

# Anomaly Detection from Thermal Infrared Photogrammetry

*Tuesday, 20 June 2023 16:00 (15 minutes)*

Photogrammetry, a technique to create high resolution orthoimagery and digital elevation models from a collection of photos, has rapidly evolved since the 1990s. Traditional photogrammetric techniques assist in a wide variety of fields, including facilitating high resolution change detection for underground explosion monitoring and verification. Typically, this method involves the use of standard electro-optical imagery using visible band data. By repurposing and enhancing existing photogrammetric techniques and applying those techniques to thermal infrared data collected before and after a conventional explosive experiment, we developed a novel method for processing thermal images for signature detection. This thermal photogrammetry method provides a new way to detect post-explosion anomalies and artifacts, quantify extent of site changes, and characterize fragmentation materials and distribution from explosions. Additionally, this technique can be applied to data collected from ground based or airborne platforms, providing a novel tool to characterize larger sites. We present these new methods for thermal data processing, discuss the results of a field campaign, highlight the successes of the technique, and define next steps for realizing data collection efficiencies and advancing data processing.

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## Promotional text

The work presented here explores the state of the science for the new application of photogrammetric techniques against thermal infrared data for change detection following explosive experimentation.

## Oral preference format

in-person

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