

1 **Supporting information for “A first-order statistical**
2 **exploration of the mathematical limits of**
3 **Micromagnetic Tomography”**

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1 Extra figures uncertainty ratio distribution

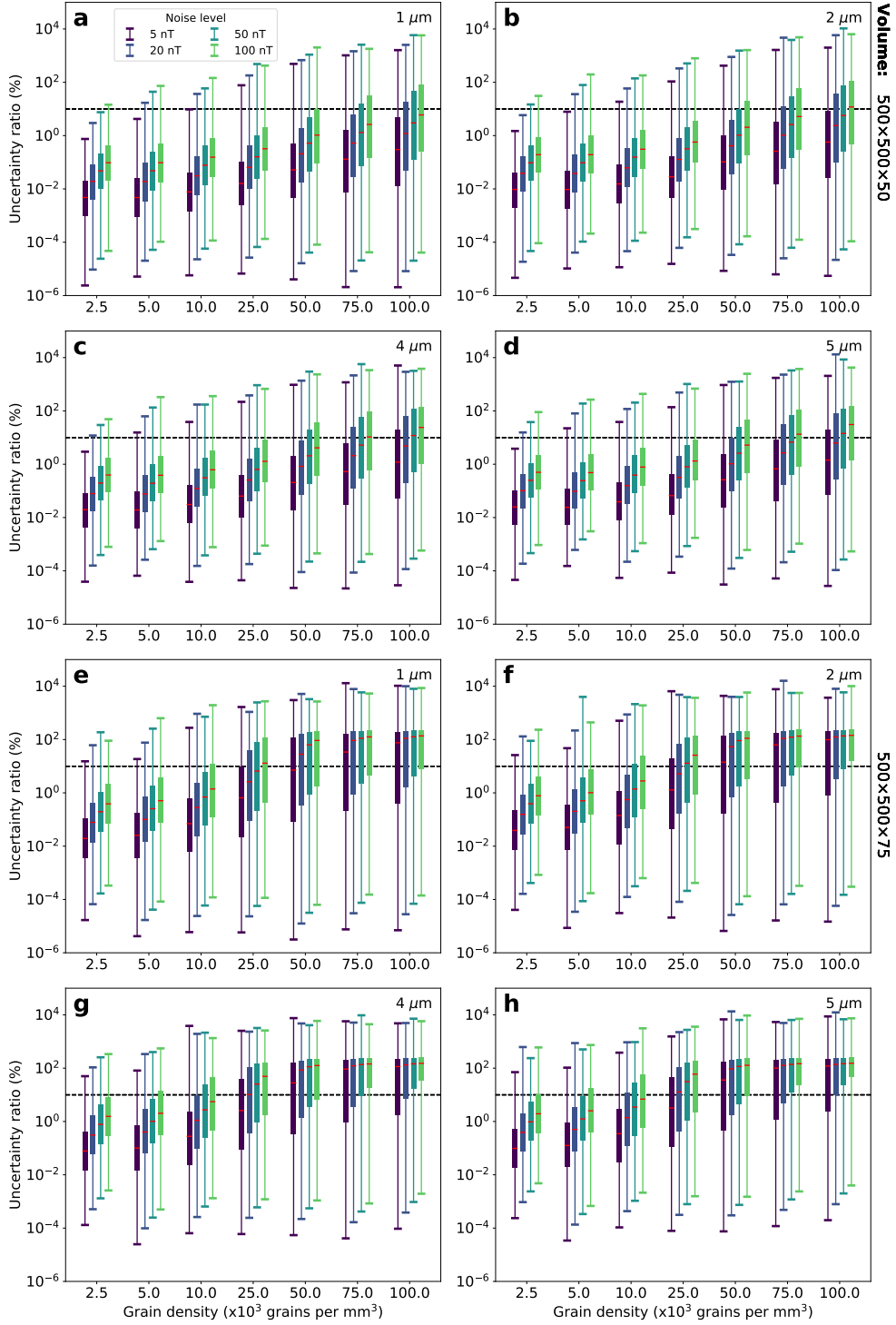


Figure 1. Boxplots showing the distribution of the uncertainty ratio in a $500 \times 500 \mu\text{m}^2$ domain. Each panel shows the relation between uncertainty ratio and grain density. The four boxplots per grain density correspond from left to right to four noise levels, *i.e.* 5, 20, 50, and 100 nT. The upper 4 panels (a-d) refer to a $50 \mu\text{m}$ thick sample. The lower 4 panels (e-h) refer to a sample with a thickness of $75 \mu\text{m}$. Each set of four panels (a-d or e-h) have a sampling interval of respectively 1, 2, 4, and $5 \mu\text{m}$.

