

Interactive comment on “Unravelling the internal architecture of the Alnö alkaline and carbonatite complex (central Sweden) using 3D models of gravity and magnetic data” by Magnus Andersson and Alireza Malehmir

R. Weinberg (Editor)

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Dear Dr. Anderson,

First of all I would like to apologize for the delay but we had a reviewer who agreed to review but then never delivered, and this delayed the process. The review provided by RC1 is detailed and will help you produce a stronger version of the manuscript. I have also reviewed the manuscript (RC2).

I fully agree with RC1 that although the manuscript is potentially interesting for publication, the current version needs to address a fundamental question about the modelling

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and its constraints before it can be accepted for publication. We are interested in publishing the results and urge you to address carefully the comments and corrections provided by both reviews. Once we receive a revised version, we will resend it for re-review by RC1. If you decide to resubmit a revised version, please add a detailed explanation of your changes in response to the comments of both reviewers, and also submit a version with marked track changes.

As you will find, the main criticisms centre around: a) making the study more relevant to a general reader by bringing out the importance of Alnö carbonatites and the importance of the 3D nature of the body to understand emplacement of carbonatites; b) while accepting that inversion results are non-unique, you need to address the question of what makes the results presented more likely to be correct than any other ones. Typically this is done by directly linking to the surface geology. The manuscript needs improving in this regard; c) section 4.2 needs rewriting, introducing properly the seismic sections and providing a clear explanation about how different zones are ascribed to different rock types based on Table 1. I look forward to receiving a revised version of the manuscript in the near future,

med vänliga hälsningar,

Roberto Weinberg

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