

The manuscript presents well founded support for mathematical analysis of planetary magnetic field basing on experimental data. 1. Line 33: "N data points x_i , $i = 1, \dots, N$ " and Line 102 "Q indicates the number of measurements". Are N and Q the same numbers? 2. Line 94: "fulfills in principle the resolution of Eq. (7) with respect to g." Did you mean solution of Eq.(7)? 3. As a usual practice, for validation of the model, experimental data are divided into two parts. The first one is used for selection/tuning of model parameters with the help of the various optimization algorithms. The second part provides verification of the model by means comparison of experimental data with the data predicted by the built model. It could be helpful to demonstrate such an approach here.

Reply:

1.) Q and N are not the same numbers. N is the number of spatial data points, whereas Q indicates the number of measurements at each of these data points (for example the number of flybys at each point). A comment will be added in the manuscript.

2.) Agreed, we will modify the word „resolution“ to „solution“.

3.) For the application of several inversion methods (e.g. machine learning) it is useful/necessary to devide the data into two parts. Capon's method does not require this segmentation. For example, each data set corresponds with a diagonal loading parameter. Since this parameter depends on the measurements and on the underlying model, it has to be calculated for each data set individually. When the data and the model are known, for each data set the diagonal loading parameter is calculated with the measurements and the data points itself and then Capon's estimator can be calculated directly.