

IMPLEMENTATION OF THE GBVTD TECHNIQUE IN NOWCASTING TROPICAL CYCLONE WIND FIELDS USING THE WSR-88D LEVEL-IV DATA.

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There is a need for a real-time hurricane diagnosis algorithm that can be used by a ground-based coastal network of Doppler radars to improve the understanding of hurricane wind fields. This study applies a wind retrieval method developed by Lee et al. (1998) known as the ground-based Velocity Track Display (GBVTD). This technique provides an estimate of the hurricane's primary circulation from a single Doppler velocity pattern. These patterns allow forecasters to extract an estimate of the hurricane wind field from the Doppler velocity data in real-time.

The GBVTD technique has been tested in research mode using WSR-88D level-II data on Typhoon Herb (1996) and Hurricane Danny (1997). The NOAA/TPC/National Hurricane Center (NHC) cannot access the WSR-88D level II data in real-time due to the limit on data transfer bandwidth. However, coarser resolution WSR-88D level-IV data can be obtained in near real-time. A joint effort among the National Center for Atmospheric Research (NCAR)/Atmospheric Technology Division (ATD), NOAA/AOML/Hurricane Research Division (HRD), and NHC will modify the GBVTD technique to ingest level-IV data and implement the software to run at NHC in real-time during the 1998 hurricane season.

In this paper, we will demonstrate the extraction of tropical cyclone primary circulations in real-time by applying the GBVTD technique and the WSR-88D level-IV data of Hurricane Danny (1997).