Suite of quantitative severe weather variables retrieved from sounding data.

Severe weather variable	Definition	Threshold value (or range) for severe weather	Reference
CAPE (Convective Available Potential Energy)	Difference between observed and estimated parcel temperature integrated over the depth where rising motion is expected; proxy to buoyancy	> 0 J/kg	Moncrieff & Miller, 1976
LI (Lifted Index)	500 mb observed temperature – estimated 500 mb parcel temperature	< 0°C	Galway, 1956
K-Index	(850 mb temperature – 500 mb temperature) + 850 mb dew point – (700 mb temperature – 700 mb dew point)	≥ 20°C	George, 1960
TT (Total Totals Index)	(850 mb temperature – 500 mb temperature) – (850 mb dew point – 500 mb temperature)	≥ 50°C	Miller, 1972
0–3 km SRH (storm-relative helicity)	Velocity and vorticity product integrated over 0–3 km; proxy to vertical wind shear	≥ 150 m²/s²	Davies & Johns, 1993
WBZ (wet-bulb zero) height	Altitude above ground level at which the wet bulb temperature is 0°C	7,000–10,500 ft (2,100–3,200 m)	Fawbush & Miller, 1953

Distribution of student responses (n = 5) on severe weather ingredient identification before and after the PBL.

Severe weather ingredient	# of responses pre-survey (maximum = 5)	# of responses post-survey (maximum = 5)
Moisture	5	3
Strong jet	2	0
Wind shear	1	1
Assessment --		
Helicity (> 75; > 100)	0	2
Rising motion	3	0
Cause		
Cold front	1	1
Mid-latitude cyclone	1	1
Warm-air advection	0	1
Positive vorticity advection	0	1
Upper-level trough	0	1
300 mb divergent signature	0	1
Unstable atmosphere	2	2
Assessment		
Total Totals Index (> 45)	0	2
K-Index (> 30)	0	2
Lifted Index (< 0)	0	3
CAPE (> 1000)	0	1

Note. Ingredients are in bold, with causes and assessment of those ingredients indented.