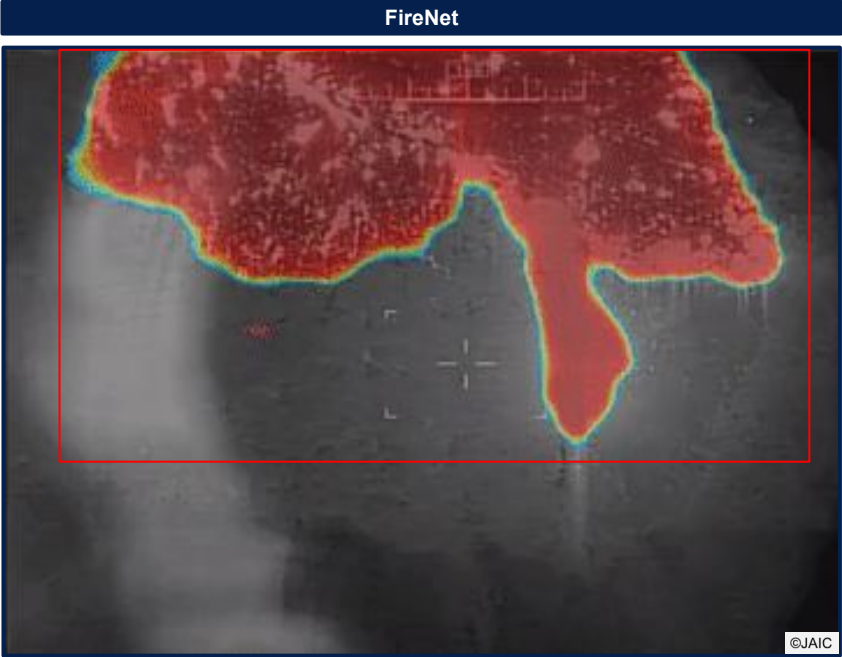# Operational Use Case 1: Wildfire Mapping

- **Background:** Hired to support the Humanitarian Assistance & Disaster Response (HADR) National Mission Initiative
- **CrowdAI Solution:** Built FireNet, a real-time wildfire segmentation model in use today to help fight fires in California

FireNet

Solution Highlights

Real-time fireline detection

Automated map generation

Mobile situational awareness

Results from Disaster Mapping: Camp Fire, CA 2018

Model output provides quantities of damaged structures overlaid upon analysis of burnt vegetation, according to AI-derived analysis of satellite imagery
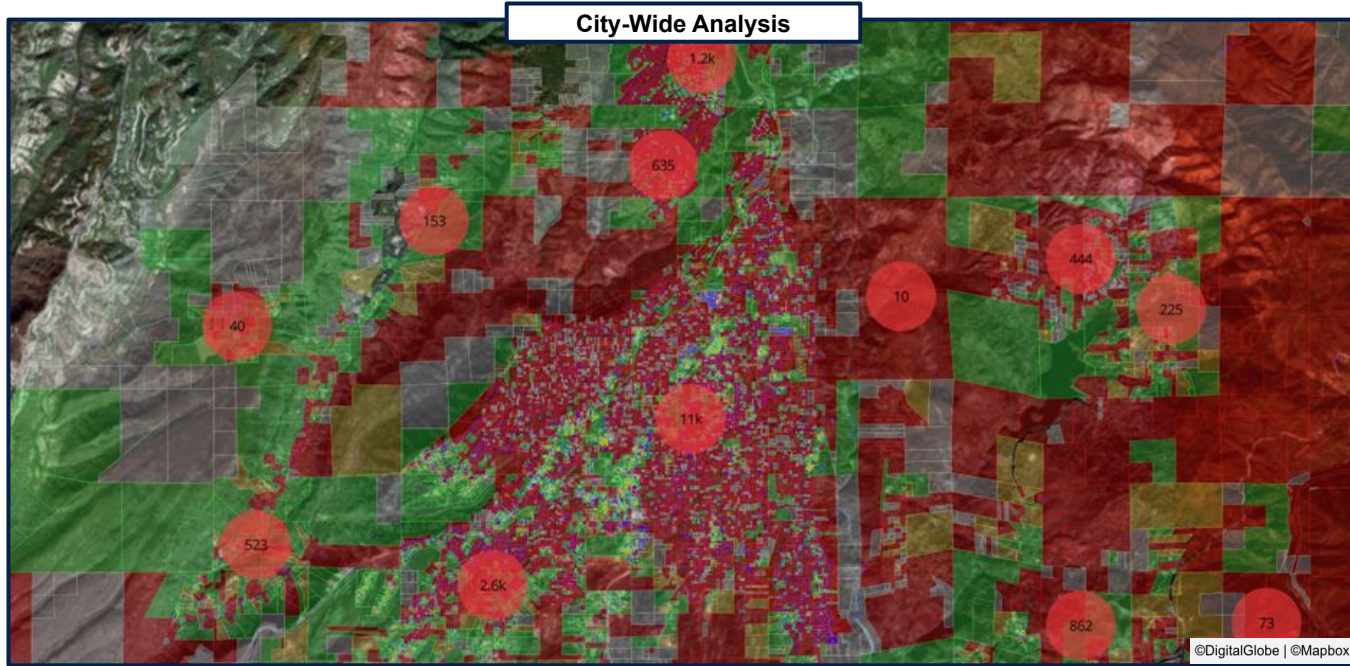
City-Wide Analysis

