

## ***Interactive comment on “Preliminary results from the total lightning detector-cum-mini weather station installed at the Calcutta University” by Subrata Kumar Midya et al.***

### **Anonymous Referee #2**

Received and published: 10 September 2018

The manuscript describes lightning detection data from an Earth Networks TLDWS station during two "Nor'wester"-type thunderstorms affecting the Kolkata region in April 2018. An additional component of the manuscript describes Monsoon onset and departure monitoring using the wet component of atmospheric refractivity index.

Lightning section comments: Data produced by Earth Networks from the two storm case studies are presented and discussed by the authors. Presentation and summary are adequate. Whilst new data are presented, they do not provide insight which has not already been provided by other researchers on the subject of lightning flash rate and characteristics during the active phase of severe thunderstorms. Whilst it is accepted

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that the paper addresses preliminary results and more data are needed for firm conclusions, the confidence of any causal relationship between lightning and the onset of damaging wind based on two storms must be rather low and therefore should still be considered as inconclusive, albeit consistent with current research on this topic. Despite this, it is valuable to have observational data on "Nor'wester" severe storms which are relatively underrepresented in thunderstorm research literature, so the continued collection of information on these would become valuable once a longer dataset capable of producing more statistically robust characteristics on these storms could be assessed.

Refractivity section comments: Although previous researchers have used refractivity wet component to investigate thunderstorm activity in the region, it is unclear why the authors decided to use this complex derived parameter, given their instrumentation measured the fundamental atmospheric properties of temperature, pressure and humidity and microwave propagation was not declared to be of interest for this work. If the variability of near-surface moisture content was considered to be useful for the monitoring of the monsoon, why not simply use dew-point temperature? Both dew-point and refractivity are a function of vapour pressure and variability of air pressure could be examined independently if it was considered to be of merit. The finding that refractivity (e.g. humidity) reduces after the monsoon is a somewhat expected outcome which could be adequately explained using more fundamental considerations.

Spelling/grammar and minor comments: p.1 line 8: events that occurred p.3 line 29: replace censor with sensor p.3 line 31: replace sends with sent p.3 line 32: replace networks with network p.4 line 11: replace died with killed p.6 line 10: Please provide a reference to support multiplicity as an important factor in lightning damage. p.6 line 11: replace consist with consists p.8 line 11: replace potentially with potential p.8 line 11: replace tool with tools p.10 line 27: Surely CCN availability cannot be considered a limiting factor for monsoon rainfall generation? evidence to support this idea would be needed to maintain this suggestion.

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To summarise, whilst the manuscript does not currently provide sufficiently robust or original insight, the objective of gathering more data on Nor'wester-type thunderstorms is valuable and its continued collection, analysis and eventual publication should be greatly encouraged.

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