



Gigantic Jets produced by an isolated tropical thunderstorm near Réunion Island

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Five gigantic jets (GJ) have been recorded with video and photograph cameras on 7 March 2010, above an isolated tropical storm east of Réunion Island. Three of them were produced before the storm reached its coldest cloud top temperature ($\sim -81^{\circ}\text{C}$) and two others occurred during the cloud extension. Thanks to their exceptionally close distance of observation (~ 50 km), the GJ events are analyzed in unprecedented details and luminosity within the cloud is also visible. The first colour photos of gigantic jets allow distinguishing the type of light produced by different parts of the jets. The GJs tops are estimated between 80 and 90 km. All GJs are accompanied by long continuous cloud illumination and are preceded and followed by intermittent flashes from the cloud, which suggests the jets originated as intracloud discharges. The GJ duration ranges from 333 ms to 850 ms. The leading jet has the most variable duration (33 to 167 ms) and propagates faster at higher altitudes. The trailing jet exhibits a continuous decrease of luminosity in different parts of the jet (lower channel, transition zone and for most events carrot sprite-like top) and in the cloud, with possible rebrightening. The lower channels (~ 20 -40 km altitude) produce blue luminosity which decreases with altitude and becomes more and more diffuse with time. The transition zone (around 40-65 km) consists of red luminous beads slowly going up, retracing the initial leading jet channels.