Convective Storm Nowcasting Applications of McIDAS-V

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Man computer Interactive Data Access System (McIDAS)-V is a free, open source, visualization and data analysis software package that is the next generation in McIDAS software packages. McIDAS-V displays weather satellite (including hyperspectral) and other geophysical data in 2- and 3-dimensions and analyzes and manipulates the data with its powerful mathematical functions. Accordingly, McIDAS-V has been proven to be highly effective in the convective storm nowcasting process by virtue of its ability to visualize important diagnostic parameters in plan and cross-sectional views and vertical profiles. Numerous case studies of convective storm-generated high wind events between 2008 and 2011, especially those associated with downburst and microburst occurrence, have applied traditional parameter analysis including convective available potential energy (CAPE) and equivalent potential temperature (theta-e), as well as Geostationary Operational Environmental Satellite (GOES)-derived downburst potential algorithms such as the Microburst Windspeed Potential Index (MWPI) and bi-spectral imager WV-IR brightness temperature difference (BTD). These products have been readily generated by McIDAS-V, which has been proven useful as a convection product validation tool, and a short-term forecasting and analysis tool. This poster will highlight recent advancements in convective storm nowcasting and present validation results for the GOES microburst products as applied by McIDAS-V. Case studies of convective storm high wind events will highlight the diverse visualization capabilities of McIDAS-V and the ability to generate composite images that feature satellite, radar, NWP model, and surface weather observation data.