Analysis of the July 23 Mesoscale Convective System
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ER-2 Dropsonde and Mobile Soundings During CRYSTAL FACE

OBJECTIVES:
1. In situ profiling of temperature, winds, water vapor in convectively-generated cirrus, cirrostratus and sub-visible cirrus from FL650-700 to ocean surface;
2. Obtain soundings near land-based convection to characterize the interior peninsula pre-storm and peri-storm environments;
3. Provide initialization data for CRMs and meso-scale models

Example of Dropsonde Profile: 11 July Anvils Generated by West Coast Sea Breeze Storms

Example of Mobile Sounding Data: July 29
Inland Mobile Sondes Sample More Unstable Airmass Than Coastal Soundings... Critical for Model Initialization of Convection

Early AM Mobile Sonde Related to MCS Morphology

Elongated cirrus plumes generated by East Coast multicellular storm

Moistening of upper troposphere and cirrus plume generated by three generations of storms

Pre-exiting middle level moisture and temperature discontinuity enhanced detrainment of cirrostratus at 450 mb; sublimation of ice later enhanced this discontinuity via cooling and moistening

1st Generation - multicell over southern Florida
2nd Generation - outflow from this cell triggers multicell along Lake Okeechobee, cell propagates northward
3rd Generation - outflow from lake cell collides with East Coast sea breeze front

Example of Mobile Sounding Data: July 29
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Radar and Satellite Evolution of the July 23 East Coast Multicell