



GIS: A Framework To Strengthen Disaster Resilience in Megacities

Ryan Lanclos

Director of National Government Solutions

Esri



Our World is Changing

Increasing Extreme Weather. . .

. . .Changing the Landscape

. . .Increasing Risk

. . .Changing Communities

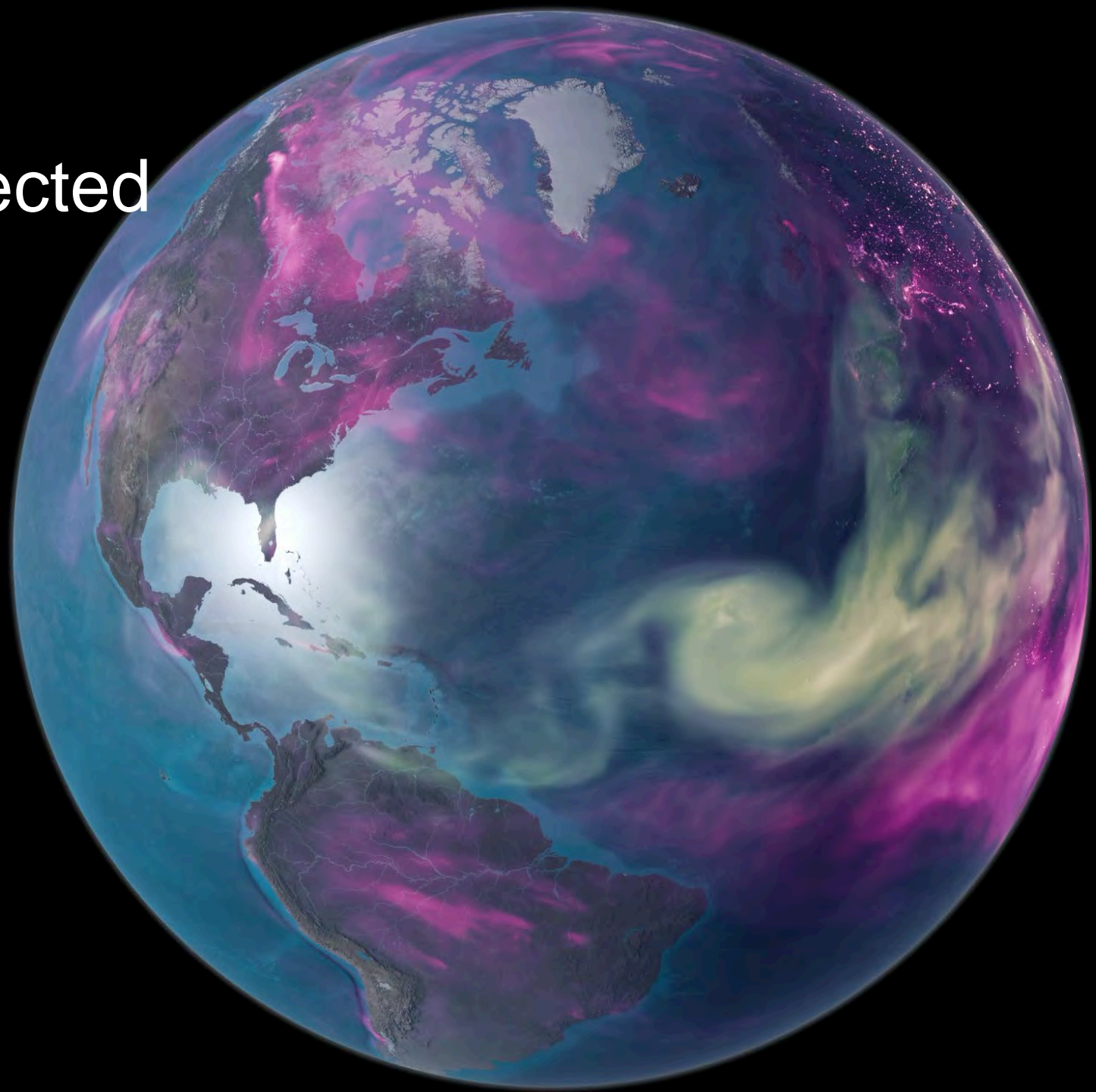
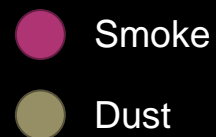


Our World Is Interconnected

A Living and Dynamic System of Systems

Understanding Community Resilience

...Requires A New Approach



Geography

Is the Science of Our World

A scientific lens
for seeing, integrating
. . . and understanding
everything

Maps
provide a common language

Telling stories about risk and resilience



GIS Is Expanding This Role

Integrating Geography & Mapping Everywhere



... Making geospatial knowledge available broadly

[illegible]

GIS Is Abstracting Our World

As Maps and Layers



Providing a framework . . .
for integrating all types of information



GIS Is Abstracting Our World

As Maps and Layers

Providing a framework . . .
for integrating all types of information

GIS Is Integrating Organizations

Breaking Down Silos . . .

. . . Creating an Innovation Platform for Disaster Risk Reduction

*Sharing Integrated
Geographic Information*

*Creating Shared
Understanding*



*Fueling new ways of working together
. . . and building resilience through spatial data infrastructure*



Ōfunato wildfire



Filters

Make a selection in each filter below.

