The manuscript presents a comparison of methods for estimating the geoelectric field over a broad region. This is an important issue, since MT campaigns may be scarce for regions of continental dimensions. The manuscript has a motivation on the application of geoelectric field estimates to GIC forecasting and calculation and the main conclusion is that besides 1-D methods be frequently used to estimates geoelectric field, the error spectrum show that 2-D methods should be more appropriated to such an estimative.

Major comments:

The author mentioned that the geoelectric field magnitude estimative is important to GIC studies and because of that it is necessary to have an optimal method for predicting GIC, however there are not any estimative of how much the error associated to the geoelectric field can be observed at the GIC amplitudes. So, I strongly recommend to the author to perform an estimative on the GIC amplitudes, by considering typical parameters of a power network. I think this calculation may better justify that the Method-2 is more appropriated to estimate geoelectric field in GIC purposes.

I have modified the sentence

“In contrast, for estimating GICs, which are computed using the estimated E(t) ...”

to be

“In contrast, for estimating GICs, which are typically computed using a linear relationship to the estimated E(t) ...”

In addition, when Figures 2-5 are introduced, I have added the statement

“Note that for the “a” network parameter (Lehtinen and Pirjola 1985; Pulkkinen et al., 2010) in the range of 10--100 A km/V, and error of 10 mV/km corresponds to a GIC error of in the range of 0.1-1 A.”

In the manuscript I did not claim that Method 2 was more appropriate to estimate the geoelectric field. The motivation for Method 2 was that it was simple to calculate and has been used in the past. In the conclusions I note that “From the GIC perspective, the method to use for estimating the geoelectric field given geomagnetic field measurements depends on a number of factors and the results indicate that when possible both Methods 2 and 3 are viable options.”.

I realize that in some paragraphs the author does not conclude the statement and sometimes this make unclear the main ideas of the manuscript, the following lines need to be concluded:

at line 19, after to mention the results from the three methods, what are the conclusions about such results;

The main conclusion is in the results of the prediction performance stated in the abstract and that Method 3 (which is statistically much more complicated to implement) produces slightly lower quality estimates than Method 2 for the time intervals and locations considered. I have left the guidance with regard to which method should be used in the conclusions section of the manuscript.

lines 65 and 69-72 mentioned two opening questions but I really do not understand if the manuscript intend to answer those questions, please clarify;

Are the paper goal's related with the open questions mentioned at lines 65 and 69 ? Please clarify.

I removed the statement “... and it is an open question as to the optimal statistical procedure that should be used for the prediction of GICs.” as this is was addressed by a sentence later in the paragraph which notes that no comparison has been made between Method 2 and Method 3 for purposes of estimating GICs.

line 75, after to read all the important points related to geoelectric field estimate, the author just mention that the work intend to compare the methods, but what for ?! I guess the author intend to address one (or more) of the issues mentioned before, but this is not written.

With the removal of the “open question” statement above, I believe line 75 should be clearer. The motivation is stated earlier in the paragraph and the sentence associated with line 75 is an expansion and clarification of this motivation.

Finally, I recommend reordering figures and tables. On line 167, the author mention Table 2, which summarizes the parameters from Figure 1 (not called before), and Figure 1 is constructed from Figures 2-5. These are really confused. I recommend to introduce first Figures 2-5 and explain all the parameters on there, explain them; after that, introduces Figure 1 and explain how the data from Figures 2-5 were used to obtain Figure 1. Finally, summarizes the important parameters on Table 2. Once these was concluded, than the author should reordering figure's numbers.

I thank the reviewer for the suggestion and after some consideration have decided to keep the ordering. The main results of the work are in Table 2 and Figure 1, and I wanted to keep them close together and shown as early as possible.

Minor points:

Line 6: "The geoelectric field is"... Add the word variation after geoelectric field

GICs can be driven by non-varying electric fields, so I have not changed this sentence.

Line 10: Please, say here if the solar wind conditions were quiet or disturbed

We have indicated that Kp was in the range of 2-3.

Line 73: "...Method 2 has been used in the past for purpose of GIC estimation..." Add a reference about this statement

I have repeated the McKay 2003 and Pulkkinen et al. 2007 reference mentioned earlier in the paragraph in this sentence.

Line 74: The same, for Method 3

I have added a reference to the book by Chave and Jones [2012].

Line 186: "...Ey was de-spiked..." Please add "(not shown)" after Ey

Done.

Line 196: "...has a negative prediction efficiencies." Please explain what does it means

In the description of the prediction efficiency in the first paragraph of the Results section, I have added the sentence “A negative prediction efficiency indicates that the variance in the prediction error is larger than the variance in the predicted time series.”.

References: there are many references without DOI information, you should correct them.

This has been corrected.