



Interactive  
Comment

***Interactive comment on “A critical discussion of the electromagnetic radiation (EMR) method to determine stress orientations within the crust” by M. Krumbholz et al.***

**M. Krumbholz et al.**

michael.krumbholz@geo.uu.se

Received and published: 21 September 2012

Dear Referee #3,

many thanks for your constructive review. In the following, we try to answer your questions and respond to your comments.

1. You ask whether the frequencies occupied by the VLF transmitters can be filtered numerically.

As explained in the manuscript, the Cerescope filters do not work properly. An exception is the notch filter (page 1005, line 19 to 23 of the manuscript). However, the

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



Cerescope provides only two of them over the whole frequency range from 5 to 50 kHz. That is clearly not enough to remove the signals of all VLF transmitters in this frequency range (see Fig. 10 of the discussion paper and the figure shown by Referee #2). Therefore, the results of the Cerescope measurements are strongly influenced by the VLF signals. Unfortunately, the raw data are not accessible for the user (page 998, line 13 to 20 and page 1010, line 18 to 20 of the manuscript). Therefore, it is not possible to apply a numerical filter.

2. You suggest to give a detailed physical explanation of the basics of the EMR technique.

The aim of the EMR technique is to measure and interpret electromagnetic emissions originating from micro-cracks. The introduction of our manuscript (pages 994 to 996) includes a short overview of different processes, which might lead to micro-crack related EMR. However, this is a subject that is still under ongoing investigation and discussion and is not the focus of our manuscript. Therefore, we refer to the corresponding literature.

Furthermore, the part Method of our manuscript (pages 997 to 999) includes all relevant information of the Cerescope which are available. Unfortunately, there are no detailed technical specifications of the Cerescope device and its data-processing algorithms available. For this reason, it is not possible to add a more detailed description of this device.

3. You suggest to inform the distributor of the Cerescope.

This is a very honorable suggestion, which we in general agree with. However, for a better understanding of the situation, we will give you a short summary of the development within the last three years.

The first author of this manuscript discovered the problems regarding the EMR method in summer 2009 and informed the distributor immediately. This included all informa-

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

tion necessary to repeat the observations we discuss in our manuscript. Instead of critically reviewing their data, the distributor H. Obermeyer and his cooperater R. O. Greiling published a paper summarizing previous results derived with the Cerescope and discuss them only in geological terms at the beginning of 2010 (Greiling and Obermeyer, 2010a, see reference list of the manuscript). In spite of a critical comment on their paper (Krumbholz, 2010b) they still ignore the obvious problems and replied to the comment on their paper defending their view (Greiling and Obermeyer, 2010b). Furthermore, the distributor still advertises and sells the Cerescope:

<http://www.geoerkundung.de/index-Dateien/page0006.html>

In our opinion, our attempts to start a fair scientific dialogue have been sufficient. However, we still think it is important to clarify potential users the problems with the Cerescope and its restricted applicability.

---

Interactive comment on Solid Earth Discuss., 4, 993, 2012.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

