We would like to thank this referee for his comments. Please find our responses below.

REF2

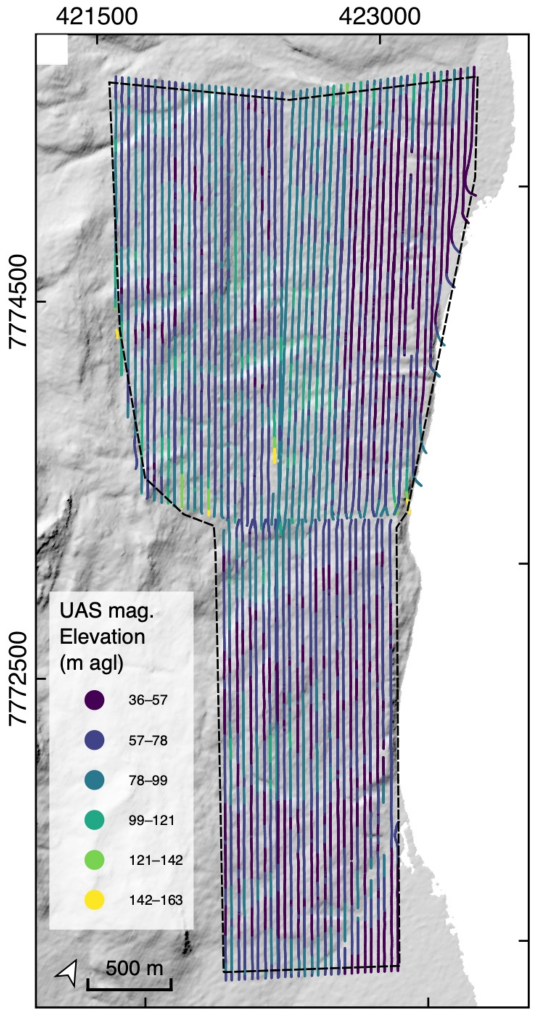
Dear Authors,

Overall, a comprehensive and informative case study which combines a wide variety of remote sensing (legacy geophysics, UAS-based magnetics, ground magnetics, UAS-based multispectral) and laboratory measurements (petrophysical measurements, borehole logging, mineralogical SEM analyses) to further the exploration understanding of Ni-Cu-Co-PGE-Au mineralization at Qullissat, Disko Island, Greenland. The manuscript provides a detailed summary and combination of several state-of-the-art exploration methods and discussion on how these methods were used and combined to improve mineral exploration within challenging/remote terrains.

Listed are some minor comments that would help clarify and improve the manuscript. These comments are listed based on the page numbering, line numbering in SE-21-133.

(Page 8, Line 225) – Briefly state whether the UAS-based magnetic flight lines were draped over the topography model.

During the early planning stage of many aeromagnetic surveys, field survey planners define that flight altitudes should describe draped surfaces above the ground (i.e. the plane does not lower the flight heights, when crossing canyons and narrow valleys). In contrast, a constant height above the surface topography is defined in our UAS survey, but this is automatically modified by the flight plan software for areas having steep topographies to avoid that the plane has large pitch angles. These modifications result in flight heights that are similar to the ones of draped surfaces (i.e. the flight height is also larger in areas with large topographies as in narrow valleys, see figure below), but the way they are determined are different.
We have added a sentence in the section about the data acquisition to clarify this.



UAS flight elevation above the topography. Large-attitude outliers are present in areas of local hills and higher basalt pillars.

(Page 9, Line 230) - What was this 1-5 nT magnetic noise in the raw data mainly from… platform electromagnetic interference, sensor motion? Briefly state the reason for the magnetic noise…

Since the data error is accumulated by various noise sources during the acquisition (e.g.electromagnetic noise from electronic components, servos and motors, long wavelength temperature drifts and inaccuracies from accelerations of the fluxgate coils by rapid plane movements and vibrations), but is partly reduced by the processing (e.g. the ELM is an inversion method that reduces the impact of various noise sources), it is to some extent challenging to define an exact error estimate.
We have adapted the respective lines and present an estimate for the overall error of ~5 nT, which appears reasonable for us and is also used as an error estimate in the inversion.

(Page 10, Figure 2) – Make the outlines a different color than the data you present in Figure 2a. Both present light blue and purple colored data and figure outlines, which are challenging to differentiate. Check color contrasts and consistencies in other figures.

We thank the reviewer for this observation. The color of the outlines in figure 2 have been adapted and have now higher contrast. Additionally, the box colors for the zoomed-in maps were updated.

(Page 19, Figure 17) – In the three depth slides, the magmatic body shifts to the West and changes shape slightly with increasing depth (surface to 100 m below surface) as would be expected given the topography and horizontal nature of the formation. However, the magnetization anomalies associated to points A and B remain larger unchanged in shape, position, and magnetization strength. Why is this the case? If they are assumed to be blocks of the main sill that slide down the hillside (Page 27, Ln 610) or anthropogenic sources, would it be expected that the magnetization would remain unchanged and extend to depth? Maybe a brief sentence or comment clarifying or addressing these assumed point source anomalies and how they interact with the inversion models.

Yes, the different appearance of anomalies is indeed linked to the different inversion regularizations used inside and outside the volume associated with the magnetic body. Inside the body, there is no constraint towards a reference model and, hence, there is a larger degree of freedom that the magnetization can vary. In contrast, the area outside of the body is constrained towards a zero magnetization model such that introduced anomalies tend to have smaller magnetization values. To fit observed data anomalies in this area, it is then required that the magnetizations are spread over larger volumes (and wider depth ranges). We have added two sentences explaining the appearance of anomalies A and B.