First of all, thank you for your comments and suggestions that allowed us to greatly improve the quality of the manuscript

1. Discussion

1.1. Why using Gauss elimination on a function of the type Eq. 1 ?

Answer: In the introduction, we discussed about disadvantage and advantage of two methods:the method of Blackely, R. J., Simpson, R.W, 1986 and the method of Phillips, J.D. 2007. This paper is a combination of these methods. Gauss elimination method is used to determine the coefficients of two-variables function (eq.1).

1.2. Why using eq.1 ?

Answer: Eq.1 has type general $(x-a)^{\wedge 2}(x-b)^{\wedge 2}$.

- Due to 3x3 data grid has 9 point. It is 9 equations. We has matrix **Ax=b**. Inthere, **A** are co-ordinate (x,y) of data points, **x** are coefficients of Eq1, **b** is data

- Gauss elimination method to solve for these equations that has unique root.

1.3. Why combining these methods ?

*Answer:*Using Gauss elimination method to determine the coefficients of two-variables function. Afterthat, we only examine on 4 specical cases of this function, include: x=0, y=0, y=-x, y=x. They are 4 cases that Blackely introduced.

- In general, the Gauss elimination method use for step 1 (establish a two-variables function base on 3x3 data grid). The method of Blackely use for step 2 (calculate the maxima from 4 functions).

2. Major comments:

2.1. Comment 1:

- Introduction:…… l.58 "… function that is established by three points on a straight line or l.58 "the accuracy of the approximated geological boundaries aren't high enough", or "..these functions are very different from the functions that the proposed". – avoid bold statements.

Answer: The paper is revised.

2.2. Comment 2:

- Introduction: you need to define " Gauss elimination method"….

Answer: Gauss elimination method used popular. It can be referenced at: https://en.wikipedia.org/wiki/Gaussian_elimination

2.3. Comment 3:

- Method: l.76 “paper researches a function of two variables that has pattern” why? I am not an expert in this field and there is nothing to introduce this type of function. Is it from previous work? Literature?

Answer: No, this paper dosen’t researches about function of two variables. This paper only use a type of two-variables function. Function of two variables can be found in the paper of Phillips, J.D. 2007 .

2.4. Comment 4:

- Method: Table 1 is interesting. I like it. Thus, I would take this table and put it in the introduction, expanding it with other methods. It can also give a nice introduction to your method.

Answer: Thank you for good comments, we will review

2.5. Comment 5:

- Method: l. 103 “However, this paper doesn’t detect the critical points ...” I am lost. When I read the manuscript I am confused, because 1/ you estimate the critical point at fx =0, fy=0, why? 2/ l.104 you now speak about extreme points. You need to rewrite the section and show your assumptions, define critical and extreme points, how you detect them or why estimating at specific point in space. The assumptions are crucial *to* see if the software will not be biased.

Answer: Thank you for comments, The paper is revised

2.6. Comment 6:

- Method: when I see that you want to solve Eq. (1), you can use much more advanced mathematical tools such as optimization algorithm (gradient descent, second order algorithm > Jacobi-Davidson), convex optimization ... Thus, you should justify why using *your* method, and above all why your algorithm will not be biased due to the basic assumptions.

Answer: Each method has advantage and disadvantage, we use Gauss elimination method because this method for unique root. Therefor, it is a new approach

2.7. Comment 7.

- Test Cases: I would prefer to rename this section, with perhaps "Results and Discussion" – you should also divide in two parts – "simulations" and "real data

Answer: Thank you for good comments, we will review

2.8. Comment 8.

- Test Cases: you should expend that you know use Matlab (with proper reference) to use your algorithm on simulated data set.

Answer: Thank you for comments, we will review.

2.9. Comment 9.

- Test Cases: Table 2 shows the parameters of the models used to do the simulations,but we do not see this model – I believe it is mentioned in line 120 "Mantik Talwni and Maurice Ewing [26]". Thus, you need to give the model at least in the appendices

Answer: Table 2 has the parameters of both two models (model 1 and model 2) include: local, depth (top and bottom), desity constrat

On Fig 2 show local and gravity anomaly of objects for both two models

Line 120 "Mantik Talwni and Maurice Ewing [26]". A Matlab code that is built base on the theoretical basis of Mantik Talwni and Maurice Ewing to calculate gravity anomaly of objects in model 2

2.10. Comment 10.

- Test Cases: I think the whole presentation of the results should be revised. The "model hasn't noise" or "the model has noise" should be fused together with proper words and explain the limits of the algorithm when using higher noise level. Perhaps,a figure showing the statistics testing for edge detection of the figures in various noise levels could be much more understandable. Also, the use of "comments " (L.161) or "advantage/disadvantage" (L194,198) does break the flow of the paper. Again, proper words and text management can improve a lot the manuscript.

Answer: Thank you for comments. The paper is revised.

2.11. Comment 11

- Real data: You need to properly introduce the data set.

Answer: The data set is introduced.

2.12. Comment 12.

- Real data: to support your conclusions about your algorithm more sensitive to the relief of the image, you need to look in other packages about edge detections and compared with yours. The type of sentence l. 231 “ We believe that the green 231 polylines are a new boundary because it wasn’t shown in the projects “ are not supported – thus we can wonder if there is noise included in the edge detection:.. or else ... a full discussion is required here.

Answer: The paper introduce a new approach to dectect the edge of objects base on potential field.

3. Minor mistakes

Please revise the English - here are a few mistakes

L.36 revise the sentence “We have many the methods ...”. l.49 revise “Each author, as well as each method, has ...”. l.50 “detect” > to detect. l.51 Revise and simplify the two sentences “These methods are very powerful. They confirmed on many papers and projects of authors,...” I have never cited a method or an algorithm by the name of the author, but by references. It is also confusing to add the name and the reference. Thus, lines 47-49 and lines 55-56 should be revised. Avoid double referencing name + reference. Perhaps, you can simply say “method developed by [24] will be referred as the method of Philips in the following ” l.59 avoid using the verbal contraction “aren’t” in any scientific manuscripts, always write the full verbal structure. Also same for “isn’t” (l.61, 65, ...) and hasn’t (l.127 ..), wasn’t (l.231) l.60 Function > functionl.64 “,” before “because” l.69 “the marked differences” – what does that mean? l.113 Revise : “the paper use the built computer program to test on two numerical model”.

Answer: Thank you for good comments, the English mistakes is revised