

Interactive comment on “Technique for solving for microseismic source location parameters based on adaptive particle swarm optimization” by Hong-Mei Sun et al.

Anonymous Referee #1

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General comments

The manuscript “Technique for solving for microseismic source location parameters based on adaptive particle swarm optimization” aims to apply the PSO algorithm to determine the coordinates and origin time of rockbursts which could occur during mine exploitation. The purposes of the study are very well explained. The applied method and the PSO algorithm are described in a detailed way. The results are convincing and allow the authors to assert that PSO algorithm performs better than Least Squares Method algorithm: the estimation of parameters is more accurate, and also the times for the computation are faster. I suggest to accept the manuscript after a minor revision.

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Specific comments

My issues mainly concern the necessity of clarifying in a more detailed way some concepts and analyses: - Some terms in the equations are not defined; - Confusion in discrimination between dimension of particle space and number of particles in the swarm; - It is not explained how the initial values in the Geiger's method were chosen; - The analysis about the influence of lack of knowledge on velocity model has to be described more thoroughly;

In addition, it is very important to cite other works that could be easily found and read by the scientific community. Actually, many works cited in the introduction which could help to better contextualize the problem are very difficult to find.

I also noticed some typos in the manuscript. Since I am not English mother tongue, I suggest a potential revision of the manuscript with the support of Editorial office. Anyway, I provide you a line-by-line commented pdf version of the manuscript with some suggestions for improving it. Best regards.

Please also note the supplement to this comment:

<https://www.nonlin-processes-geophys-discuss.net/npg-2019-11/npg-2019-11-RC1-supplement.pdf>

Interactive comment on Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2019-11>, 2019.

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