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Geosci. Instrum. Method. Data Syst. Discuss., author comment AC1
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Reply on RC1

Yimin Liu et al.

Author comment on "Research on Fiber Bragg Grating Sensor Group for Three Dimensional In-situ Stress Measurement" by Yimin Liu et al., Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2021-14-AC1, 2021

Dear RC1☐

We are very grateful to this referee comments, and we have carefully read and considered the referee's comments, and these comments are important for improving the quality of this manuscript. Based on these comments, we have made carefully modification and proofreading on the original manuscript, the revised parts have been marked in red in revised version, and the detail modifications are shown in next chapter.

Thank you very much for your suggestion and consideration, and we look forward to hearing from you.

Best regards,

Yimin Liu and Zhengyang Hou.

Detailed revision:

(1) The fonts on the axes are too small and the labels could be better.

Modification: We have enlarged the fonts on the axes in Figure 10, 11 and 21, and the labels would be better than previous manuscript.

(2) Page 3, Line 68, 69: "but there is no mature and stable instrument and corresponding monitoring technology", this sentence is not so accurate.

Modification: Thanks a lot for your kindness sugguestion, due to our carelessness of literature review, we have carefully read and added the literatures you provided in revised version, and rewrite this sentence.

We revised it as: there are only some borehole earth strainmeter, geo-stress sensor or volcano monitoring sensors based on optical fiber sensing, but there is less mature and stable in-situ measurement instrument and corresponding monitoring technology.

(3) Page 10, line 193 you did not find this terms "λ_ε" in the previous equation, could you explain better.

Explaination and modification: We added the Equation 14 to explain "λ_ε", and λ_ε is the wavelength value under strain state.

(4) Page 14, Line 262: How do you measure the wavelanght shift? and which resolution you have?

Explaination and modification: We measure the wavelanght shift by FBG wavelength demodulator, and the demodulator is shown in Section 4.1, and we describle the function and main parameter of the demodulator in line 206. The working principle and process of demodulator are not the focus of this manuscript, this paper focuses on the design and simulation of the FBG sensor group.

(5) Page 23, Line 415: Please add axes's labels to better understan what is plotted.

Modification: We have added axes's labels in Figure 21. The ordinate represents the label of the FBG corresponding to the residual error, and the abscissa is the label of the corresponding FBG.