



Interactive comment on “Some possible correlations between electro-magnetic emission and seismic activity during West Bohemia 2008 earthquake swarm” by P. Kolář

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Answers to RC C37 (by Wolfram Geissler)

add 1.1

- example of a reference to CO₂ degassing studies is e.g. Faber et al. (2009) which is published in (quoted special issue) of *Studia Geophysica et Geodetica* (2008, 2009) (together with works by W. Geissler). Our article is not intended as a review of all the West Bohemia activities, therefore we consider references to above mentioned special issues as sufficient . . . (we add a link to www pages dealing with W.B. topics)

C42

- in references there is a link to interactive map of the region (an application based on standard Google map which can be arbitrary interactively zoomed) – we think that this is sufficient and there is no use to publish such figures N.B. in an modern form (internet) journal. We will emphasize position of the Nová Kostel station in the corresponding figure in the revised version.

add 1.2

- What is frequency range of quoted observation? Apparently quite simple question, which is however not so easy to answer. Generally frequencies used for electro-magnetic measurement varies from fraction of 1Hz to 0.1GHz, and sometimes frequency range is not even sufficiently described (!). This may be also one of the sources of some uncertainty which can be seen in our text. We also think that is important to start a measurement at least on some frequencies and then possibly extend the observation range.

- some (I must say promising) laboratory experiments were performed in our Institute about 15 year ago. Unfortunately, this experiments had never been finalized and official report has never been published. Therefore the only reference, I can give is: T. Lokajčec – personal communication.

add 2

- unfortunately only not very smart picture from calibration of the antenna (see Fig 1) is available – we decided not to publisher it here (however it has been presented on some posters dealing with the topic – see also our EME www pages - <http://www.ig.cas.cz/kolar/EME/>)

- as mentioned on p.148, line 14 – we measure H component of electromagnetic field. EME is historical and up to certain level figurative term, but we used it (the exact meaning follows from the text).

add 3

C43

- No, this is not disagreement, as we are in different time scale (the typical duration of the pulse is few seconds, the sampling interval of the wavelet spectra is 1 minute, the wavelet spectra duration is 20 hours . . .). The pulses are under the resolution of the used wavelet spectra.

- at very beginning of data analysis we were seeking for (electromagnetic) signals directly generated during an earthquake rupture process. Such signals however were founded neither in observed signals, nor in their summation, nor in wavelet spectrum of summed signal. More precisely, there were observed some abnormalities in wavelet spectra, however they appeared to be unstable when processed time interval was changed. Therefore we classified them as random artifacts, rather than real effect.

add 3.1 p. 149, line 17-19 – don't understand

p. 149, line 21-24 – to keep reasonable number of figures and reasonable range of the text

p. 150, line 10 - Webnet 2008

p. 150, line 11 - Webnet 2008

add 3.2

p. 150, line 23 - LTA windows = 100 samples, STA window = 10 sample

add 4

p. 151, line 6 - as far as we know, yes. But of course there are other regular measurement (magnetic observation, ionospheric observation, . . .) this date will be exploited as soon as it is reasonable (actually it has already been done in once case c.f. answer to review to C35)

p. 151, line 17 – see comment above

“Role of fluids” in W.B. region is widely discussed during last decade, however, as far

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as we know, no quantitative hypotheses has been proposed, therefore it can't be tested in relation to our EME measurement. We are afraid, that we do not know enough about material properties of the rock under the pressure, so we can't discuss reasonably such relation/topic – the work of (colleague) T. Fischer can be seen . . . Generally to the “Conclusion”: we put in the paper as much material as we consider to be reliable and we try to keep the extension on a reasonable volume. As the topic is new and phenomenon not well known yet, possible relation to other effects can arise in the future, the collaboration with particular experts will be then required and last but not least, we will welcome any constructive comments or collaboration on (explanation of) this topic

add Fig.1

there is a reference to interactive map (Epicentre map), which we consider quite adequate for this purpose and for the presentation on internet journal . . . a www reference to the bulletin has been added

add Fig 3.

publishing of the table would be extended the volume of the text, we are ready to send it upon a request individually

add Fig 4.

- Z component

- analysis of single events does not yield reasonable results (c.f. paragraph 3) therefore such figures are not given.

add Fig 5

the start of EME measurement obviously corresponds with start of blue curve.

Thanks to W. Geissler for his interest and helpful comments. The formal corrections are explained above (and will be incorporated in the final version of the text). On the

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other hand we do not accept all the suggestions, for several reasons:

- to keep the volume of the text reasonable (in the present days no one is going to read extended texts) and there is enough references (e.g. for monothematic special issues) in the text

- we are not able to discuss or proceed some topics (as e.g. role of fluids etc.), even if they may look attractive and interesting (not enough data, not enough our knowledge, etc.)

