



When the Sun Sets, the Mission Doesn't Stop

A New Capability to Accelerate Disaster
Assessment and Response, 24/7.

The New Reality: A Complete Operational Picture, in Minutes, at Night

Unprecedented Detail.

Capture precise 3D models of entire neighborhoods, revealing structural damage, debris fields, and access routes hidden by darkness.

From Days to Minutes.

What takes ground crews days to assess can now be mapped in a single 30-minute flight.



The Solution: High-Fidelity Aerial LiDAR with the Zenmuse L3

The Zenmuse L3 is a next-generation aerial LiDAR system that transforms our ability to see and understand a disaster zone. It combines three critical technologies into a single, powerful payload designed for rapid, high-accuracy data acquisition.

1535nm Long-Range LiDAR

Captures millions of precise 3D data points, creating a true-to-scale digital model of the environment. Its technology allows it to penetrate obscurants and operate in any lighting condition.



High-Precision Positioning System

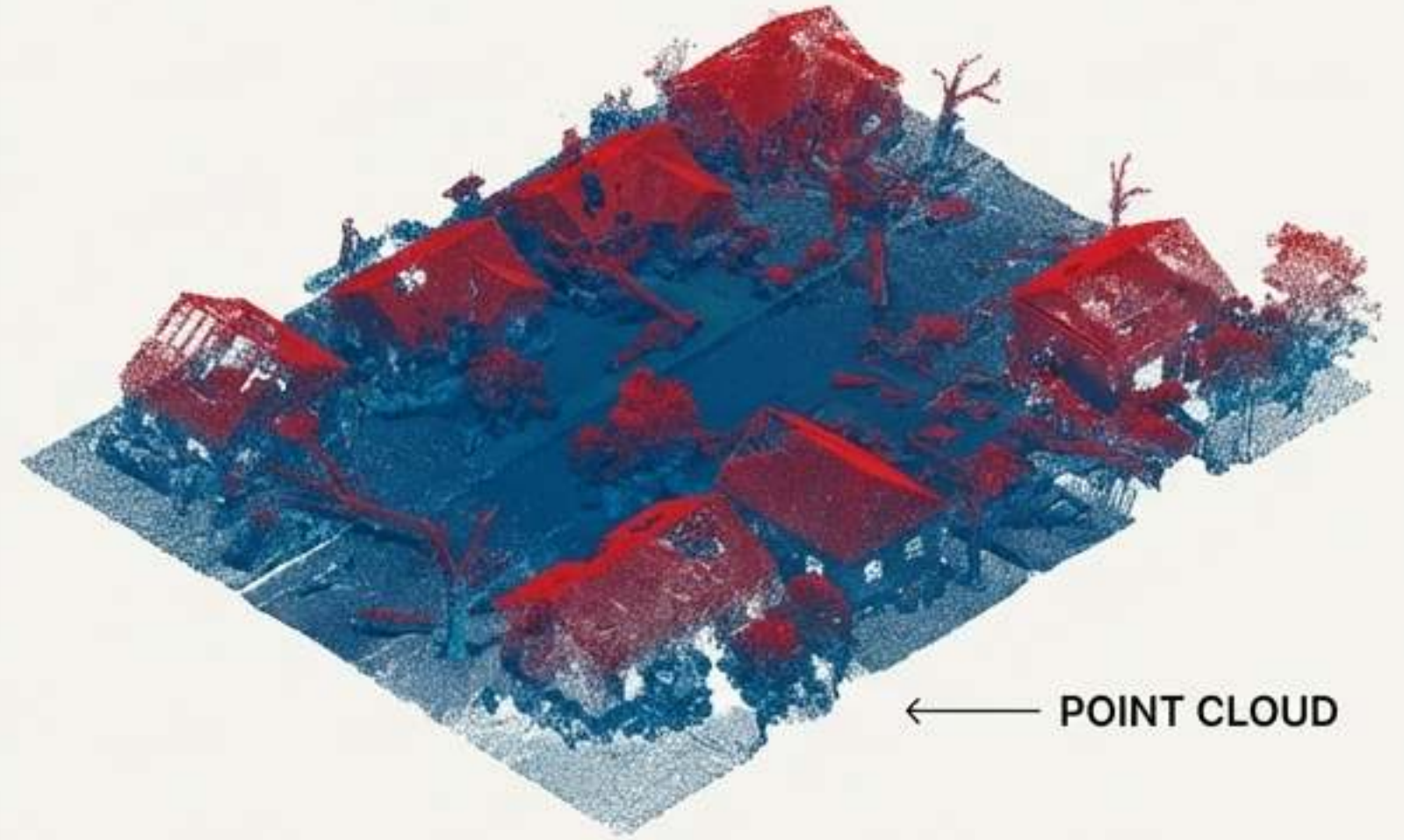
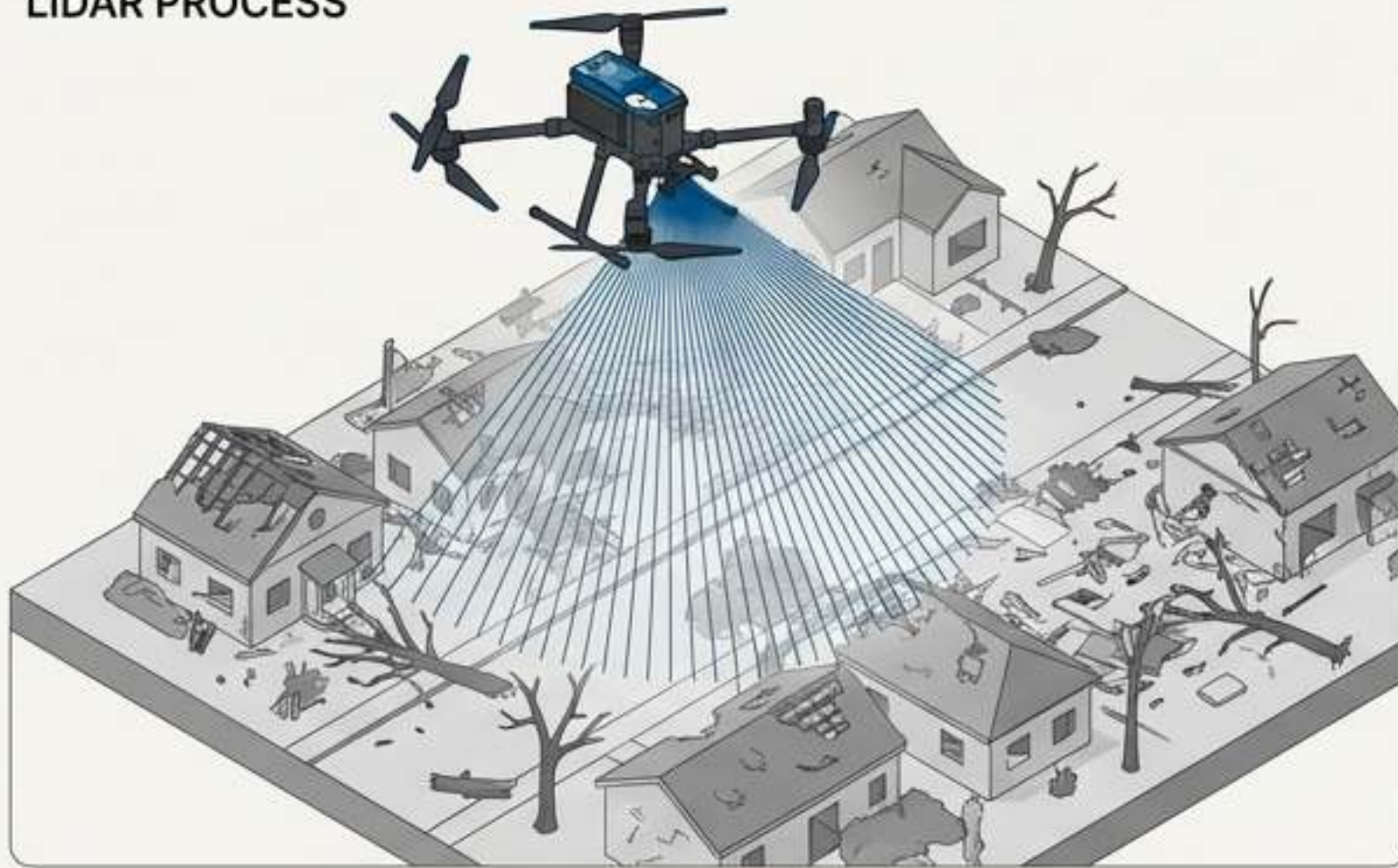
Ensures every data point is georeferenced with extreme accuracy, creating reliable maps for operational planning.

