



Interactive comment on “Electromagnetic signals of crust creep motion” by V. N. Uvarov et al.

V. N. Uvarov et al.

uvarovvn@gmail.com

Received and published: 21 April 2011

Authors are grateful to the referee for a high general estimation of our article. Let's analyse each of points specific comments.

1. The critical remark is based on opinion of the referee that (I quote) “The attenuation of the electromagnetic radiation with distance not depend on polatity (radiation source), i.e. amplitude of field attenuated as $1/r$ for dipole, quadrupole, octupole, etc. radiation (sources)”. It isn't true, as contradicts the theory and practice of an electromagnetic field. In our article the explanation of this circumstance is resulted. The reference to fundamental enough and widespread textbook of the theory of an electromagnetic field (Purcell, E.M is resulted.: *Electricity and Magnethism*, Berkeley Course, V2, Mcgray-hill book company, 1965). Spatial character of dependence of a field from multipolarity of the source is shined in a number of other books under the field theory.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



Practical application of the antenn of high multipolarity is rating systems mazers, microwave ovens vacuum furnaces for especially pure metals, control systems of plasma and so forth. In our article in Fig. 3 results of a theoretical estimation of sensitivity quadrupole aerials and results of practical measurements of the used aerial (Fig. 4) are resulted. From Figs 3 and 4 it is visible that change of sensitivity with distance doesn't satisfy the dependence corresponding to opinion of the reviewer (1/r).

2. The device described in article doesn't possess sensitivity to a quasistatic field, but is sensitive to electromagnetic radiation of an acoustic range. About it it is written on p. 339 line 5.

3. This device doesn't allocate and doesn't define quadruple moment of terrestrial currents. Used quadruple aerial measures a horizontal component of a spatial derivative vertical components of a magnetic field of an acoustic range. It is one of such 9 components. Use of the others a component too is possible. However the signal transferred by horizontal components of magnetic field, contains a great number of responses on storm subequatorial bursts and consequently its use inefficiently. Use of vertical derivative is connected to considerable practical difficulties. Practical value of the spent experiment consists that is offered and firstly possibility to allocate signals of a lithospheric origin from a powerful background of signals storm and magnetospheric origins is realized.

4. It is necessary to agree with opinion of the reviewer that isn't received information on structure terrestrial currents. But such problem also wasn't put. In what degree the decision put by the reviewer enough challenge is possible and whether it is possible in general will show the further researches.

We are anyway grateful to the reviewer for the shown interest.

Interactive comment on Solid Earth Discuss., 3, 335, 2011.

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