Thunderstorm Electrification and Lightning Simulation

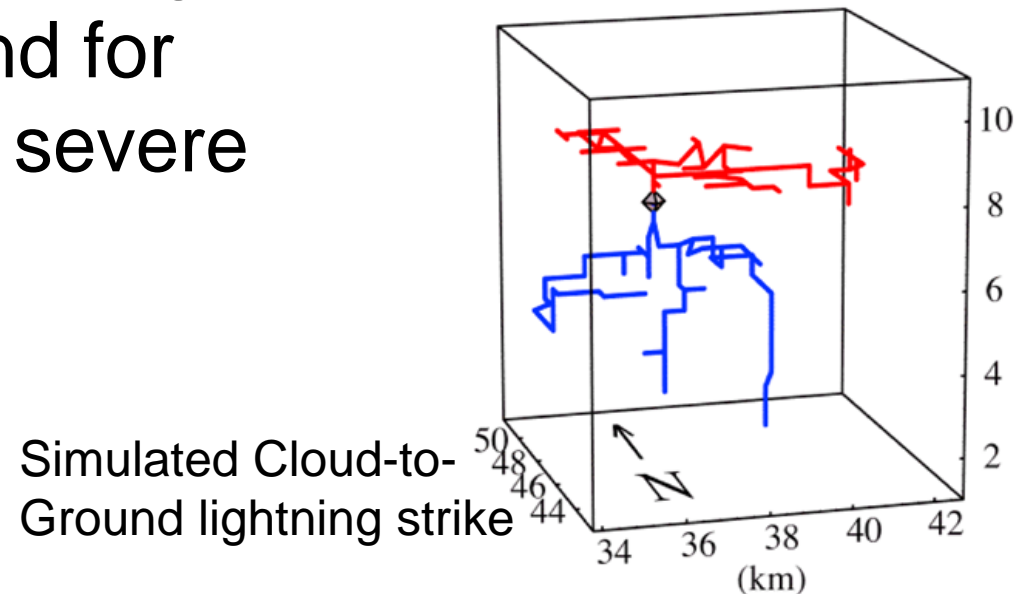Edward "Ted" Mansell
NSSL/WRDD

Lightning at NSSL

NSSL is a leader in both observation and numerical simulation of thunderstorm electrification and lightning.

Growing interest in using lightning in forecast data assimilation and for nowcasting (e.g., identifying severe potential, cell tracking).
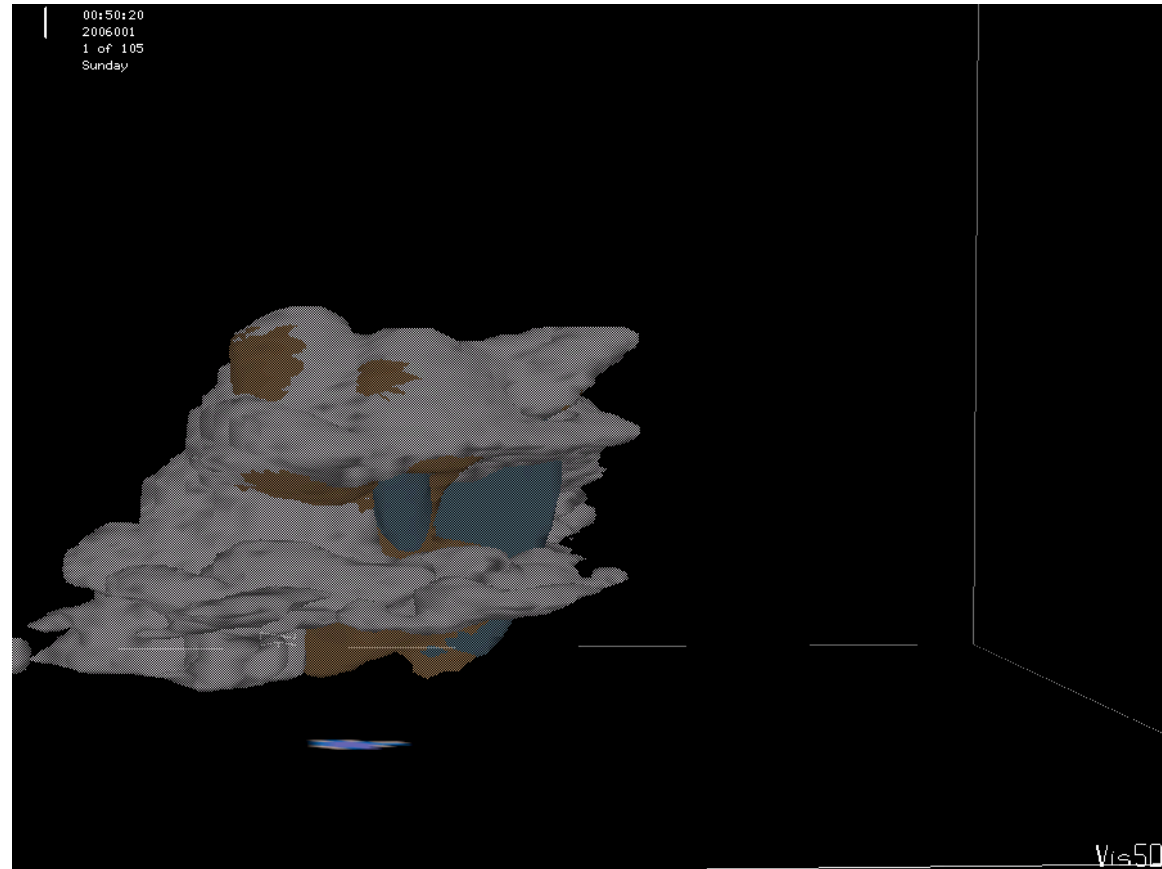