Dual 100MP RGB Mapping Cameras

Provides high-resolution color imagery that complements the 3D data, allowing for photorealistic analysis.

A Fundamental Shift: Seeing Through the Chaos with Aerial LiDAR

LIDAR PROCESS



LIDAR (Light Detection and Ranging):

Uses pulses of laser light to measure distances with millimeter precision, creating incredibly detailed 3D maps.



24/7 Operations:

It is not dependent on sunlight, allowing for high-fidelity data collection in complete darkness.



Penetration:

It penetrates through gaps in vegetation and smoke to map the true ground and structure beneath.

It provides a clear, comprehensive, and actionable view of the disaster zone, anytime.

From Ambiguity to Certainty

The Human Eye at Night



The LiDAR View



Instantly assess structural integrity, identify specific entry points, and pinpoint hazards before ever putting a volunteer on site.

From 3D Models to Actionable Intelligence

The data from each flight is automatically processed to create a clear operational map, enabling commanders to make faster, smarter decisions.

KEY INSIGHTS



Automatic Damage Triage:

Rapidly classify homes as destroyed, major, or minor damage to prioritize response efforts.



Debris & Obstacle Mapping:

Automatically identify and quantify debris fields to plan clearance and safe access routes for Emergency Response Vehicles.



Safe Route Planning:

Instantly map passable vs. impassable roads for volunteer teams and aid distribution.



Decision Advantage: Faster, Safer, and Smarter Deployment



FASTER: Map Square Miles in a Single Flight.

A single 30-40 minute flight can map up to **1 square mile**, assessing **750 to 3,700 homes** at once.



SAFER: Assess from a Safe Distance.

