

# Revised GMD manuscript: List of changes for egusphere-2024-4051 (March 31, 2025)

## Evaluating uncertainty and predictive performance of probabilistic models devised for grade estimation in a porphyry copper deposit

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‡ Section and page references for each item are hyperlink enabled.

	Section	page	line	Notes
1	Abstract	1		Minor changes (word choices). Rephrasing to avoid ambiguous interpretation.
2	§1 Intro	1-2	21-48	Revised introduction to make the overarching objectives much clearer. Paragraph 1 defines the problem and explains what the paper is about. It identifies deficiencies in current practice, citing references that have influenced this work. The scope of assessment (three pillars of performance) and value proposition are mentioned explicitly.
3		2-3	49-89	Paragraph 2 provides a snapshot of recent work in probabilistic modelling and clarifies what the writers have in mind.
4		3	90-121	Paragraph 3 emphasises the motivation and application context, explaining its unique characteristics and how forward extrapolation would shape the validation approach.
5		4-5	124-149	Paragraph 4 recaps the main points and outlines the paper's organisation.
6	§2	5	156-175	Rewritten modelling section to address issues identified by reviewer: citing seminal works and pointing out kriging/GP share the same conceptual foundations.
7	§2.3	8	246-260	New section on conditional simulations. Point out that SGSim and Cholesky random field simulation are both examples of this; and the reasons for running such simulations.
8	§2.4	9-10	292-331	New section on model configuration, conditional dependence and approximations. Point out implementation-specific features that contribute to differences in the kriging and GP models. Explain why these variations are reasonable for a methods-for-assessment paper.
9	§3.2	12	374-379	Improve its flow. Provide reasons for having variogram-based spatial fidelity measure.
10	§3.3	13	404,410	Renamed <i>likelihood</i> as <i>local consensus</i> to eliminate other connotations.
11	§5	19	539-545	Restating the purpose of this study and focusing readers' attention on the key contributions. Addressing the critique that readers are not sufficiently informed about the organisation of the section and understanding the rationale and potential outcomes, lines 550-556 now highlights this clearly and provides a roadmap for what is to come. To avoid mental overload, non-essential figures have been removed (as indicated by the red text on p.20-21)
12	§6	36	841-902	Rewritten the discussion section, linking the illustrated outcomes to study objectives. Pointing out the models considered currently depict variation in the number of simulation runs, but this metaphor can represent more broadly any modelling approach, configuration changes or variation in parameters that modellers may want to investigate, to assess the impact of various approximations/decisions on model performance. The discussion also mentions why correlated error clusters are not uncommon in mining, and some alternatives to the suggested measures.
13	§6.1	38	907-909	The recommendations are given in the spirit of filling a gap in the absence of industry standards, to support highly automated model assessment performed at scale and across multiple sites, and to provide a richer understanding of model/data deficiencies in a potentially complex geological (grade modelling) environment.
14	§7	39	951	Edited conclusion to indicate finding is implementation-dependent.

Note: This file has been truncated as the authors have been asked by the copernicus system NOT to submit the revised manuscript as a supplemental file attached with our comments.  
The revised manuscript is available for upload if we are advised of the proper way for doing this.