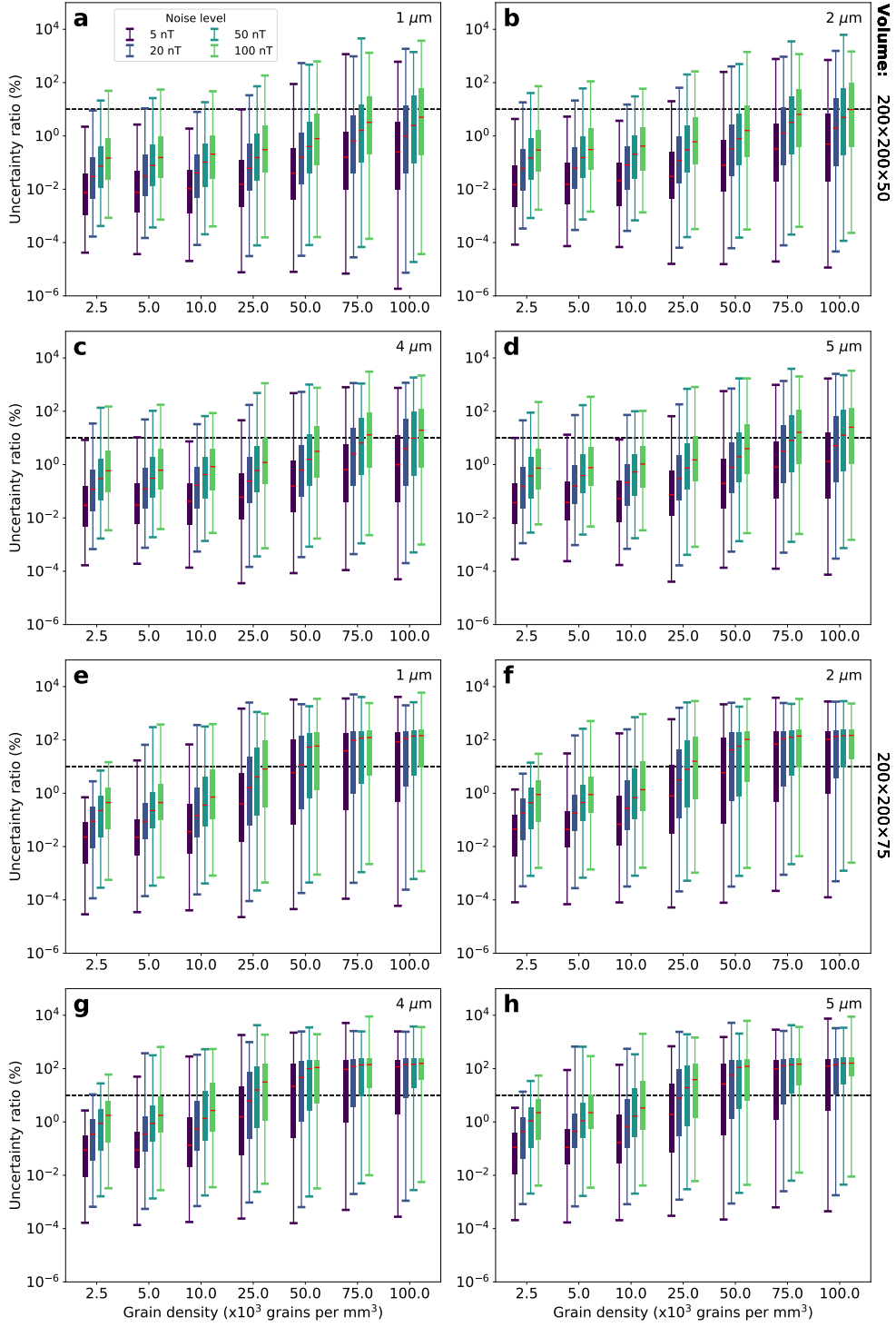


Figure 2. Boxplots showing the distribution of the uncertainty ratio in a $200 \times 200 \mu\text{m}^2$ domain, similar to Figure 1.

