

Balls of lights: The Questionable Science of Crop Circles

Reaction on the article by Francesco Grassi et al.

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Summary

This article is a rapid reaction on a paper recently published by Francesco Grassi et al., of the Italian Skeptics organisation CICAP. In this paper Grassi raises many points of concern with respect to three earlier scientific publications, one of which written by myself. Most, if not all of Grassi's points of concern on my publication are irrelevant or erroneous. Some of his comments would have been valid in case my paper had been a full-length article, which it was clearly not. Grassi's arguments about statistic relevance had already been mentioned in my own conclusions and can hence not be used as a point of criticism. His accusation that I should have withheld data to manipulate statistics is not valid. In fact, due to poor communication, Grassi has used 'garbage' data for his own analysis, which has consequently no value at all. Finally, I believe the bombastic and denigrating style of Grassi's publication is beyond proportion.

Grassi's paper¹ is a comment on three other scientific publications, two of which were written by members of the BLT research team², and one of which was written by myself³. While reading Grassi's article, I found several apparent misinterpretations with respect to the BLT work, but I will refrain from comments, as the original authors are the appropriate party to comment here. I will only consider Grassi's comments on my own work³.

I was surprised to see that a comment on earlier publications was not published by the same journal that presented the original papers, in this case *Physiologia Plantarum*. This is unusual for scientific communications, and it is fair to assume that if the paper by Grassi *et al.* would have been a relevant comment, the editors of *Physiologia Plantarum* would not have rejected it. Although Grassi does provide an explanation for the fact that *Physiologia Plantarum* rejected his paper – which, by the way, is a very uncommon subject of discussion in a scientific communication – his statements are curious and are currently under investigation.

Basically, Grassi's criticism on my publication is fourfold:

- a. Important aspects in the presented physical model are omitted (such as radiation absorption by the air and the radiation's angle of incidence on the stem nodes);
- b. The analysis is based on an insufficient number of measurements, so that the findings lack statistical relevance;

- c. There is a lack of detailed information (e.g., Grassi requests '*tables with original data*');
- d. I deliberately held back measured data in order to manipulate the statistics.

Before I will address – and reject – these four claims, one fact needs to be emphasized. An important part of Grassi's analysis is based on extensive field- and laboratory work performed by myself. In the year 2003, Grassi approached me by means of several very kind and polite e-mails, calling himself a '*crop circle researcher*', and asking me if he could get the raw measurement data that I had collected from a set of crop circles (Nieuwerkerk, 1996). After I had sent these to him, no further communications about these data, nor about my related work has taken place. (I will not be offended by the fact that Grassi neglected to acknowledge me in his paper, which would not only have been a matter of courtesy, but is also quite common in scientific communications.)

I will now briefly comment on Grassi's four main points of concern:

- a. **Important aspects in the presented physical model are omitted**
This statement, along with several other points of concern addressed by Grassi throughout his paper, would have been appropriate if my paper had been a full-length article, presenting original work. However, my paper clearly was a *comment* on one of the BLT papers, and hence, not a self-contained publication of original research. The issues Grassi raises, including the one mentioned above, were implicitly addressed in my conclusion, when I stated that the commented paper '*stimulates further study*'. I therefore reject Grassi's criticism, as comments on other scientific publications need to be focused and concise.
- b. **The findings lack statistical relevance**
At the end of my paper I concluded that '*much more data would have to be analyzed and thorough statistical studies will be necessary...*' It is therefore curious to see that Grassi uses my own arguments against me. He simply repeats my own conclusions, which can never be a critical note, despite the fact that Grassi presents it as such, and even in a denigrating manner. I do agree with Grassi's statement, but I reject it as a point of criticism on my work.
- c. **There is a lack of detailed information and tables with original data should have been provided**
This point of criticism is curious, as I have provided Grassi with all the original data that I had available. Moreover, anyone with just a little experience in scientific communication knows that publication of tables with original data is not only unusual, it is even against the guidelines of basically all scientific journals. Original data are found in log books or computer spread sheets, and should be available upon request, but they are not published in scientific communications. This is what I was taught in the first year of University, and for good reasons: otherwise my paper would have been twenty pages long in stead of two, and consist mainly of numbers. I therefore reject this point of criticism too.

