Novel Optimization Methods for Data Assimilation

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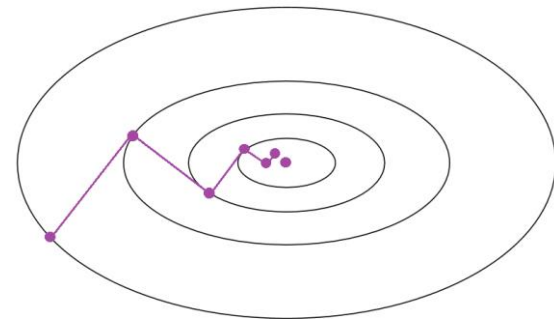
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Research aim: **To investigate whether the use of newly developed, advanced numerical optimization methods on Data Assimilation problems is advantageous.**

Within this poster we look at 3 variations of the Gauss-Newton method used to solve nonlinear least-squares problems:

- The Gauss-Newton method alone

- The Gauss-Newton method with line-search

- The Gauss-Newton method with regularization

with the aim of finding an efficient numerical method which provides the most accurate solution in the time and computational cost available.

Image source: Numerical Optimization, Jorge Nocedal Stephen J. Wright, Page 42.