Interactive comment on "Single Point Positioning with Vertical Total Electron Content estimation based on single epoch data" *by* Artur Fischer et al.

Anonymous Referee #1

Received and published: 1 October 2020

Review of the manuscript: " Single Point Positioning with Vertical Total Electron Content estimation based on single epoch data " by Artur Fischer, Sławomir Cellmer, and Krzysztof Nowel submitted to Geoscientific Instrumentation, Methods and Data Systems.

The reviewed manuscript in general is interesting and well-motivated. It presents a novel approach of ionospheric delay estimation in single point positioning. Undoubtedly, this issue is a current problem described in top scientific journals related to the broadly understood geosciences. For this reason I believe that this manuscript should be considered as a potential publication in the Geoscientific Instrumentation, Methods and Data Systems. Nevertheless, before accepting the manuscript for publication, the authors should make a few minor corrections and respond to the reviewer's questions:

1. Page 1, Line 21 – "Single point positioning (SPP) allows of the indication of an autonomous position of a receiver using code data from the Global Positioning System (GPS)." Does the SPP positioning technique concerns only the GPS system or also other GNSS systems? 2. Equation (9). Not all values in the formula have been explained in the text of the article. 3. Equation (14). If V, X and L are vectors so why then they are written in capital letters? 4. Equation (16). The paper only presents the method of calculating the "mapcoeff" coefficients. Please provide information about determination of the rest of coefficients of matrix A. 5. Equations (20, 21). Least squares solution is widely known in geosciences and I think it can be omitted from the article. 6. Equation (22) . It must be underlined that this formula of the Euclidean distance between points in 3D space is the basic knowledge, so in my opinion there is no need to write this quantity as a new formula. 7. Equation (24). The quantities in the denominator are not explained in the text. 8. Can the approach described in the paper be generalized by combining of the observations from different GNSS systems? If yes, then how would the computational procedure looks then?

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Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2020-28, 2020.