©DigitalGlobe | ©Mapbox

Value: Rapidly identify areas hardest hit by disaster to marshall and deploy response teams through mapping at scale

Results from Disaster Mapping: Hurricane Michael 2018

Model output provides quantities of damaged structures, according to AI-derived analysis of satellite imagery

City-Wide Analysis

Before

After

NOAA

Building-by-Building Analysis

NOAA

Neighborhood Analysis

NOAA

Value: Rapidly identify areas hardest hit by disaster to marshall and deploy response teams through mapping at scale
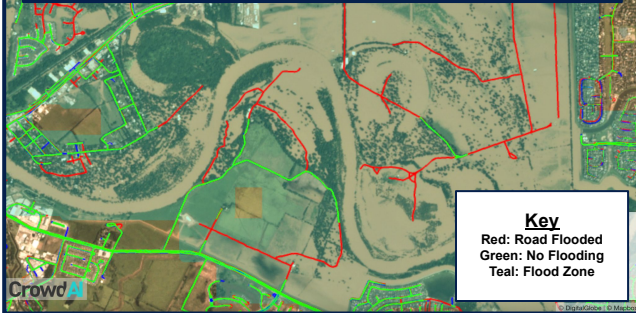
Operational Use Case 2: Mapping of Fire Defensible Zones

Value: Understand operations environment before fire strikes; identify high-risk areas and take preventative actions
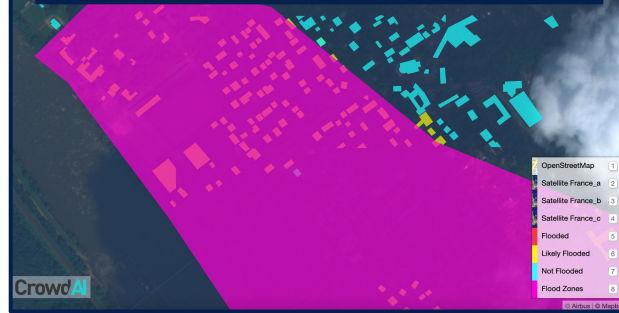

OpenStreetMap	1
Imagery	2
Buildings	3
Zone 1 Area	4
Zone 2 Area	5
Zone 2 Trees	6
Zone 1 Trees	7
Zone 0 Trees	8

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Disaster Response Globally

Hurricane Harvey Road Flooding (Huston, TX, USA)

Key
Red: Road Flooded
Green: No Flooding
Teal: Flood Zone

Loing River Flooding (France)

OpenStreetMap	1
Satellite France_a	2
Satellite France_b	3
Satellite France_c	4
Flooded	5
Likely Flooded	6
Not Flooded	7
Flood Zones	8

Drought Detection in River (Victoria, Australia)

OpenStreetMap	1
Satellite 414fi4	2
HERE Roads	3
Dry Beds	4
Water	5
New Roads	6

Wildfire Detection (Butte County, CA, USA)

