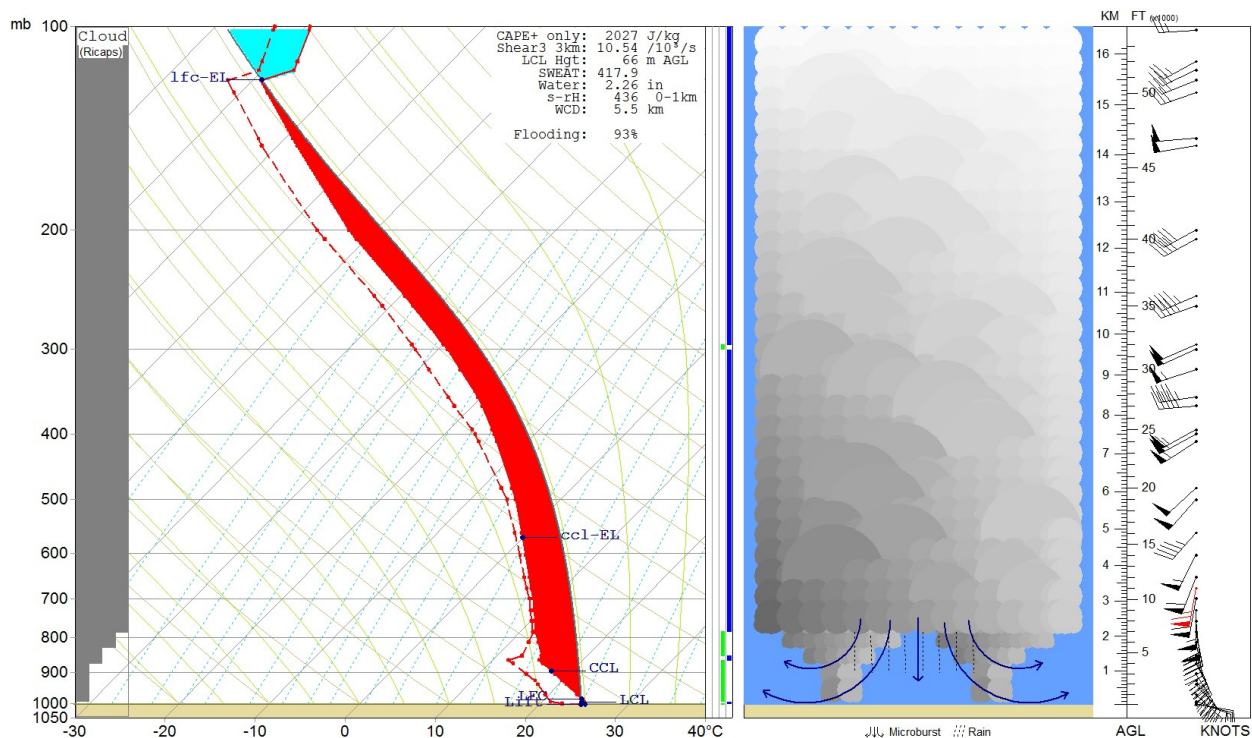


RAOB Program - Flooding Potential Index

RAOB's Flooding Potential index is the only flash-flood/heavy-rain metric that is completely derived from the sounding's profile. All other flooding metrics require visual identification of the sounding's structure along with evaluation of related atmospheric parameters. RAOB quantitatively combines all profile information into a single index.

The below sounding profile illustrates a classic example of a flooding event. It is the Miami 00Z sounding from 5 November 1998 during Tropical Storm Mitch. It has the characteristic tall-skinny CAPE profile with uniformly deep moisture profile. Other key features are cloud structure, deep warm cloud depth (WCD), and high water content.



RAOB is able to determine a sounding's CAPE-profile and cloud-structure qualities through use of its "pattern recognition" methodology. Like today's medical CT-Scan technologies, RAOB does this by first creating multiple scans of key thermodynamic data elements through the entire sounding at 1-mb intervals. Next RAOB performs numerous top-down and bottom-up interrogations to detect and then quantify key sounding structures, such as profile lapse-rates, moisture patterns, cloud layers, precipitation types, and wind relationships. Using proprietary coefficients, RAOB then combines these results with the standard WCD and water-content parameters into a single flood potential index. The above example sounding scores a 93% flooding value.

Even though this flood index is primarily intended for use in tropic and temperate climates, it can be used in all rain-prone regions. However, as with any derived meteorological parameter, the user must apply results to local conditions, such as terrain, duration, synoptic influences, and seasonal changes.