Meteorological Applications of the Font Range Observational Network Testbed

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The Front Range Observational Network Testbed (FRONT) is an observational infrastructure for the collection of comprehensive mesoscale and climate process study data sets and for the testing of new observational technologies and retrieval methods. The foundation of the network is composed of the dual-polarization, multi-wavelength and Doppler remote sensing capabilities of the Colorado State University (CSU) CHILL National Radar Facility near Greeley, CO and the National Center for Atmospheric Research (NCAR) S-Pol Radar Facility near Firestone, CO. In addition, data from the CSU Pawnee (located near Nunn, CO) and the KFTG (Denver Airport) and KCYS (Cheyenne, WY) WSR-88D radars will be integrated into FRONT. This expansive radar coverage will provide dual-Doppler wind retrievals extending from Cheyenne to south of Denver. Other existing and available data sets will be integrated into the FRONT data set. FRONT is augmented by a VHF 3-D lightning network, which is operated and supported by CSU and by real time satellite data feeds. Additionally, there are several networks of surface stations are fielded within Colorado and the Colorado Front Range, such as RAWS (Remote Automatic Weather Stations) and AWOS (Automated Weather Observing System). Thus FRONT will provide a readily accessible integrated data set for the study of hydrometeorology; for climate process studies; for developing and testing new algorithms and instruments; for applied data assimilation activities and for validating numerical models. This paper describes FRONT and shows example data sets and applications.