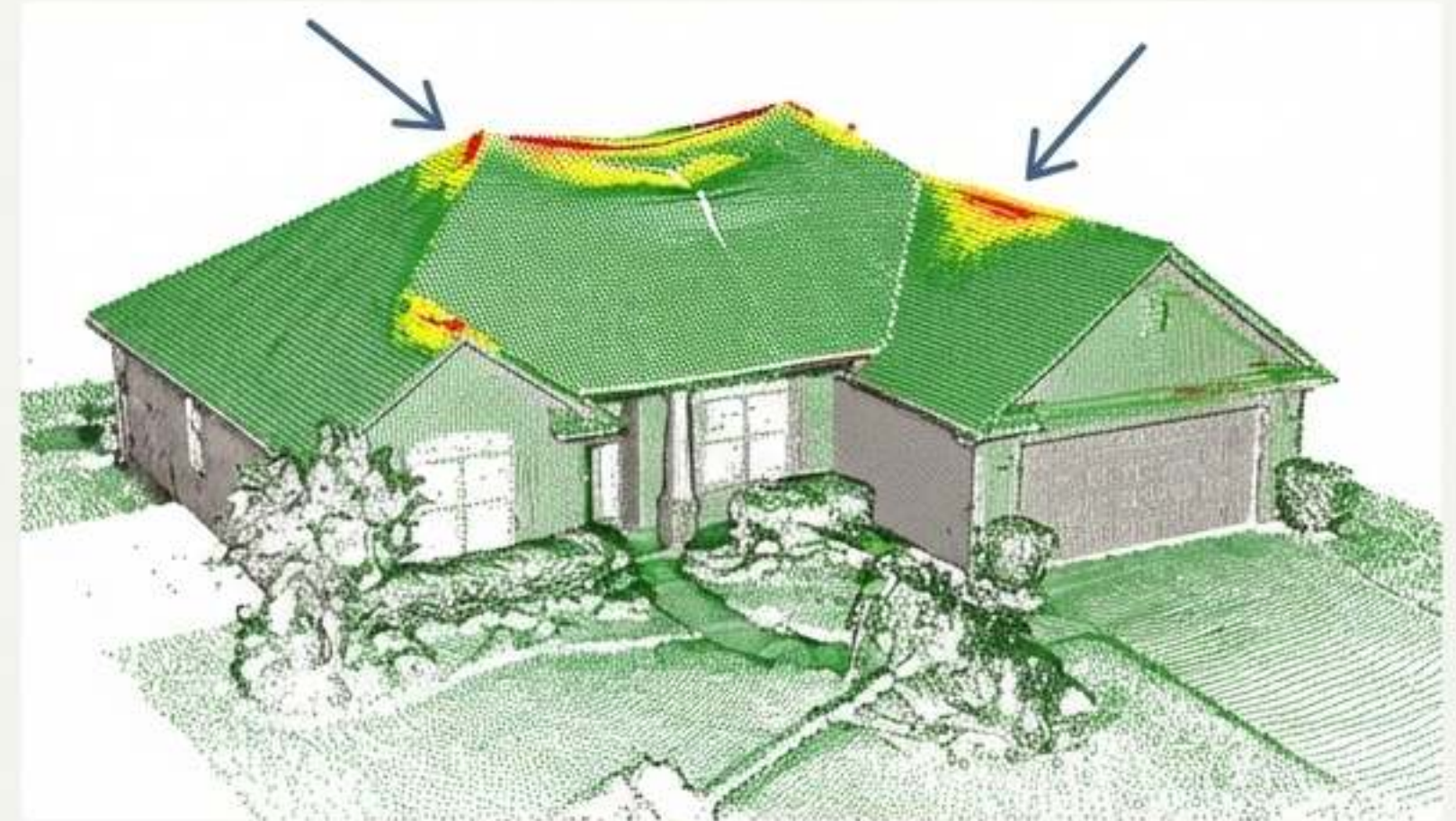
Keep volunteers out of harm's way by remotely assessing unstable structures and hazardous zones cut off by flooding.



SMARTER: Turn Night into an Advantage.

The 'golden 48 hours' no longer stops at sundown. Continue critical assessment operations around the clock to accelerate the entire response cycle.

Assessing Wind Damage with Surgical Precision



LiDAR reveals what a simple photo can't.

- **Structural Deformation:** Detects subtle sagging or warping of the roofline.
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- **Debris Field Analysis:** Quantifies the volume and spread of debris, informing cleanup and access strategy.
- **Faster Categorization:** Provides the objective data needed for rapid, FEMA-aligned damage assessments (Minor, Major, Destroyed).

Seeing Through Smoke, Mapping the Burn Scar

WITH SMOKE



WITH LIDAR



LiDAR penetrates smoke and maps the true extent of fire's impact on a neighborhood.



Identify At-Risk Homes: Map vegetation loss and proximity to structures.

