

Review of: "Probabilistic Assessment of the Heavy Metal Pollution in Debrecen's Topsoil"

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The article titled "Probabilistic Assessment of the Heavy Metal Pollution in Debrecen's Topsoil" by Zsolt Zoltán Fehér and Péter Tamás Nagy discusses an important environmental issue and presents findings from a study conducted in the Debrecen area regarding heavy metal pollution in the topsoil. Below is a review of the article:

Introduction

- "Deterministic approaches and probabilistic methods such as Gaussian simulation to provide concrete results for the risk assessments associated with heavy metal pollution." - This sentence seems to imply that deterministic approaches are used alongside probabilistic methods like Gaussian simulation, which might be contradictory. Deterministic approaches typically don't involve probabilities, while Gaussian simulation is inherently probabilistic.
- "The study was conducted in Debrecen urban and surrounding areas with the overall objective of investigating the environmental quality of the region with regard to heavy metal pollution and specially determining..." - There's a typo here; "specially" should be "specifically."

Methodology

- **Mathematical Notations:** There are multiple instances of "Math Processing Error" appearing in the text. It seems like there are formatting issues with mathematical expressions or symbols that need to be corrected for clarity.
- The depth of sampling (0 to 20 cm) might not capture variations in heavy metal distribution at deeper soil layers.

Results and discussion

- The interpretation of the results should be more explicit. For instance, it would be helpful to discuss the significance of exceeding pollution limit values and implications for environmental health.
- The spatial distribution maps (Fig. 2 and Fig. 3) effectively visualize the horizontal and vertical distribution of pollutants. However, the legends in these figures should be clearer to indicate the concentration ranges represented by different colors.
- The estimation uncertainty depicted in Fig. 4 provides valuable insights into the reliability of the spatial predictions. However, a brief explanation of how uncertainty was quantified and its implications for interpretation would enhance the discussion.
- The text provides a thorough analysis of heavy metal contamination in Debrecen's topsoil. However, synthesizing the

findings and discussing their broader implications for environmental quality, human health, and potential mitigation strategies would provide a more comprehensive conclusion.

Overall, the article provides valuable insights into the heavy metal pollution status in Debrecen's topsoil and contributes to the understanding of environmental risks associated with urban soils. The findings have implications for environmental policy and remediation efforts in the region.