2 Extra signal strength figures

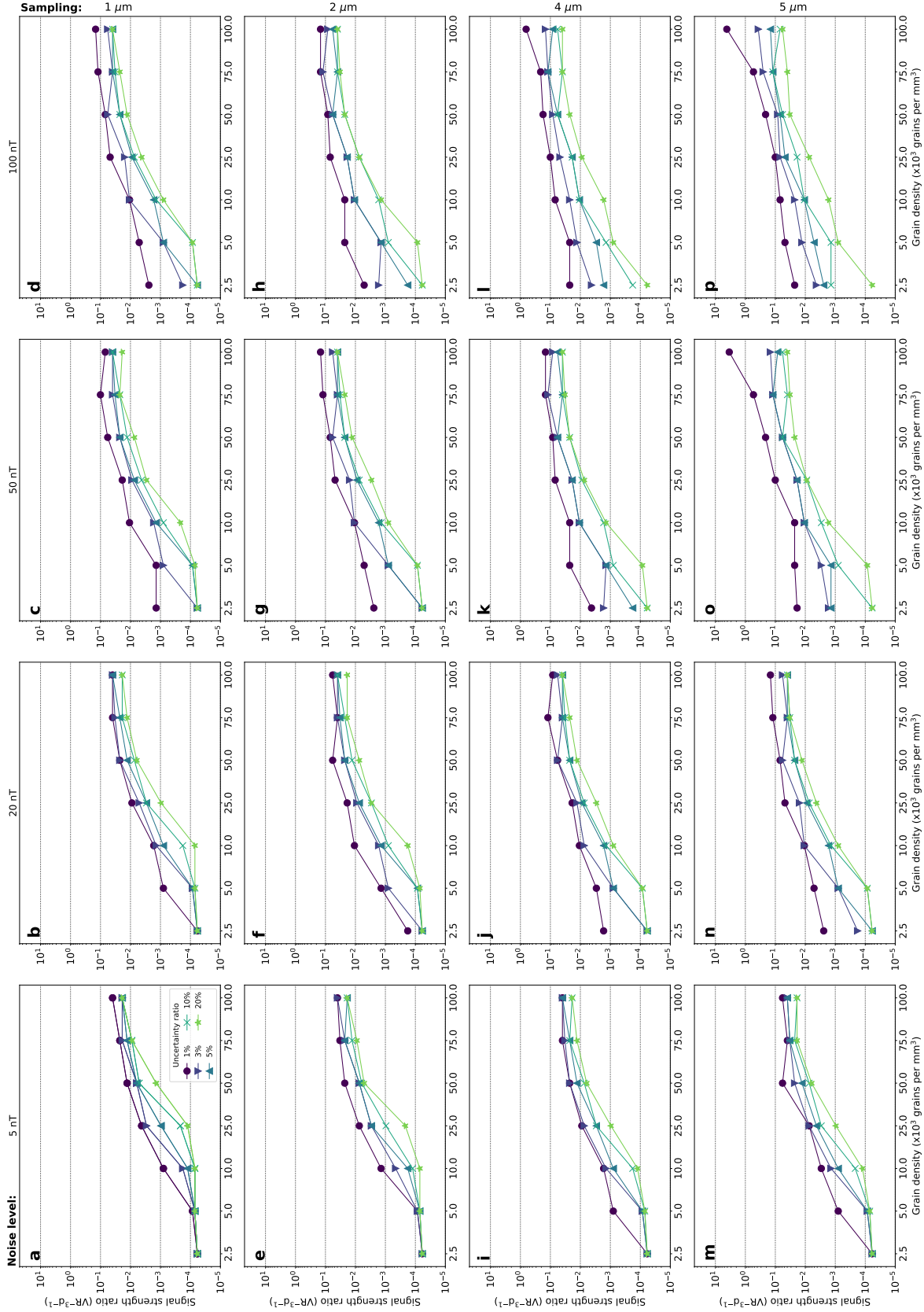


Figure 3. Signal strength plotted against grain density levels for a domain of $500 \times 500 \mu\text{m}^2$ and a thickness of $50 \mu\text{m}$. Each row panels is created with a different sampling interval, that is from top to bottom, 1, 2, 4, and $5 \mu\text{m}$. Each column represents a different noise level, that is from left to right, 5, 20, 50, and 100 nT. Each panel contains five lines corresponding to different uncertainty ratios, namely, 1% (circle), 3% (upper base triangle), 5% (lower base triangle), 10% (cross), and 20% (star).