d. **I deliberately held back measured data in order to manipulate the statistics**

This is more a severe accusation of fraud rather than a point of criticism. Grassi writes that, after he received the digital spreadsheet with raw data from me, he 'discovered' measurements that I had not published, and which, when included in his analysis, would significantly change the outcome of my findings. However, the reason for omitting the data in my analysis was simple: due to an unfortunate incident several of the samples in this series had been mixed up even before the measurements were made. Although I had re-ordered the samples to the best of my knowledge, this event rendered any correlation analysis worthless, including much of the work performed by Grassi and presented in his paper. All of his related findings and conclusions are therefore worthless as well. Interestingly, a simple e-mail would have prevented him and his coworkers from wasting valuable time.

At this point I should add that Grassi's requests for '*more evidence*' had already been addressed. This is still the focus of my personal crop circle activities today. One particular case (Hoeven 1999), had already been worked out in detail and published in my latest book⁴, which is in Grassi's possession and formed the basis of his studies. Grassi also requested the raw data of this formation, however, I did not have these readily available. Since then, November 2003, I did not hear from Grassi anymore. However, besides the detailed information in my book, Grassi was also aware of the extensive report about this case that had been published long ago (1999) on the internet⁵, including raw data⁶. This study discusses a case of a crop circle that fits the BOL hypothesis with very high statistical relevance, and hence is in conflict with Grassi's main conclusion that "*involvement of some kind of electromagnetic radiation ... is not supported by the available evidence*". One can only speculate why Grassi decided no to include these data in his analysis.

Finally, I would like to express my astonishment about the bombastic and denigrating style of Grassi's paper, in which he pretends to debunk a sensational claim. Anyone who reads my paper will agree that this was a mere comment to the work of the BLT team, suggesting some model adaptations and carrying ahead their hypotheses with a modified version, only to stimulate further study. In my opinion the style of Grassi's comment, as well as the propaganda related to it that he currently carries out over the internet and beyond is way out of proportion, and casts a dark shadow over his true intentions.

Conclusion

Normally, authors of scientific communications are asked for comment before their work is criticized. This is not just a matter of courtesy, but it also avoids precious time being wasted. Any serious researcher would take the time to verify if there is some fact they have overlooked or possibly misunderstood before they rush to publications and press releases. I can only conclude that Mr Grassi has little or no experience in scientific communication. Open and honest correspondence, initiated by Mr Grassi and co-authors would have saved myself, them, as well as the editors of *Physiologia Plantarum* and the

Journal of Scientific Exploration much unnecessary work. I do appreciate efforts that are dedicated to the pursuit of knowledge. However, I can't help suspecting from the course of matters that Mr Grassi was more dedicated towards disgracing me and my work rather than to performing honest and sound research.

This article is intended for the general public and may be copied and distributed freely. I will consider writing a formal reaction, together with the authors of the other two articles, to the *Journal of Scientific Exploration*. In such a reaction I would address all of Grassi's points of concern one by one, in more detail. However, as it has become clear to me that Grassi and coworkers have no or little interest in an honest and constructive scientific discussion, and too much time and energy has already been wasted in my opinion, I may decide to spend my time on more useful activities.

¹ Balls of light: The Questionable Science of Crop Circles, *Journal of Scientific Exploration*, Vol. 19, No. 2, pp.159-170, 2005.

² Levensgood, W. C. (1994). Anatomical anomalies in crop formation plants. *Physiologia Plantarum Journal*, 92, 356–363, and Levensgood, W. C. & Talbott, N. P. (1999). Dispersion of energies in worldwide crop formations, *Physiologia Plantarum Journal*, 105, 615–624.

³ Haselhoff, E. H. (2001). Opinions and comments on Levensgood WC, Talbott NP (1999). Dispersion of energies in worldwide crop formations. *Physiologia Plantarum Journal*, 105, 615–624; 111, 123–125.

⁴ *The Deepening Complexity of Crop Circles*, see: www.deepeningcomplexity.com

⁵ <http://archiv.fgk.org/99/Berichte/Hoeven99/index.shtml>

⁶ <http://www.dcccs.org/sample.htm>