Natural Hazards
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Discussions

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Interactive comment on "Long-term magnetic anomalies and its possible relationship to the latest Greater Chilean earthquakes in the context of the seismo-electromagnetic theory" *by* Enrique Guillermo Cordaro et al.

Anonymous Referee #3

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In this manuscript we have an experimental approach for promoting the variation of vertical component of geomagnetic field as preceding index to large earthquakes. Supported by an extensive literature review, the manuscript is very well written and the discussion following the obtained results is supportive to them. However, in order to provide the interested readers the ability to reproduce the results or to adapt the proposed methodology to their own datasets, the authors must respond to the following suggestions:

a) authors select continuous wavelet transform (CWT) to detect "rare variations that

could not be attributed to space weather in the daily average measurements". Even if the CWT generally is an appropriate method for revealing prevalent variability modes, i thing that the 3D presentation in Fig.5 does not help readers since it is not quite evident the decrease before and the increase after main event. There are more appropriate wavelet based methods that can reveal significant variability changes in a more clear and simple presentation form (per wavelet scale). I suggest the authors to look out and comment the Maximal Overlap Discrete Wavelet Transform(MODWT)(Percival, D. & Walden, A.,2000) or the wavelet coefficients standard deviation (Telesca et, al, 2007)

b) Since the authors engage the CWT in their analysis i expected to see a scalogram instead of spectrogram In Fig.6 (especially when the Power Spectral Density is expressed in a.u.). Please justify your choice since scalograms are more suitable than spectrograms to highlight variability in real world signals that exist in different scales.

c) If the authors insist to keep the spectrogram , the choice of temporal window and overlap for spectrograms in Fig.6 must be justified (arbitrary choice or after testing? if is the latter, please provide test results briefly)

d) Finally the term"Wavelet" in signal processing and data analysis domain refers to the base (mother) wavelet function that used to perform the Wavelet analysis and not to the analysis itself. Please change accordingly.