Geophysical Research Abstracts
Vol. 21, EGU2019-11797, 2019
EGU General Assembly 2019
© Author(s) 2019. CC Attribution 4.0 license.

A Gigantic Jet Observed Over an Mesoscale Convective System in Midlatitude Region

Jing Yang, Mitsuteru Sato, Ningyu Liu, Gaopeng Lu, Yu Wang, and Zhichao Wang
China (yangj@mail.iap.ac.cn)

Gigantic jets (GJs) are mostly observed over summer tropical or tropical-like thunderstorms. This study reports observation of a GJ over a mesoscale convective system (MCS) in the midlatitude region in eastern China. The GJ is observed over a relatively weak radar reflectivity region ahead of the leading line, and the maximum radar echo top along the GJ azimuth was lower than the tropopause in the same region, significantly different from past studies that indicate summer GJs are usually associated with convective surges or overshooting tops. Also different from most of previous observations showing GJ-producing summer thunderstorms only produced GJ type of transient luminous events during their life cycles, two sprites were also captured in a time window of 15 min containing the GJ, indicating that the MCS provides favorable conditions not only for the GJ but also for the sprites. The balloon-borne soundings of the MCS show that there were large wind shears in the middle and upper levels of the thundercloud, which may have played important roles for the GJ production.