

General Comments

This paper is a very nice summary of previous comparisons between WWLLN and regional networks and it adds to the information on the previous knowledge of the WWLLN by a new comparison between WWLLN and the CLDN. It is a technically sound paper that provides nice discussion on various findings of detection efficiency, location accuracy, timing accuracy, and peak current thresholds for WWLLN.

Scientific Issues/Comments

Main suggestions/issues:

1. Grid box criterion – a number of shared events could be excluded by your grid box cutoff. You discuss this a bit on p 1871, lines 18-23. But is it possible to do a quick search to determine how many actual events fall under these criteria? For example, only use your cutoff spatial grid on CLDN events, and look for any shared WWLLN events within your time window. (You could limit WWLLN events to a slightly larger box if needed, so that you don't get coincident events that happened half-way around the world.) Then report how many additional shared events you got with that method. Then you can do the reverse – limit WWLLN events to only those inside the grid, and look to see how many CLDN events are shared within your time window of those events. I understand that you have to make a hard boundary to count how many events are included in each network, but this additional quick look could allow you to better elaborate on how many of the events are not shared simply because their shared partner lay outside the hard boundary region.
2. Day/Night Detection Efficiency – you use +/- 12 hours around local noon/midnight, but you neglect to mention if that is about right for local sunrise/sunset during that time of year in that region of Canada. I would suspect that Canada gets more daylight than nighttime in the summer. You may want to take that into account in your day/night DE calculation by using a solar zenith angle cutoff instead of a local time +/- 12 hours cutoff. You may want to also not push your cutoff up to the boundary of day/night, since then the WWLLN sferics will have to cross the terminator in their propagation, so it confuses the issue a bit. In any case, the day/night difference is apparent in your data, so you may not need to change the plot, just add a little discussion along these lines.

Minor issues:

1. P. 1863, line 15-16. All the WWLLN papers (Lay, Rodger, Jacobson) should not be cited here for regional networks, since they address WWLLN, which is global. It is better to cite them after mentioning WWLLN, such as on p 1864, line 1.

2. p 1864 line 19: All networks have a peak current threshold, although it is lower for regional networks like CLDN. They must have a goal of 90% Det. Eff. of strokes with a peak current greater than some value (maybe 5kA or so?). Is there any way to find that information for CLDN?
3. P 1868 line 29: Are the multiple shared events from the same CLDN flash, or from separate strokes?
4. P 1870, lines 11-14. I would say that the D-layer increases absorption of the wave, not that the D-layer must be penetrated before reaching the E-layer, since that doesn't say anything about what happens to the wave while penetrating that cause it to be different when it reaches the receiver.
5. P1873, lines 12-14. Could one factor in this difference be that, for some reason, there is a higher fraction of ICs in NZ lightning?
6. P 1873, line 28. Perhaps lower DE could be due to the fact that LASA detects many more ICs than the other regional networks that WWLLN has been compared to? ICs are typically lower in peak current, so WWLLN would be less likely to detect them because of its peak current threshold.
7. In the summary, could you include the detection efficiency of WWLLN for certain peak current thresholds?

Technical corrections:

1. p. 1864, line 15 – give frequency range for LF
2. p. 1864, line 16 – give freq. range for VLF
3. p. 1866, line 1 (also p 1870, line 21)– you should probably use 'sferic' instead of 'sky wave', since you just spent a few sentences describing a sferic, but not calling it a sky wave.
4. P. 1869, lines 11-16. This discussion is confusing – I think it is much clearer if you just press forward to Figure 6 and describe the results from that figure. They are much easier to understand.
5. P. 1871, line 16. The word 'although' doesn't fit here. It implies that the second part of the sentence should be contrary to the first part, while, in reality, they are not necessarily related, and definitely not contrary to each other.
6. P. 1873, lines 22-23. I don't understand what you are saying here. Please clarify.