OpenStreetMap	1
Fire Area	2
Pre Satellite	3
Pre Mask	4
Post Satellite	5
Post Mask	6
High Damage Detected	7
Some Damage Detected	8
No Damage Detected	9
No Data	10
Damaged Buildings	11
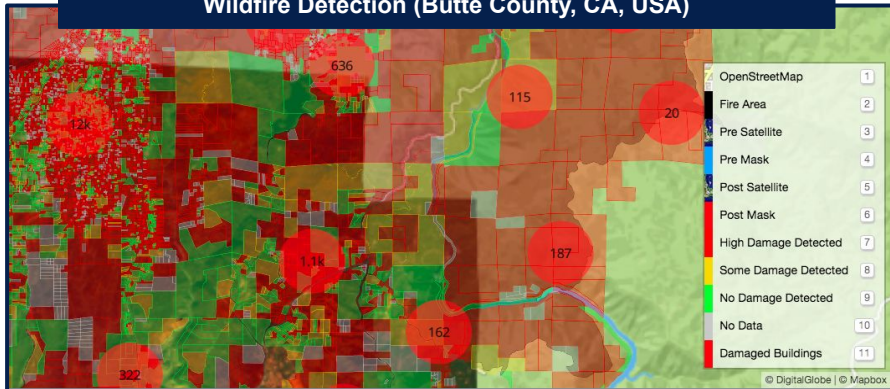
Hurricane Damage (San Juan, Puerto Rico)

OpenStreetMap	1
San Juan Pre	2
San Juan Post	3
No Damage	4
Minor Damage	5
Major Damage	6
Destroyed	7
Roads	8

Disaster Response Globally

Destruction (Syria)

OpenStreetMap 1
Destruction Satellite 2
Destruction Footprints 3

Building damage after Hurricane Iota (Providencia Island, Honduras)

Key
Red: Destroyed
Orange: Major Damage
Yellow: Minor Damage
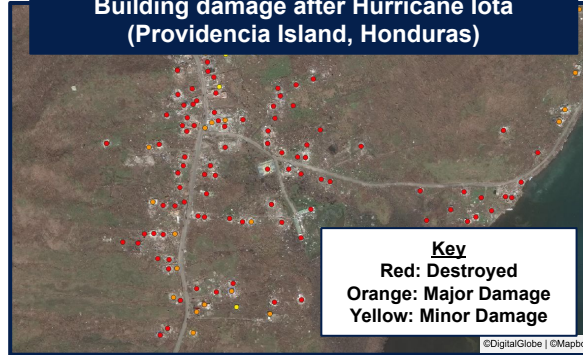
Land-Use Change (Jakarta, Indonesia)

Digital Globe 1
Change vs OSM 2
Roads 3
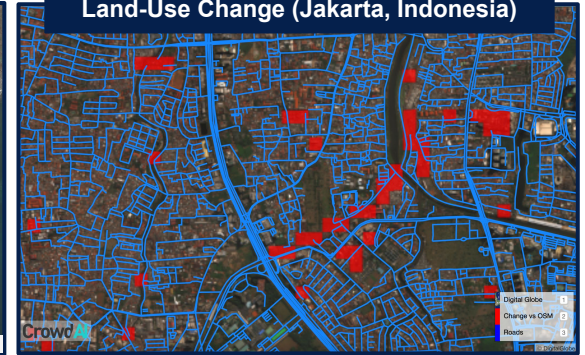
Volcano Eruption Damage (Guatemala)

Key
Red: Major Damage
Orange: Minor Damage
Green: Unaffected
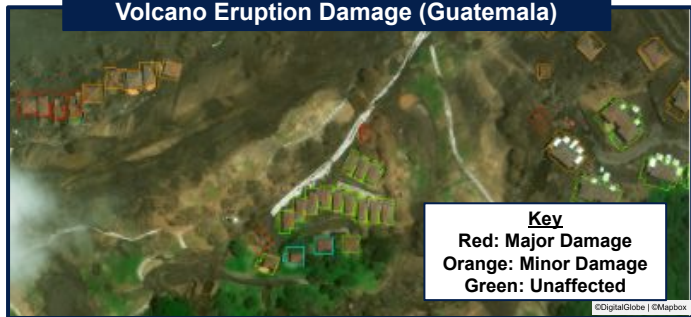
Crop Detection (Kenya, East Africa)

Tsunami Damage (Palu, Indonesia)

Key
Red: Affected
Green: Unaffected