

Oil production optimization 2

February 21, 2017

Giuliani and Camponogara (2015) present a trust-region based method for optimizing oil production.

Questions

1. Explain the optimization problem. What other optimization problems concern oil fields? Which methods have been used? Describe at least two of these methods and explain how they have been applied. Based on the results from the literature, explain the advantages and shortcomings of these methods.
2. Implement the method described by Giuliani and Camponogara (2015) for a simplified problem. Compare the results to those obtained by another, known method. Explain the results. What are the advantages and shortcomings of the methods based on your implementation?

References

Giuliani, C. M. and Camponogara, E. (2015). Derivative-free methods applied to daily production optimization of gas-lifted oil fields. *Computers and Chemical Engineering*, 75:60–64.