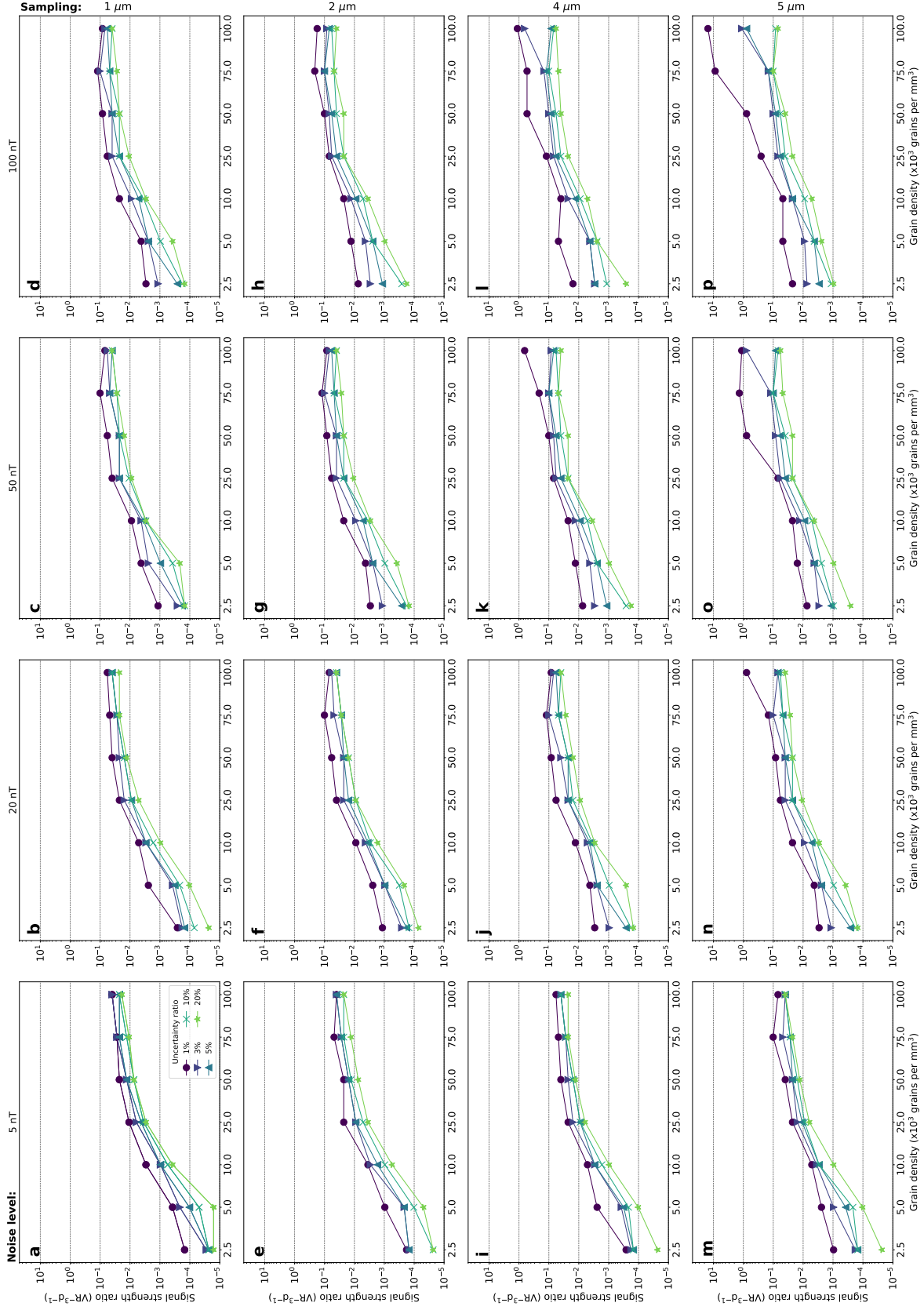


Figure 4. See Figure 2, now plotted for a domain of $500 \times 500 \mu\text{m}^2$ and a thickness of $75 \mu\text{m}$.

