

## ***Interactive comment on “Time difference of arrival estimation of microseismic signals based on alpha-stable distribution” by Rui-Sheng Jia et al.***

**S. Lovejoy (Editor)**

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Comments from editor (S. Lovejoy):

Beyond the seismology issues raised by the referees, there are a couple of other issues that I noticed.

a) The key variable  $\varphi$  is never given a name, nor explicitly related to probabilities. b) It is stated that: “the maximum difference between the number of positive and negative values is 92. Compared with the 3000 of sample data, this can be approximately considered as 0.” This is a standard problem in nonparametric statistical testing. It is equivalent to asking what is the maximum excess of heads with respect to tails if a coin is tossed 3000 times. The authors’ result (92) does not strike me as so negligible. But

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even then if it is, a statistical test could only reject the hypothesis that the distribution was symmetric, not to accept it. The authors could use a standard maximum likelihood estimator for the parameters, thus giving standard errors for their parameter estimates. c) The authors do not show the evidence they used to estimate their key alpha values. This is such an important part of the paper that they should show a graph tending to support the validity of their technique. Alternatively, they could use the standard maximum likelihood method.

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Interactive comment on Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2017-49>, 2017.