

## ***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 #2**

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To the authors: == Title: "Technique for solving for microseismic source location parameters based on adaptive particle swarm optimization" Suggested title: "The adaptive particle swarm optimization technique for solving microseismic source location parameters" (this is optional) == Page#2 Line#2: Please correct this reference "Lomax et al., 2011" with correct one "Lomax et al., 2001". == Abstract OK (clear and concise (coherent) presentation, international standard write) 1.Introduction - OK. Overview well described with references. 2.Microseismic source location principle - OK, concise, and clear. 3. Adaptive PSO algorithm for solving location parameters - OK 4. Simulation and case study - OK (more attention on errors techniques, because it builds conclusion #3) 5. Conclusions - OK (check conclusion #3, according precision) References - OK,

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written correct, clear, unique format. No skipped references in text or missing articles in the reference section according to the text. Tables and Figures are OK. == Remarque for location accuracy: According to the conclusion #3, less errors on the location computations are provided by PSO method than LSM. Here, I would like to ask authors for completing following: 1. Case study 4.2: Blast's points A and B have precision on XYZ coordinates  $d_{XYZ}=0.1\text{m}$ , by default or for some measurement reasons ? (This is first question, which need to be answered with more details on coordinate positioning errors / GPS, or other). 2. The finite dimension of Blast point: depends what you have used in mines (dynamite, or other..) it should have some volume in space. This gives some uncertainties on wave propagation, because still have no idea through which side of this cube/cylinder/or sphere, the wave goes out and made shock source. This is unknown, and this is the real source errors on locations, here. (My second question is how big was the real source ? - the volume, which can gives you real  $d_{XYZ}=?$ ) 3. The above 2 answers give the real positioning of source. Here, need to check the computed errors from their computing formula (for location parameters of the source) by each method and compare it with real errors. Then compare between and say can you distinguish (according the existing precision) which ones gives more appropriate results with real location ? Are really PSO better than LSM ? From my point of view, this question is still open, and need attention for completing.

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

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