Appendix A. Results of analysis of sondes

Sonde plots were manually analyzed to extract the following types of features:

- I -- Stable or very stable nocturnal BL (~5° per 100m) capped by a slightly stable or neutral layer.
- II – PT inflection from stable to slightly stable or neutral
- III – 100 m thick "kink" in PT, separating ~neutral layers above and below by a more stable layer. Often drop in dewpoint with increasing elevation over the kink.
- IV – Same as type II, except the layers in question are clearly stable (although not strongly stable).
- V – In slightly stable or neutral layer, almost no signal in PT, but sharp increase in DP
- VI – shift from unstable to neutral

Table A-1. Detailed features picked out of sondes for week of June 18-June24

Date	UTC Time (CDT)	Elevation[1]	Description
~Local midnight soundings			
June 18	05:40Z (00:40)	100	Type II feature. Inflection in potential temperature (PT) from stable to ~neutral conditions
		500	Type III feature. 100 m thick "kink" in PT – a layer of increased stability with ~neutral conditions above and below, but a drop in dewpoint across the PT kind.
		1000	Repeat of III feature at 500 meters.
June 20	05:43Z (00:53)	100	II
		1500	III
		2100	III, except transition in dewpoint is not a change in value (from higher to lower) but rather change in slope (decreasing to constant)
June 22	05:29Z (00:29)	100	Type I feature. Very stable nocturnal BL. PT increasing at ~5° per 100m
		2400	Type II feature. Inflection in potential temperature from slightly stable (below) to neutral stability (above)
June 23	05:30Z (00:30)	200	I
		700	Type V feature. In slightly stable or neutral layer, almost no signal in PT, but a sharp (~3°) increase in dew point.
		1500	Type II or III
June 24	05:34Z (00:34)	600	II
		2600	"Wiggle" in dewpoint, and possibly the start of a new slope in dewpoint (decreasing with ht rather than constant)
~6 AM local soundings			
June 19	11:29Z (06:29)	500	Type IV feature. Similar to type II, except two slightly stable layers separated by a layer of increased stability – often with a dewpoint change as well.
		1000	II
June 20	11:29Z (06:29)	350	I
		2000	II
June 21	11:36Z (06:36)	200	I
		900	II – also a local minimum in dewpoint
June 23	11:28Z (06:28)	150	I
		1000	IV
		1300	II
~local noon soundings			
June 18	17:29Z (12:29)	<100	VI – shift from unstable to neutral
		800	III
		2200	III
		2600	III (although thicker than 100 m)
June 19	17:29Z (12:29)	1000	Transition from neutral to slightly stable, with drop in DP
		1500	II
June 20	17:30Z (12:30)	100	VI
		1600	III
June 22	17:37Z (12:30)	1000	III
		2000	III
June 23	17:48Z (12:48)	100	VI
		500	III
		1100	III
~ 6PM local soundings			
June 19	23:29Z (18:29)	200	Neutral transition to slightly stable, with increase in DP
		1000	II or III
June 20	23:28z (18:28)	1700	Neutral to slightly stable transition and drop in DP
June 21	23:29Z (18:29)	2500	Neutral to slightly stable transition and drop in DP
June 23	23:31Z (18:31)	1400	Neutral to slightly stable transition and drop in DP
		1800	II

[1] these are approximate to ±100m. Contact Jameson Schoenfelder at the University of Iowa for more significant figures on the manually determined "features" in the rawinsonde data, or for 3K or 8K plots of balloon data for this period.