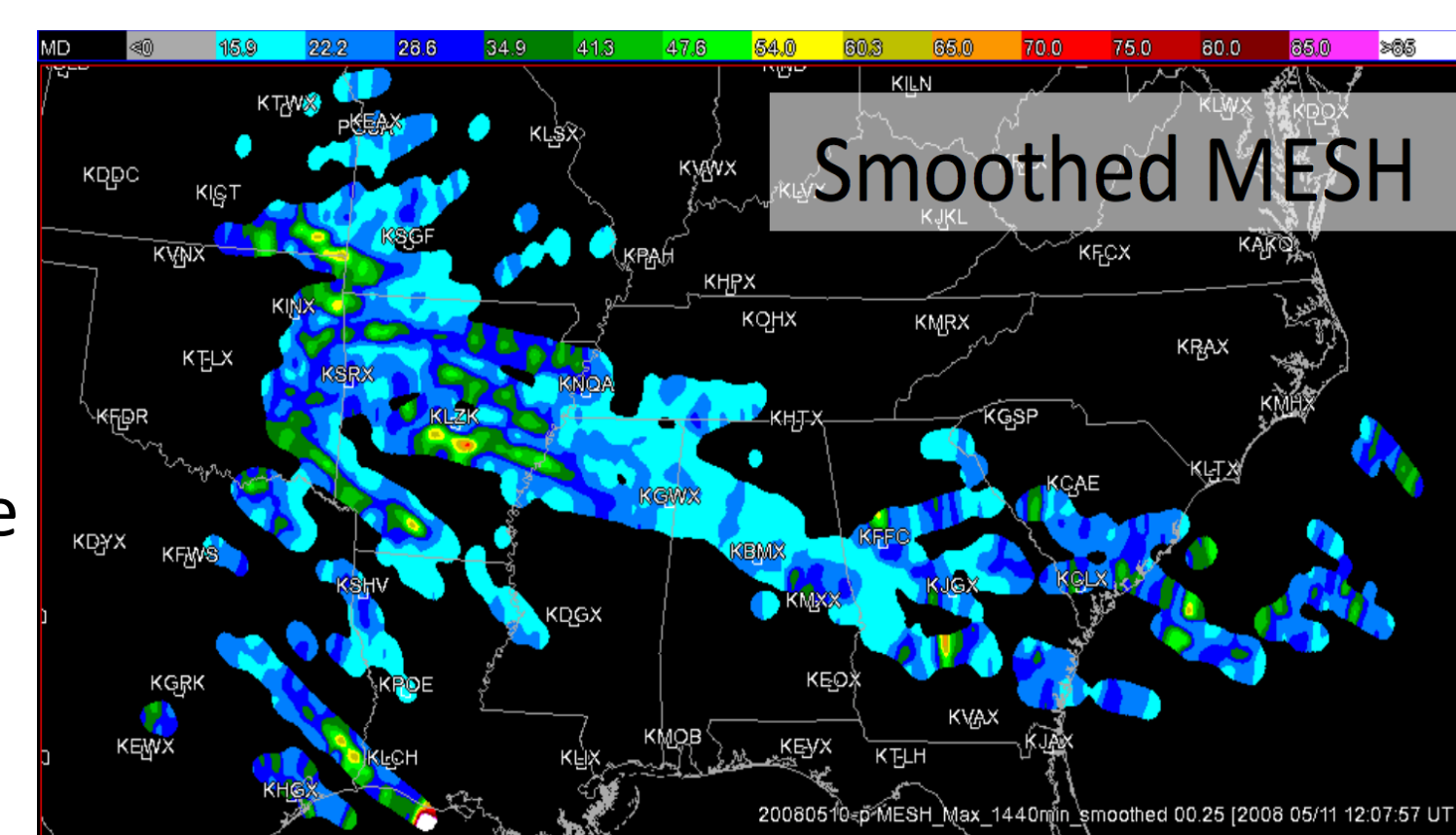
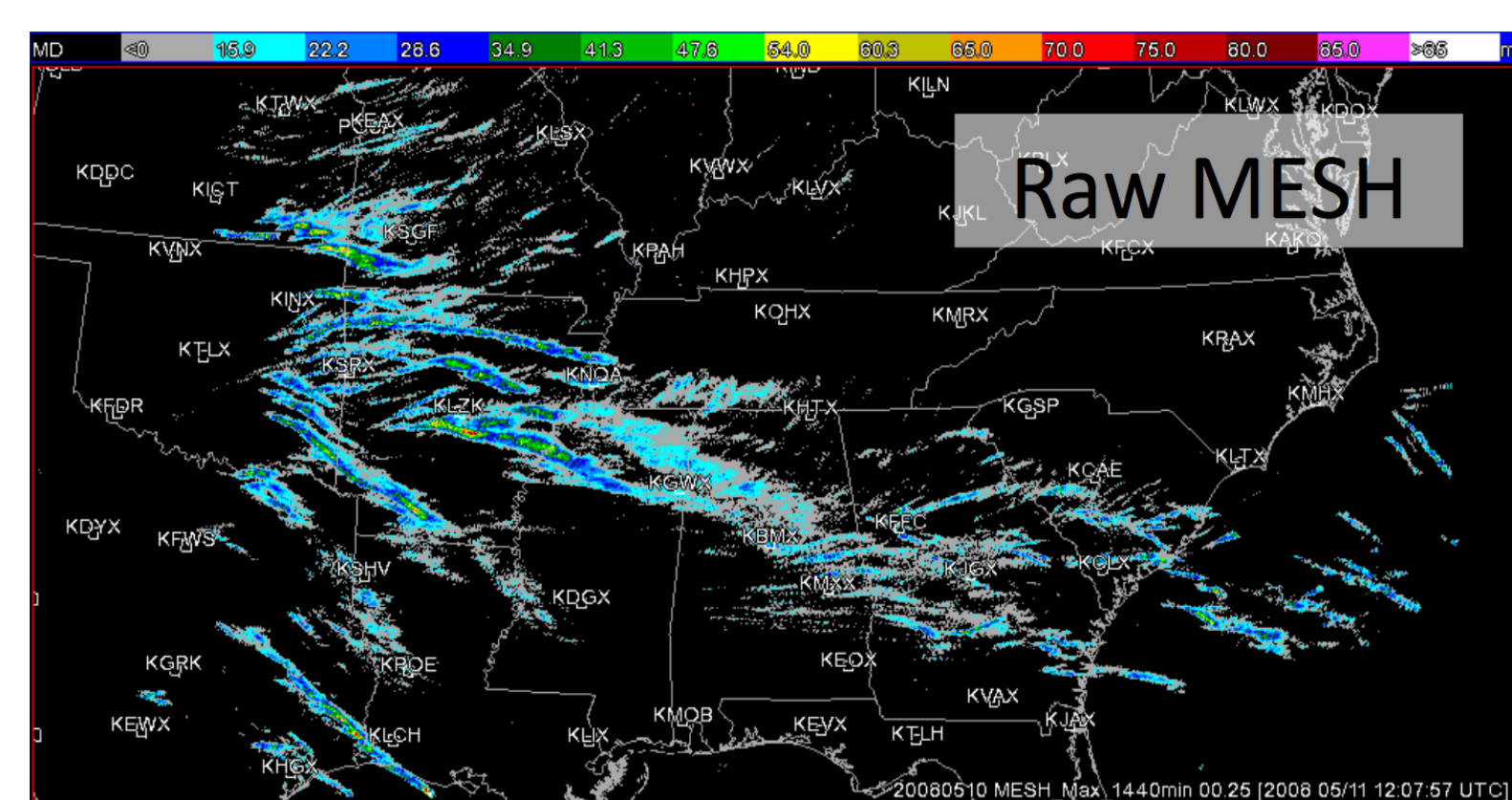
- This project uses data from Multi-Year Reanalysis of Remotely Sensed Storms (MYRORSS) for years 2000-2011.
- MYRORSS was a project that involved reprocessing the archive of WSR-88D level-II data for the contiguous United States
- MYRORSS data combines WSR-88D radar data with RUC/RAP model analyses and produces Multi-Radar Multi-Sensor (MRMS) grids, such as Maximum Expected Size of Hail (MESH).



