

Dear editor Lutz Gross,

Thank you. According to the comments by Prof. Mehdi Eshagh, we have revised the manuscript again and here replied each comment below. The original comments are in plain text and the replies in italics. The corresponding modifications are listed at last.

Information of our manuscript is as following:

Title: Non-singular spherical harmonic expressions of geomagnetic vector and gradient tensor fields in the local north-oriented reference frame

Author(s): J. Du et al.

MS No.: gmd-2014-215

MS Type: Technical/Development/Evaluation Paper

Referee #1 by Prof. Mehdi Eshagh (Received: 19 May 2015)

(1). The use of language. You should either use American or British not a mixture of them. I suppose that you are writing in American then please correct the followings:

Page 3, Line 34: modelled -> modeled

Page 4, Line 48: modelling -> modeling

>Jinsong Du et al.: Thank you. We have changed these words in the revised manuscript.

(2). When you refer to any section or subsection by their number the first letter should be written in capital form for example:

Page 5, Line 70, Page 6, Line 91, section 3 -> Section 3

Page 16, Lines 259, section 2.1 -> Section 2.1 and section 2.3 -> Section 2.3

>Jinsong Du et al.: Thank you. We have changed these words in the revised manuscript.

(3). Please use parenthesis using the mathtype or your equation editor and not those from the keyboard in all your equations, this make the mathematical formulae to appear better.

>Jinsong Du et al.: Thank you. We have used the equation editor of Microsoft word 2003 to edit the equations in the revised manuscript.

(4). Please change $\frac{\partial P_l^m}{\partial \theta}$ to $\frac{dP_l^m}{d\theta}$ in all of your equations as the Legendre functions are only

function of the co-latitude and you cannot use the partial derivative operator for them.

>Jinsong Du et al.: Thank you. We have corrected these impertinent expressions in the revised manuscript.

(5). Page 17, Line 278, The satellite gradiometry mission is related to the gravity gradiometry and has nothing to do with the magnetic field. Please make this sentence clearer!

>Jinsong Du et al.: Thank you. We have changed this sentence in the revised manuscript.

Modifications

The corresponding modifications are highlighted by red words in the revised manuscript, which are listed as following:

(1). We have added the article history in the first page.

(2). We have changed the words ‘modelled’ and ‘modelling’ to the words ‘modeled’ and ‘modeling’ in lines 34 and 48.

(3). We have changed the words ‘section’ to the words ‘Section’ in lines 70, 91, 259 and 260.

(4). We have changed $\frac{\partial P_l^m}{\partial \theta}$ to $\frac{dP_l^m}{d\theta}$ in lines 93, 99, 100, 101, 102, 120, 122, 126, 130, 132,

134, 153, 155, 157, 163, 168, 170, 171, 173, 175, 179 and 181.

(5) We have added two space symbols in line 224.

(6) We have changed the sentence in lines 278 and 279 “For an application to the magnetic data of a satellite gradiometry mission,” to “For an application to the magnetic data of a satellite gradiometry mission in the future (e.g. Kotsiaros and Olsen, 2014)”.

Best regards,

Jinsong Du et al.

23 May 2015