Contribution ID: **674** Type: **Poster (+) Presentation**

Improvements of stochastic simplex approximate gradient (StoSAG) for production optimization

Wednesday, 2 June 2021 10:00 (1 hour)

StoSAG is an important method to solve optimization problems in reservoir management. But it also faces a major problem-falling down in local optima. We propose some improvements of StoSAG. First, we study the effect of the ensemble number, the cut step number, the initial ensemble, and the initial step size on final optimization value. The performance of the StoSAG is tested on 48 common benchmark functions and compared with the performance of particle swarm optimization (PSO) algorithm. Second, the rules to choose the optimal ensemble number, cut step number, initial ensemble, and initial step size are given considering different function characteristics. The improved StoSAG achieve the best results on all test functions. Finally, the improved algorithm is applied to the optimization of water flooding reservoir model including 10 injectors and 10 produces. By using the improved StoSAG, the NPV is converged to a highest value than both StoSAG and PSO.

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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Primary authors: Mr JIANCHUN, Xu; Mr WENXIN, Zhou

Presenter: Mr WENXIN, Zhou

Session Classification: Poster +

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