To correctly diagnose the location and core metrics of the TC, the ARCHER technique (Winther and Velden 2010) uses a TC’s spiral banding and likely eye ‘ring’ position to determine a satellite-based center from a first guess location. Figures 1c and 1d show two different SSM/I observations of Hurricanes Isabel (2003). In the former case, both the spiral and the ring structure produce a confident correct estimate of position. However, the latter case shows how lack of a curvature signal (e.g. due to shear) can make an erroneous center estimation. In this study, cases that lack of routine observations that characterize the variety of core features of a TC.

The following study examines the relationship between intensity and TC core characteristics, building on previous work (e.g. Murray 2009) that demonstrated predictive potential using such measurements. An analog to satellite imagery, using ARCHER software (Winther and Velden 2010), see Figure 1b, is then compared to analyzed and validated TC structure globally (Figure 2-5). The relationship between intensity and intensity changes (Figure 6) can potentially augment current efforts that define the TC-core and use these observations to improve predictive power. The remainder of the presentation focuses on concepts that can be used to visualize structure data in order to visually assess core availability.

Despite impressive increases in track forecasting ability of the NHC, similar progress in intensity forecasts has been elusive. Although there may be many reasons for such a disparity, diagnostic evolution of tropical cyclone (TC) structure is under-analyzed compared to the prevailing enthusiasm. This study due to a lack of routine observations that characterize the variety of core features of a TC.

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Polar Coordinate Transform

Figures 5a and 5b show two different SSM/I observations of Hurricanes Isabel (2003). In the former case, both the spiral and the ring structure produce a confident correct estimate of position. However, the latter case shows how lack of a curvature signal (e.g. due to shear) can make an erroneous center estimation. In this study, cases that lack of routine observations that characterize the variety of core features of a TC.

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A method to determine the eye size in radially symmetrical hurricanes with very small eyes is to use the HURSAT-MW top hat method, simulating available information in a polar coordinate system.

Comparing Intensity with E Jessize Metrics

In Figure 2, locations of TCs are shown for each track intensity (colored), storm size (near-white center marker radius), and eye size (radius of the innermost SSM/I core). The red intensity rings are HEA-RST-MW analyzed by ARCHER in Figure 2a and from recon and analyzed to quantify TC structure analysis. Examples shown include finding the eye size and shape, as well as determining trend and banding regions.

Using the center locations provided by ARCHER, sections 2a-2d show the visual core metric of the TC. The vertical and horizontal core metric was used for systems in HURSAT-MW analyzed by ARCHER in Figure 2a and from recon and analyzed to quantify TC structure analysis. Examples shown include finding the eye size and shape, as well as determining trend and banding regions.