- some figures or table do not need to be published, as they can be easy found on the (quoted) www pages ... (N.B. in the internet Journal) we hope, that the reviewer will appreciate such approach...

Additional references

Epicentre map: <http://www.ig.cas.cz/cz/struktura/observatore/webnet/mapa-ohnisek/>
access: 25 March 2010

Faber, E., Horálek, J., Boušková, A., Teschner, M., Koch, U. and Poggenburg, J.: Continuous gas monitoring in the West Bohemia Earthquake area, Czech Republic: first results, *Studia Geophys. et Geodet.*, 53, 4, 315-328, 2009

Webnet 2008, catalogue of local events,

<http://www.ig.cas.cz/userdata/files/observatories/webnet/web2008.htm> , access 28 June 2010

Interactive comment on *Solid Earth Discuss.*, 2, 145, 2010.

C46

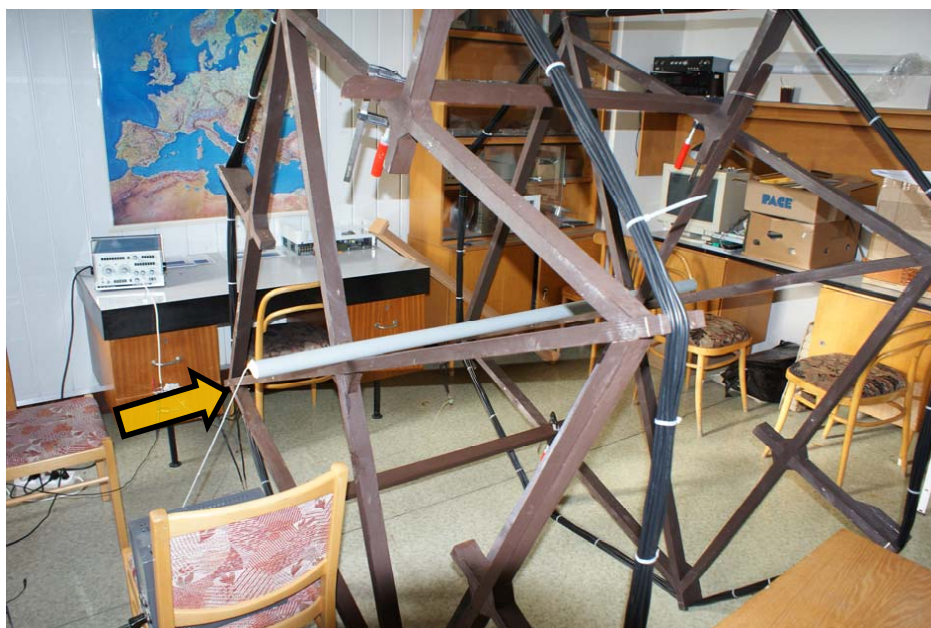


Fig. 1. Photo of EME antenna (marked by arrow) during calibration

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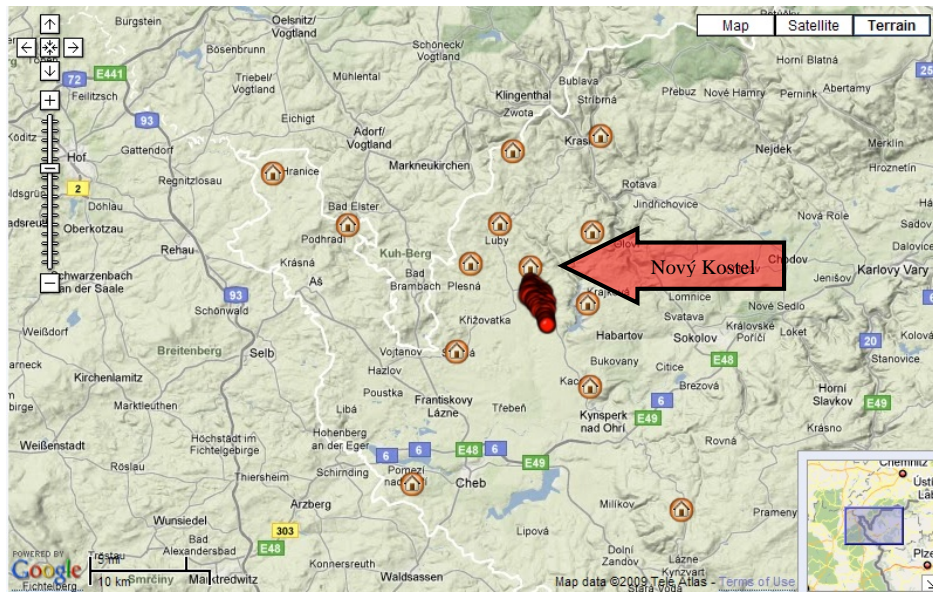


Fig. 2. Corrected version of (original) Fig. 1