

INTENSITY ANALYSIS PROCEDURES AND RULES

STEP 1. LOCATE THE CLOUD SYSTEM CENTER (CSC)

The cloud system center is defined as the focal point of all the curved lines or bands of the cloud system. It can also be thought of as the point toward which the curved lines merge or spiral.

Procedure:

(1) The CSC is located at the center of the eye or at the center of curvature of a partial eye wall when one of these features is observed.

(2) When the CSC is not obvious, locate the model expected CSC. Draw a line along the "curved band axis" through the most dense (coldest) portion of the band. The axis should roughly parallel the concave (inner) overcast boundary of the band. Locate the model expected center location in relation to the curved band. (See plus symbols in diagram in Step 2A.) The center is located near the inner (concave) edge of the band on the counterclockwise end (comma head) portion of the band. Locate tightly curved lines, merging lines, or CDO near the point where the center is expected to fall. The CSC is located at the center of curvature, near the point of merge or at the center of the CDO (for CDO of $< 1\ 1/2^\circ$ latitude in size). For large CDO's, the center is sometimes defined by an arc of overshooting cloud tops or in an isolated cluster of convective tops. When not visible, use (3) below.

(3) When features are not visible at the expected CSC, or when the curved band is not apparent, use the circle method. The method consists of first drawing lines following the cloud line curvature or curved boundaries that fall within the curve of the curved band axis, and then fitting circles to the lines with tightest curvature. The CSC is located at the center of the area common to the circles. For relatively circular embedded center patterns of $>T3.5$ intensity, fit a $\log 10^\circ$ spiral overlay to the curved band axis to locate center.

(4) When a cloud minimum wedge is visible on the concave side of the band near its middle, the CSC is located at the midpoint of a line drawn between the deepest cloud minimum incursion of the wedge and the counterclockwise extremity of the curved band axis. This method is frequently used with EIR pictures. In EIR pictures, the center is often located in the tight gradient near the coldest part of the pattern.

(5) When the location of the CSC is unclear, or could be placed at different locations, use all the methods above along with an extrapolation from the past track positions in making the final decision.

(6) When more than one well-defined CSC is apparent, use the one defined by the strongest appearing, lowest level cloud lines that best fits the past track of the storm. When strong vertical shear is apparent, remember that the upperlevel (dense) clouds will not be centered directly over the low-level center, but will be displaced with the CSC on the tight temperature gradient (sharp boundary) side of the dense cloud pattern.