

Societal Dimensions of the 2009 Aug 19 Minneapolis Tornado

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ABSTRACT

Within the past several years, there has been a higher emphasis placed on the importance of the human component in the severe weather warning process. Through efforts of multi-disciplinary programs such as WAS*IS and the NCAR Societal Impacts Program (SIP), attempts are being made to understand the relationship between weather and society. This includes exploration of how the public interprets and responds to severe weather warnings and information that is disseminated by the National Weather Service (NWS). Such an effort has an end goal of fulfilling the NWS organizational mission of protecting life and property through improvement of the overall warning process, with a secondary objective of providing enhanced weather safety education. However, unlike advancements in the science of meteorology or the technology of radar and numerical modeling, this improvement is more difficult to quantify and rate. Thus, analyses on the topic require some level of subjectivity, combined with the more seasoned meteorological post-mortem. This research effort makes such an attempt, by looking at a tornado event that occurred in a densely populated area on a day that was atypical for thunderstorms, let alone classic tornadogenesis. Such a scenario offers a unique opportunity to look into the societal views of the weather, the forecast, and the warnings, as well as the responsive actions, in hopes of understanding how NWS Weather Forecast Offices may improve internal operations and external outreach prior to events of all magnitudes.

On Wednesday, August 19, 2009, the seven county Twin Cities urban metro area experienced five tornadoes on a day considered unfavorable for Upper Midwest tornadoes. Only three times in 60 years had this many tornadoes occurred in a given calendar day within the urban metro area, which has an estimated population of three and a half million people. While all of these tornadoes were rated on the lower end of the Enhanced Fujita (EF) scale, with no injuries or fatalities, the surveyed damage showed the tornadoes had the potential to do so. Furthermore, these tornadoes occurred in a metropolitan area, sometimes thought to be a “no man’s land” for tornadoes. The unique circumstances surrounding a touchdown of this nature, as well as the potential impact on life and property, initiated a great deal of public and media attention, and are the motivation for this research.

This tornado touched down around 1:50 p.m., four miles south of downtown Minneapolis. It tracked almost due north, another climatologically rare characteristic, into the southern portion of downtown, where it ended shortly after. The timeline of this tornado was analyzed with the utilization of pictures, videos, and public reports along its path. A look into social networks was conducted, due to the fact that they were recognized as one of the earliest means in which the tornado touchdown was reported. Use of such social network sites is presently being experimented with by the NWS for possible future incorporation into operations. Consequently, a hypothetical discussion on the supplemental role they may have played in traditional warning operations on that day will be included. Web usage stats will also be shown and compared to other severe weather day usage numbers as an effort to visualize the demand for information before, during, and after the event. Overall, a subjective analysis of these data was made in an attempt to quantify at least some portion of the societal component of this event, and in hopes of gaining findings for future use.