

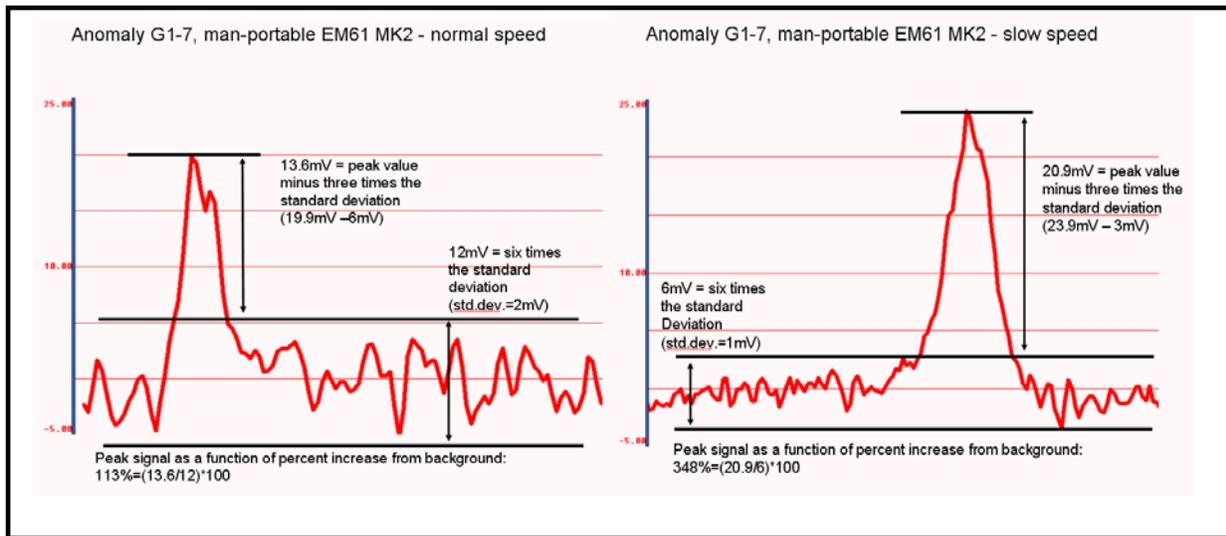
US Army Corps Of Engineers
Engineering and Support Center, Huntsville

Ordnance & Explosives Innovative Technologies Program

PROJECT: EM61 Noise, Speed and Height Study

Team Member: U.S. Army Engineering & Support Center, Huntsville

Project Description: The U.S. Army Engineering & Support Center, Huntsville collected and evaluated EM61 MK2 electromagnetic data over a controlled test site using five different platforms, each deployed multiple times at different tow speeds and at different sensor heights above ground. We analyzed our data to derive background noise statistics for each dataset, anomaly peak responses corrected for background noise, the spatial extent of anomalies, and anomaly signal to noise ratios.



Example percent signal increase (above background) with decreased survey speed

Findings/Applications:

Sensor speed and platform design affect noise levels and peak anomaly amplitudes of measured EM61 data. We found background noise increases as tow-speeds increase. With few exceptions, anomaly peak responses and signal to noise ratios decreased as the tow speed increased. On average, the data show the spatial extent of anomalies increased in the along-track direction as tow speed increased. Our results suggest improvements to platform stability result in lower background noise levels and increased signal to noise ratios. We also found the background noise and anomaly responses increased when the sensor height above the ground was reduced.

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