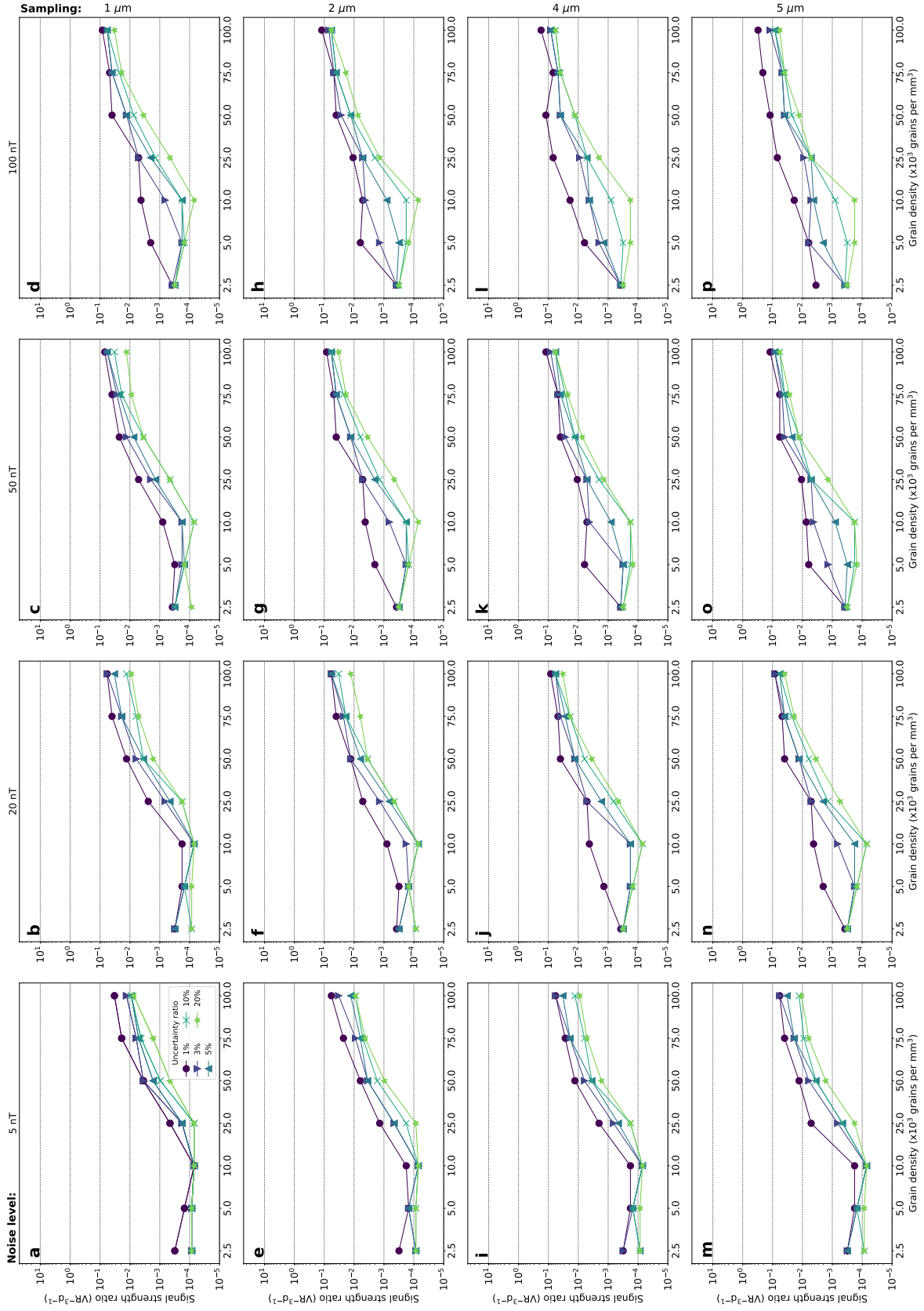


Figure 5. See Figure 2, now plotted for a domain of 200×200 μm² and a thickness of 50 μm.

