The Integration of Total Lightning Information into National Weather Service Operations

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The collocation of a National Weather Service (NWS) Forecast Office with atmospheric scientists from NASA/Marshall Space Flight Center (MSFC) and the University of Alabama in Huntsville (UAH) has afforded a unique opportunity for science sharing and technology transfer. One such technology transfer is the utilization of the North Alabama Lightning Mapping Array (LMA) in daily forecast and warning operations. The LMA consists of ten VHF receivers deployed across northern Alabama and a base station located at the National Space Science and Technology Center (NSSTC) on the UAH campus.

Preliminary investigations have shown a strong correlation between the time rate-of-change (trending) of total lightning and changes in intensity/severity of the parent convective cell. It is hoped that through the use of near real-time total lightning information, in conjunction with other remote sensing datasets (radar, satellite, observations), that the forecaster can achieve an even greater level of situational awareness. The primary mission of the NWS is to protect life and property. The utilization of the LMA data may prove to be a vital contributor to this mission by enhancing severe weather warning and decision-making, improving warning lead times, and increasing the probability of detection of severe and hazardous weather.

To maximize the use of total lightning information, the LMA data is being ingested in real-time into the NWS Advanced Weather Interactive Processing System (AWIPS) decision support system. The presentation will focus on the collaborative process,

technology transfer methodologies and a look to the future. In addition, a brief review of recent LMA case studies will be provided.