



## Multi-sensor Precipitation Reanalysis

Brian Nelson (1) and D-J Seo (2,3)

(1) NOAA/NESDIS/National Climatic Data Center, Asheville, NC 28801, (2) NOAA/NWS/Office of Hydrologic Development, Silver Spring, MD 20910, (3) University Corporation for Atmospheric Research, Boulder, CO 80307

The National Climatic Data Center (NCDC), in collaboration with the National Weather Service (NWS), has implemented the NWS's operational Multisensor Precipitation Estimation (MPE) algorithm in a reanalysis mode for use with the historical NEXRAD data, the Digital Precipitation Array (DPA) products. The aim is to develop a radar-based precipitation data set over the Continental U.S (CONUS) suitable for climatological, hydroclimatological and hydrologic applications. Initial results in a pilot domain show improvement in the MPR products over Stage IV. The MPR has the advantage of being able to use the best available input data sets, advanced quality control methods and improved algorithms. Implementing MPR in the CONUS domain is a large challenge. In this presentation, we describe data management and organization, including handling of missing values (both radar and gauge), present examples of gauge-only, radar-only and the radar-gauge merged products, and identify issues in bias correcting radar QPE and merging bias-corrected radar QPE and rain gauge data at the CONUS scale. Enhancements to MPR include improving input data by implementing the National Mosaic and multi-sensor Quantitative Precipitation Estimation (QPE) (NMQ) algorithm developed at National Severe Storms Lab (NSSL) in a retrospective mode to develop higher quality and higher resolution radar-only products as compared to DPA.