

The purpose of this research was to conduct a synoptic, meteorological and geospatial analysis of the heavy precipitation associated with Tropical Storm Irene in Vermont. The goal was to identify the regions which received the highest amounts of precipitation in order to provide input for flood mitigation practices, as well as policy making at the state level. This information and research will benefit numerous organizations who contribute to the flood mitigation practices, including, but not limited to, the Federal Emergency Management Agency (FEMA), the Vermont Agency of Natural Resources (ANR) and the Vermont Department of Transportation (VTrans). The research was segmented into three main sections: historical research, synoptic research, and geospatial research. The historical research gathered and compiled precipitation values and other data from the National Oceanic and Atmospheric Administration's (NOAA) National Climate Data Center (NCDC) website, as a means of comparing past storms to Tropical Storm Irene. Synoptic research involved analyzing data available from New York, Massachusetts, Vermont and New Hampshire, acquired through NCDC, for Tropical Storm Irene. The geospatial research utilized Landsat imagery that was pre-collected through an agreement between the University of Vermont and the United States Geological Survey (USGS). Using remote sensing technology and analytical techniques, information concerning the effects of the heavy precipitation, as well as a before and after analysis of specific regions and their preparedness, was collected and utilized to produce input.