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UTILITY OF THERMAL-INFRARED SPECTRAL IMAGING FOR ASSESSMENT OF ENVIRONMENTAL HAZARDS IN POST-DISASTER SCENARIOS: TOWARDS CIVIL SECURITY AND RESILIENCE

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ABSTRACT:

Following any disaster of significant magnitude, whether naturally induced (hurricanes, earthquakes, flooding, etc.) or as a result of deliberate/inadvertent human action (major terrorist attacks, wartime actions, petrochemical plant accidents, etc.), recovery from the immediate effects of the event is often hampered or compromised by an array of less obvious hazards that may not be readily apparent to first responders or the affected population at large. These "second-order" or "derivative" hazards negatively impact the ability to recover from disruption, including the need to rapidly reconstitute supply chains necessary for commerce and public well-being.

Airborne hyperspectral thermal-infrared (TIR) imaging provides flexible and unique capabilities for the identification and monitoring of environmental hazards in post-disaster scenarios and the systematic integration of TIR imaging into post-disaster management activities directly enhances disaster relief efforts in the wake of such events. Increasing post-disaster capabilities, as with such enhanced situational awareness, reduces the downtime of critical functions whose rapid recovery is vital to lessening the long term impacts of disasters. As a consequence, communities can recover faster physically, economically, and emotionally.

We will also discuss roadmap activities for transitioning these capabilities to Earth-orbiting vantage points, where persistence and coverage stand to make the greatest contribution toward minimizing the humanitarian and environmental impacts of natural and man-made disasters, thereby increasing the capacity for resilience.

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