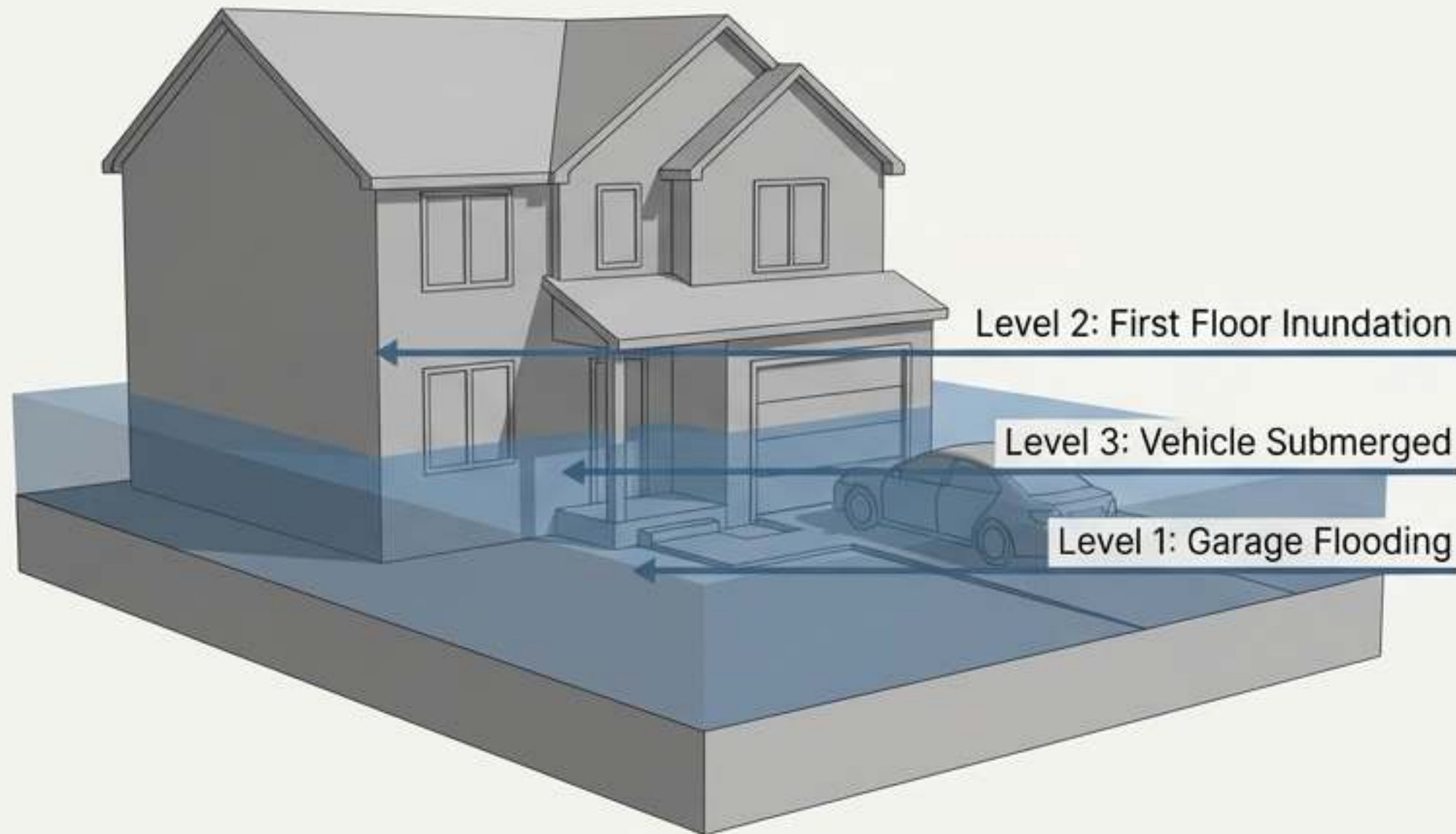


Safe Assessment: Survey dangerous, smoldering areas without deploying teams.



Infrastructure Check: Instantly locate downed power lines or other hazards hidden by smoke or darkness.

Inferring Flood Impact for Faster Triage



We can infer operationally critical flood depth without being there.

- **Practical Inference:** Relate waterlines to known heights of doors, windows, and vehicles.
- **Prioritize Neighborhoods:** Quickly identify the hardest-hit areas based on inferred inundation levels.
- **Actionable Insight, Not Perfect Measurement:** This provides enough information to direct resources where they're needed most, *now*.