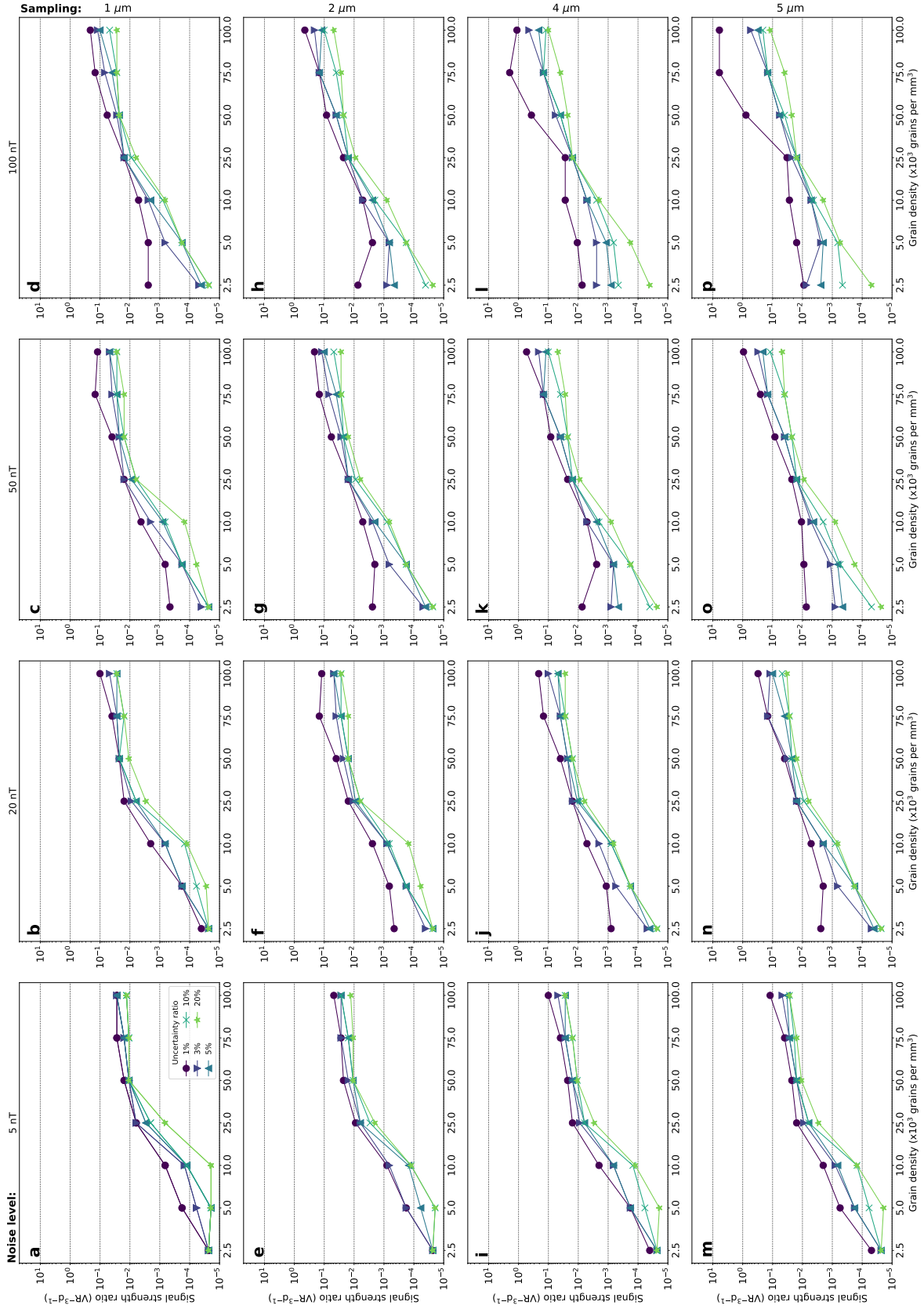


Figure 6. See Figure 2, now plotted for a domain of $200 \times 200 \mu\text{m}^2$ and a thickness of $75 \mu\text{m}$.