Quality Control (QC)

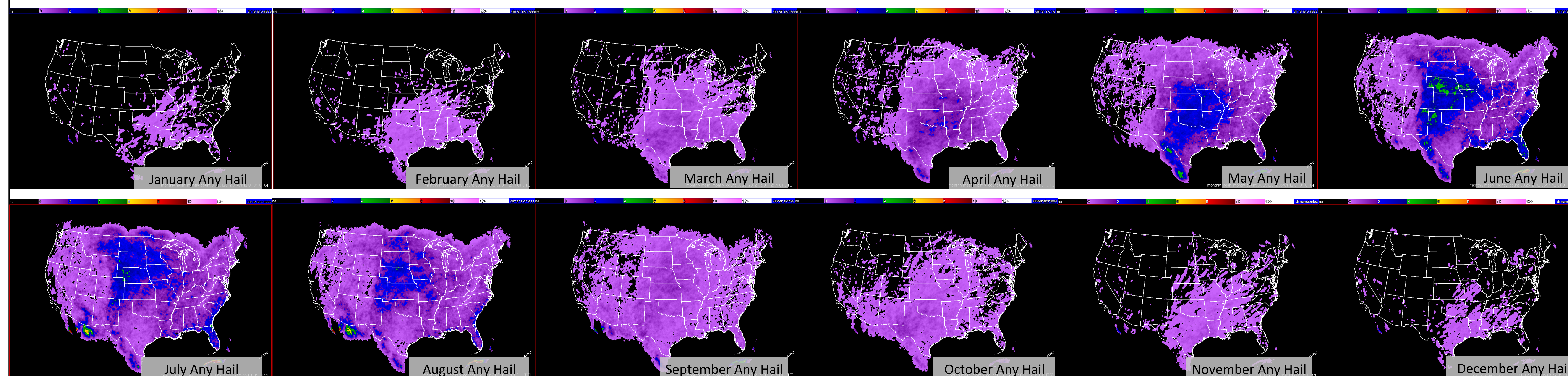
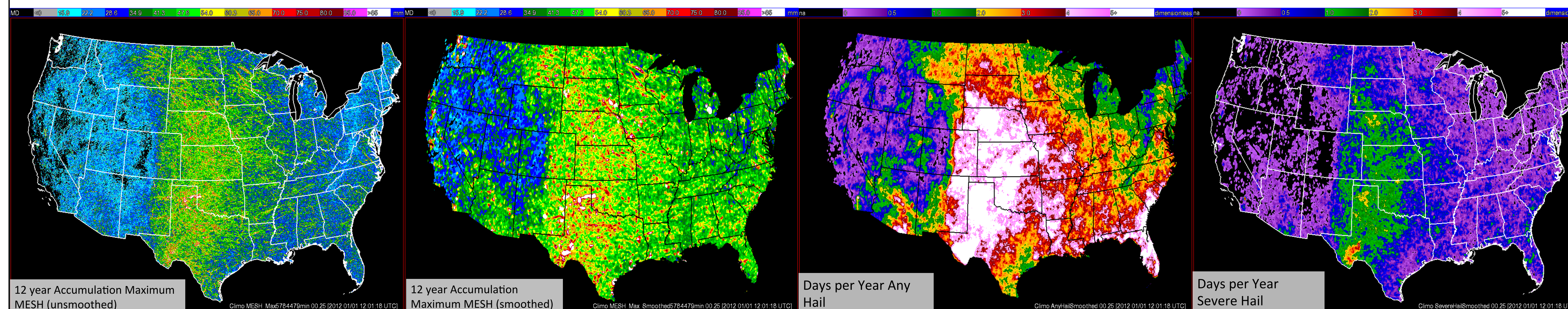


- Analyze daily accumulations of MESH.
- Errors in reflectivity data result in erroneous MESH values.
- The bad data were removed, if possible, then reprocessed the day.
- Once a full year was reprocessed, the data was accumulated.
- Accumulations ran through a series of smoothers to clean up the field.

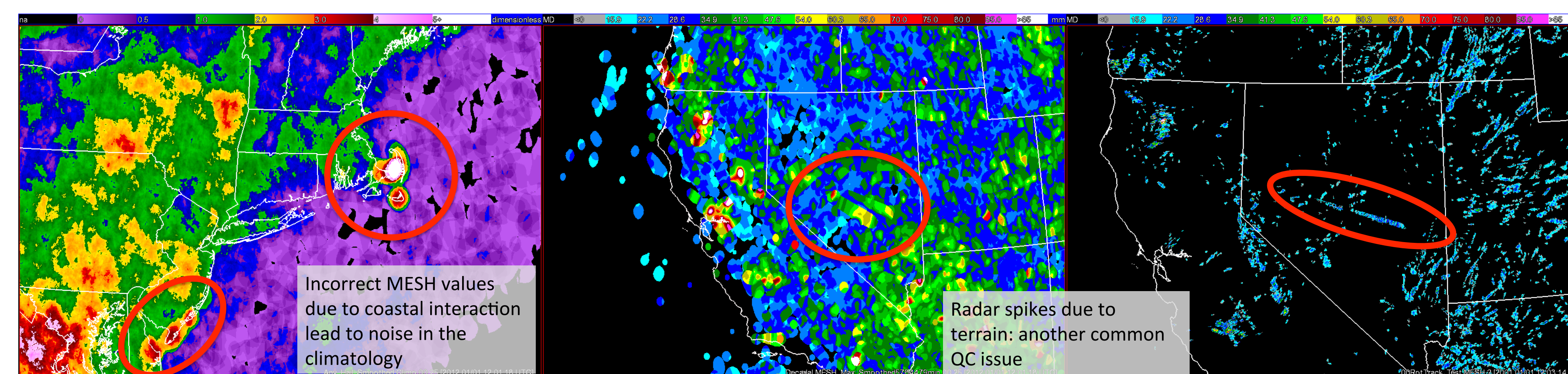


- Raw MESH fields were accumulated with a multiple hypothesis technique. Accumulations were smoothed using multiple dilation and erosion filters, preserving smaller tracks while eliminating noise, and finished with a Gaussian filter.

Results



Issues



- Persistent QC problems (e.g. coastal interaction, radar spikes) affect the hail days per year climatology
- Cannot manually remove some errors due to other precipitation in the area

Future Work

- Explore variability of hail estimates per given near-storm environment
- Develop a climatology that estimates the likelihood of severe hail using coarser grid spacing
- Compare MESH to other MRMS grids to see if any major differences in a radar-derived hail climatology exist between products

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