Balloon launch of field meter
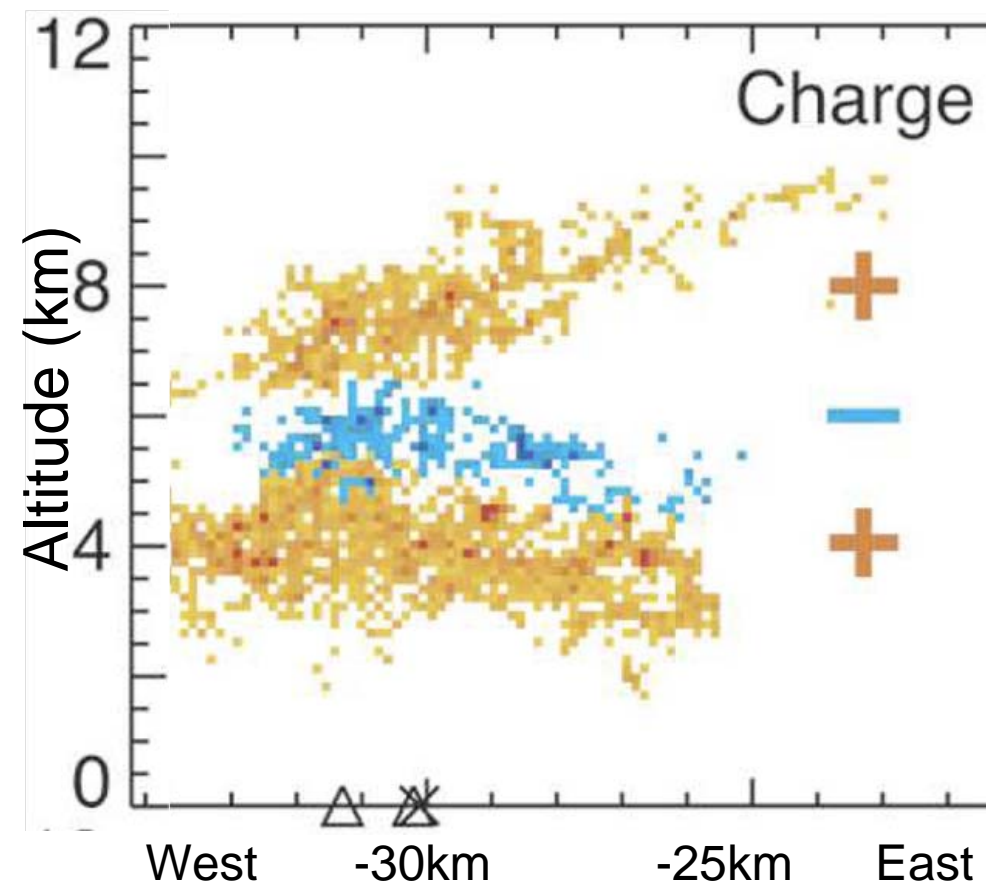

Simulated Cloud-to-Ground lightning strike

NSSL Numerical Modeling

The NSSL storm-scale model is a unique tool due to enhancements by NSSL scientists: Research in dynamics, microphysics, electrification, and