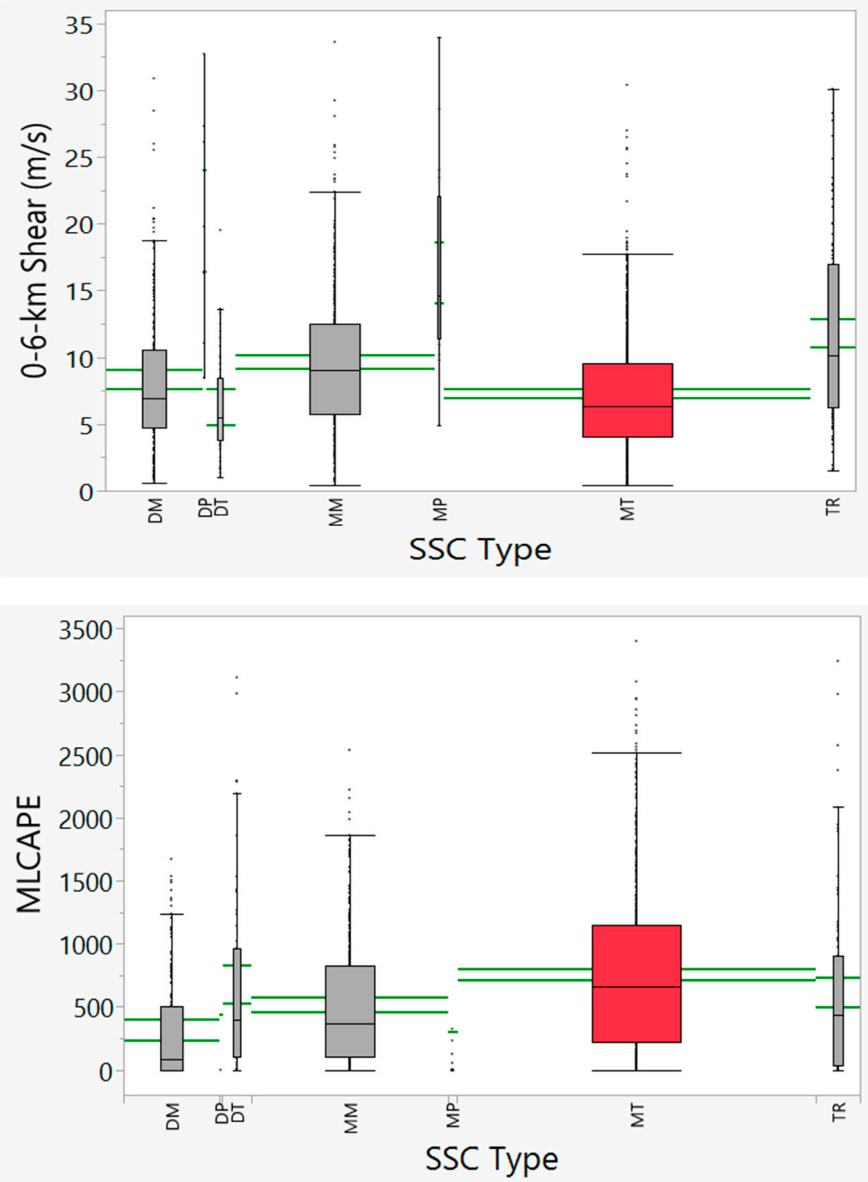
atmosphere

Supplementary Material

Observations from 1200 UTC radiosonde data collected in Atlanta, Georgia (KFFC; see Figure 1) were reteived for May–September 2001–2015 from the NOAA Earth Systems Research Lab portal (http://esrl.noaa.gov/raobs/). The radiosonde profiles were then processed with the Sounding and Hodograph Analysis and Research Program in Python (SHARPpy) software package (Blumberg et al. 2017) to compute mixed-layer convective available potential energy (MLCAPE; J kg^{-1}) and 0–6-km vertical wind shear (m s^{-1}). During the 15-yr period, 1509 soundings yielded complete profiles, which were paired with contemporaneous observed precipitation and SSC air mass at the same site.



Supplementary Figure 1. Box and whisker plots of 0–6-km vertical wind shear (top; m s^{-1}) and mixed-layer CAPE (bottom; J kg^{-1}). The width of the box plot on the x-axis is proportional to the number of days in that group. Green bars indicate the bounds of the 95% confidence intervals for the mean values of each category.

Supplementary Table 1. Percentage of SSC days at KFFC possessing convective parameters shear and instability thresholds. The probability of precipitation (POP) for each air mass type is also provided. The MLCAPE threshold (250 J kg^{-1}) was set to account for the radiosonde launch occurring well before the onset of diurnal heating.

Scheme 0.	Frequency % (N)	0-6-km Shear < 10 m s^{-1} % (N)	MLCAPE > 250 J kg^{-1} % (N)	Both % (N)	POP % (N)
DM	194	73.2% (142)	38.7% (75)	34.5% (67)	14.9% (29)
DP	7	14.3% (1)	0% (0)	0% (0)	14.3% (1)
DT	58	82.8% (48)	63.8% (37)	58.6% (34)	6.9% (4)
MM	400	59.0% (236)	60.5% (242)	38.3% (153)	76.5% (306)
MP	19	10.5% (2)	5.2% (1)	0% (0)	89.5% (17)
MT	732	77.9% (570)	72.6% (532)	57.2% (419)	36.5% (267)
TR	91	48.4% (44)	58.2% (53)	35.2% (32)	54.9% (50)