Geoscientific Instrumentation Methods and Data Systems Discussions

Geosci. Instrum. Method. Data Syst. Discuss., referee comment RC2
https://doi.org/10.5194/gi-2021-28-RC2, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on gi-2021-28

Anonymous Referee #2

Referee comment on "Response time correction of slow-response sensor data by deconvolution of the growth-law equation" by Knut Ola Dølven et al., Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2021-28-RC2, 2022

In this paper, the growth law is used to model the slow response measurement process, and a new technology of deconvolution of the measurement signal of the slow response sensor based on the weighted least square is proposed, so as to achieve the measurement effect similar to that of the fast response sensor.

Some views:

1ï¼☐There are too many curves in Figure 3ï¼☐it is difficult to see clearly;

2ï¼☐The experimental results of the paper show that the real response signal can be extracted from the measurement signal of slow response sensor to eliminate the influence of transmembrane effect, which is in good agreement with the measurement results of DTB sensor. However, the experimental results of the algorithm are introduced in the summary. It is not understood that the correlation R has increased from 0.18 to 0.91. Because the slow response curve is very different from the fast response curve, the correlation between the two must be very low. The correlation between the fast response signal extracted from the slow response signal and the fast response signal measured directly must be very high. It doesn't feel that it can be said to be "improved", nor can it reflect the advantage of this algorithm to obtain the fast response signal;

3ï¼☐ This paper mainly analyzes the influence of time step on the stability of the algorithm. Are there other factors?

4ï¼☐ Based on the relevant knowledge of slow response and fast response sensors, is it a good way to directly measure fast response signals? Or is it better to extract from slow response?