data assimilation.
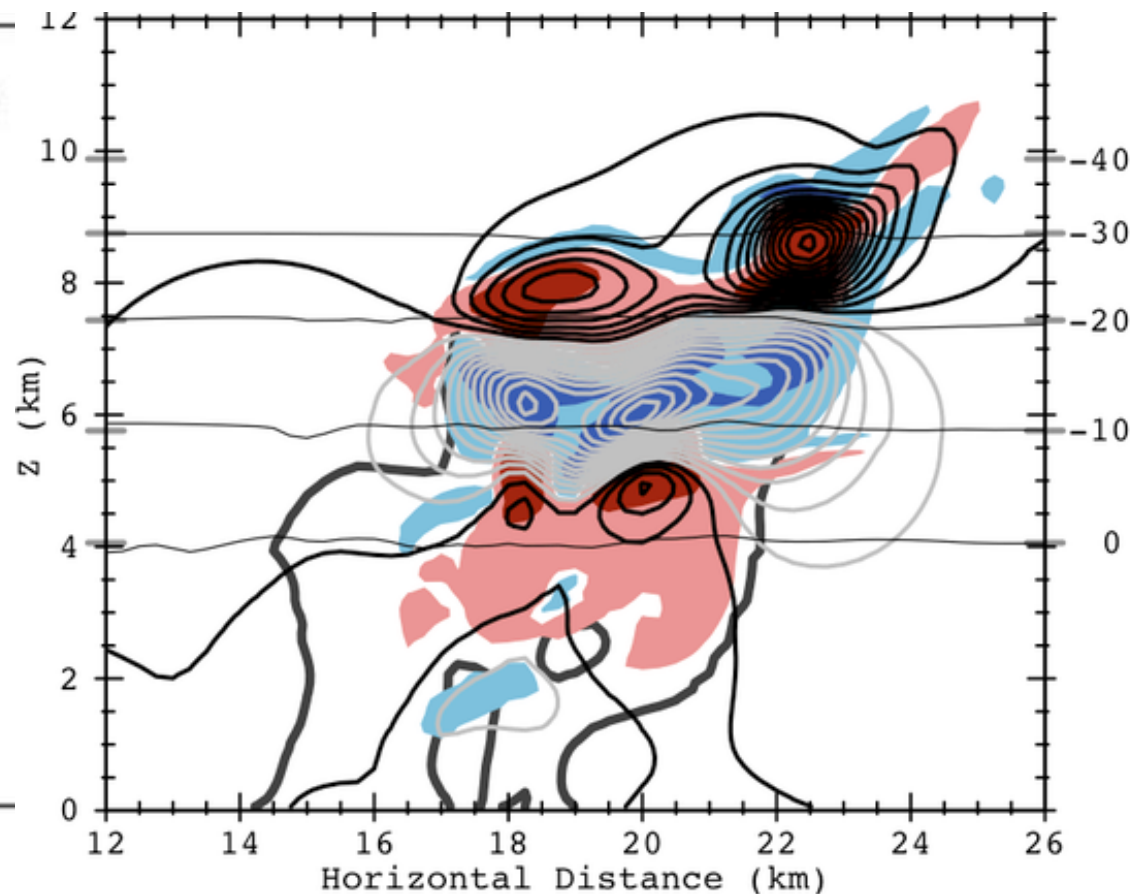
Lightning and Charge Structure

Inferred charge structure from lightning observation

Model-simulated charge structure and lightning

Lightning correlations

Flash rate vs. Graupel