Reviewer 2: RC2 - Anonymous

Reviewer	*Comments/corrections /Questions*	Accepted / not Accepted	Authors Response
RC2	**General Comments:** This work contains interesting improvements over a previous work from the authors (Gebre and Lewi, 2022) concerning gravity inversion using L0-norm regularization. The main contributions include auto- adaptive regularization and combined stopping criteria. The results shown include many tests with synthetic data and real data which supports the claim of the article. In general, the article is well written and should be accepted after few minor modifications.	Accepted	*We would like to thank reviewer **RC2** for the encouraging and constructive comments that contributed to the improvement of the manuscript. We highly appreciated his interesting and positive suggestions. **Note:** We have accommodated all of the recommendations. The applied changes are highlighted in yellow color in the revised manuscript.*
RC2	**Corrections /Comments 1:** The article contains typos and minor grammar mistakes that should be corrected. For example, in line 122, it should be "Here the misfit functional is Φd =… and $\mathbf{W}e$ is the error…". In line 334, it should be "total number of model parameters", etc…	Accepted	*We thank the reviewer for the valuable corrections. We completely agreed and incorporated the corrections.*
RC2	**Corrections Comments 2:** For the sake of completeness, the expression of the stabilizing functional, $S(\varrho)$ should be given to explicit the role of $\mathbf{W}ck$ in the objective function and improve the understandability of (4).	Accepted	*To make this point clearer as suggested by reviewer **RC2**, we have incorporated additional* descriptions *in the revised manuscript.*
RC2	***Corrections Comments 3:*** Also, as the method is based on iteratively reweighted least squares (IRLS), it should be mentioned on the text.	Accepted	*Yes that is true, the method is based on iteratively reweighted least squares (IRLS) minimization. As suggested, we have now mentioned it in the text.*
RC2	**Question/corrections Comments 4:** In (18), the max operation should be defined.	Accepted	*We incorporated the definition of the "max" operation.*

RC2	**Corrections/Comments 5:** In (19), please use a notation similar to: $$[\tilde{\rho}^k]_j = \begin{cases} [\rho_{max}]_j \; if \; [\rho^k]_j > [\rho_{max}]_j \\ [\rho^k]_j \; if \; [\rho_{min}]_j \leq [\rho^k]_j \leq [\rho_{max}] \\ [\rho_{min}]_j \; if \; [\rho^k]_j < [\rho_{min}]_j \end{cases}$$	Accepted	*As per the reviewer's suggestion, we have changed the notation in the revised manuscript.*