More Than a Picture: Why LiDAR Data is a Game Changer

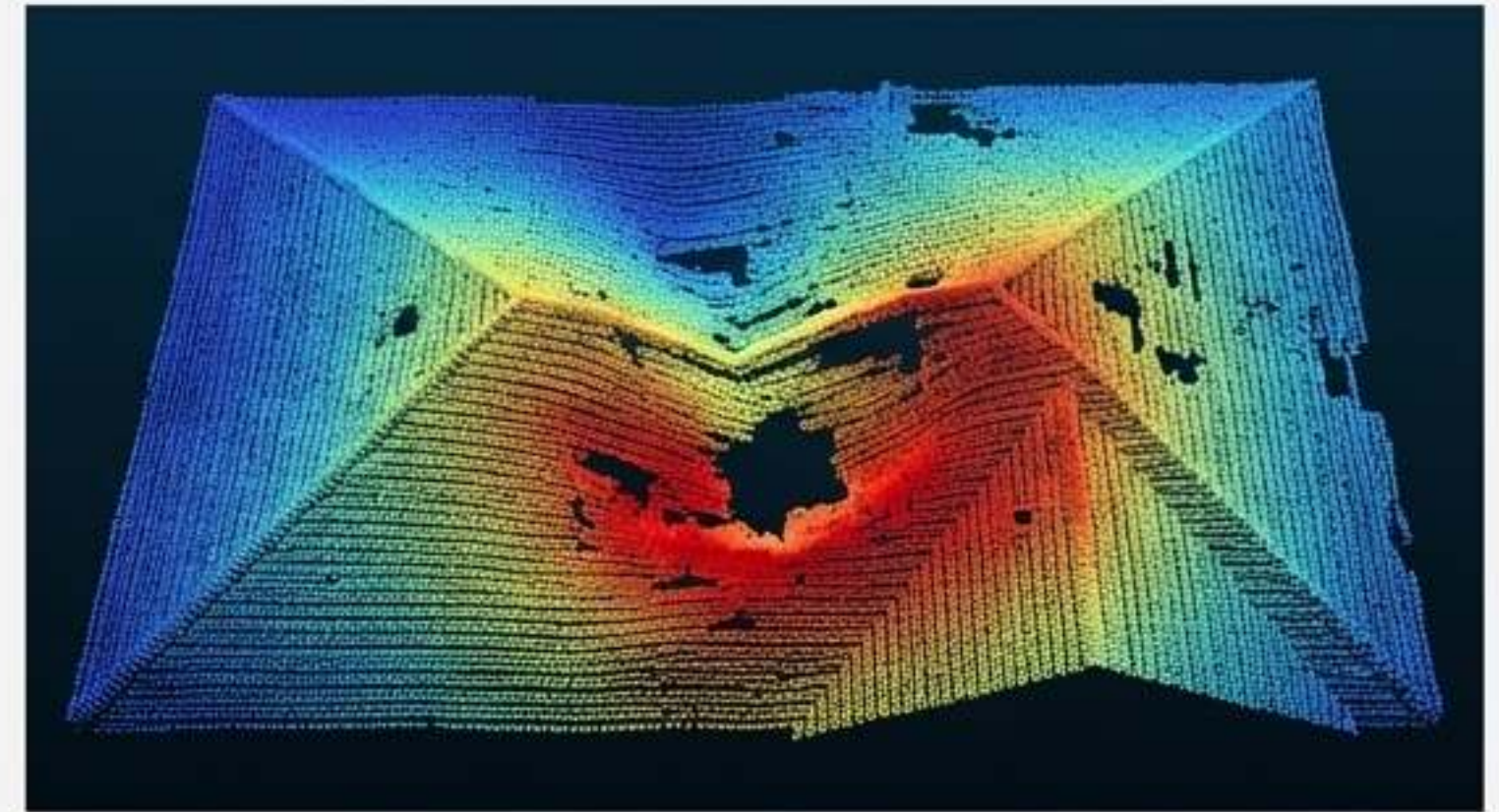
Unlike standard photography which captures a flat, 2D image, LiDAR builds a mathematically precise 3D model of the environment. This provides objective, measurable data on structural integrity.

Standard Photogrammetry



- Can identify visible surface-level damage.
- Relies on interpretation of light and shadow.
- Cannot measure underlying structural deformation.

LiDAR Point Cloud



- Creates a 1:1 scale digital model.
- Precisely measures sag, warping, and changes to the building's geometry.
- Allows for cross-sections and volumetric calculations.

Closing the 48–72 Hour Assessment Gap

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**American
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