1. Select a State or Territory
California

2. Select an Area Type
County

3. Select an Area
Los Angeles County

Structures in Wildland Zone

16.6k

Structures in Ignition Zone

11.1k

Structures in Ember Zone

1.6M



Map Legend

WUI Ignition Zone - Level 7

Ignition Zone Count

- Less than 25
- 26 - 125
- Greater than 125

WUI Wildland Zone - Level 7

Wildland Zone Count

- Less than 25
- 26 - 125
- Greater than 125

WUI Ember Zone - Level 7

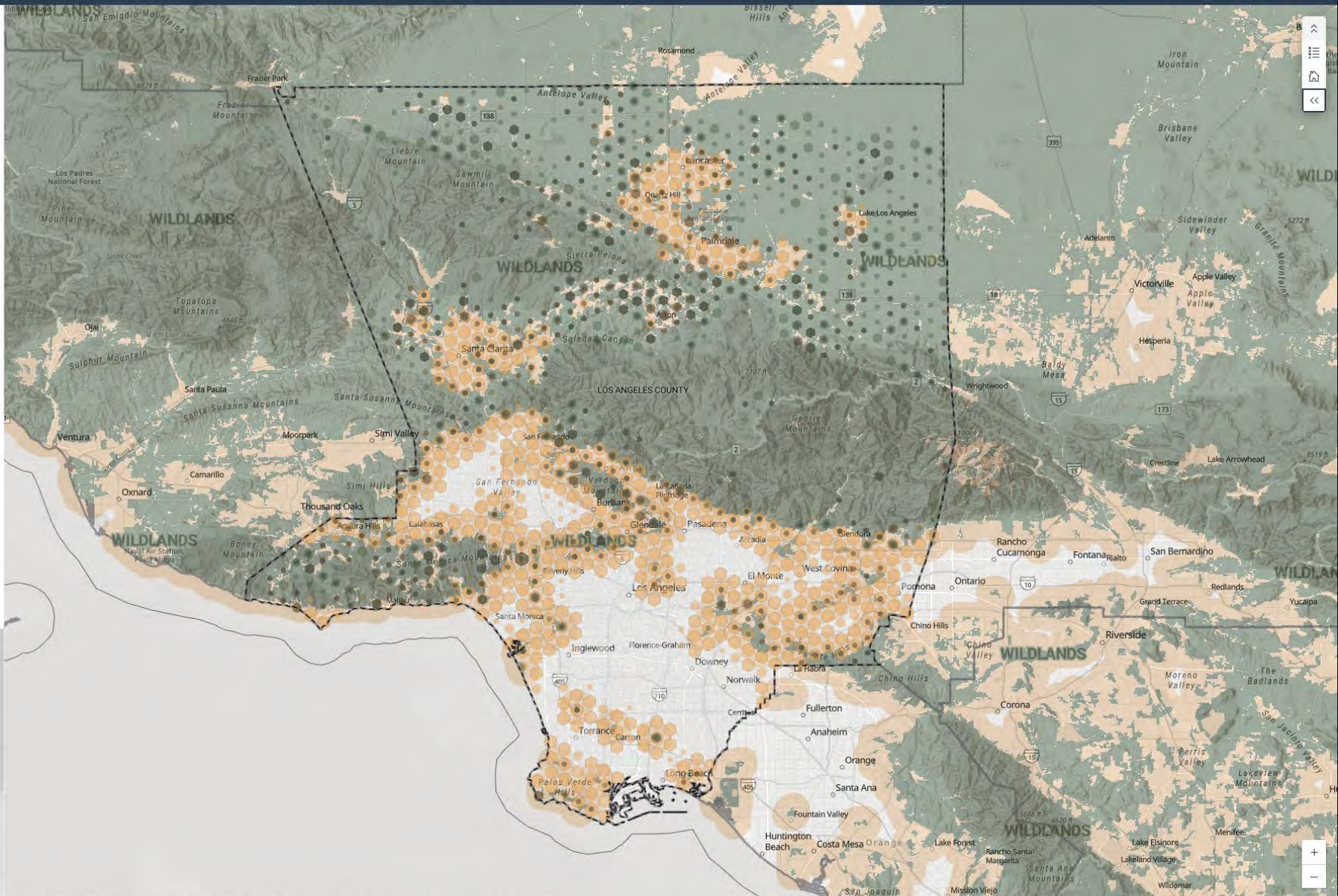
Ember Zone Count

- Less than 25
- 26 - 125
- Greater than 125

Distance from Wildland

Structural Separation

Disclaimer: Numbers in the indicators may differ than those shown in map due to generalizations. Indicators change once a selection is made in the "Select an Area" selector.



Filters

Make a selection in each filter below.

1. Select a State or Territory
California

2. Select an Area Type
Place

3. Select an Area
Santa Monica city

Structures in Wildland Zone

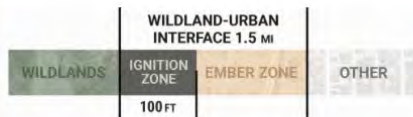
45

Structures in Ignition Zone

48

Structures in Ember Zone

50.1k



Map Legend

WUI Ignition Zone - Level 9

Ignition Zone Count

- Less than 5
- 6 - 25
- Greater than 25

WUI Wildland Zone - Level 9

Wildland Zone Count

- Less than 5
- 5 - 25
- Greater than 25

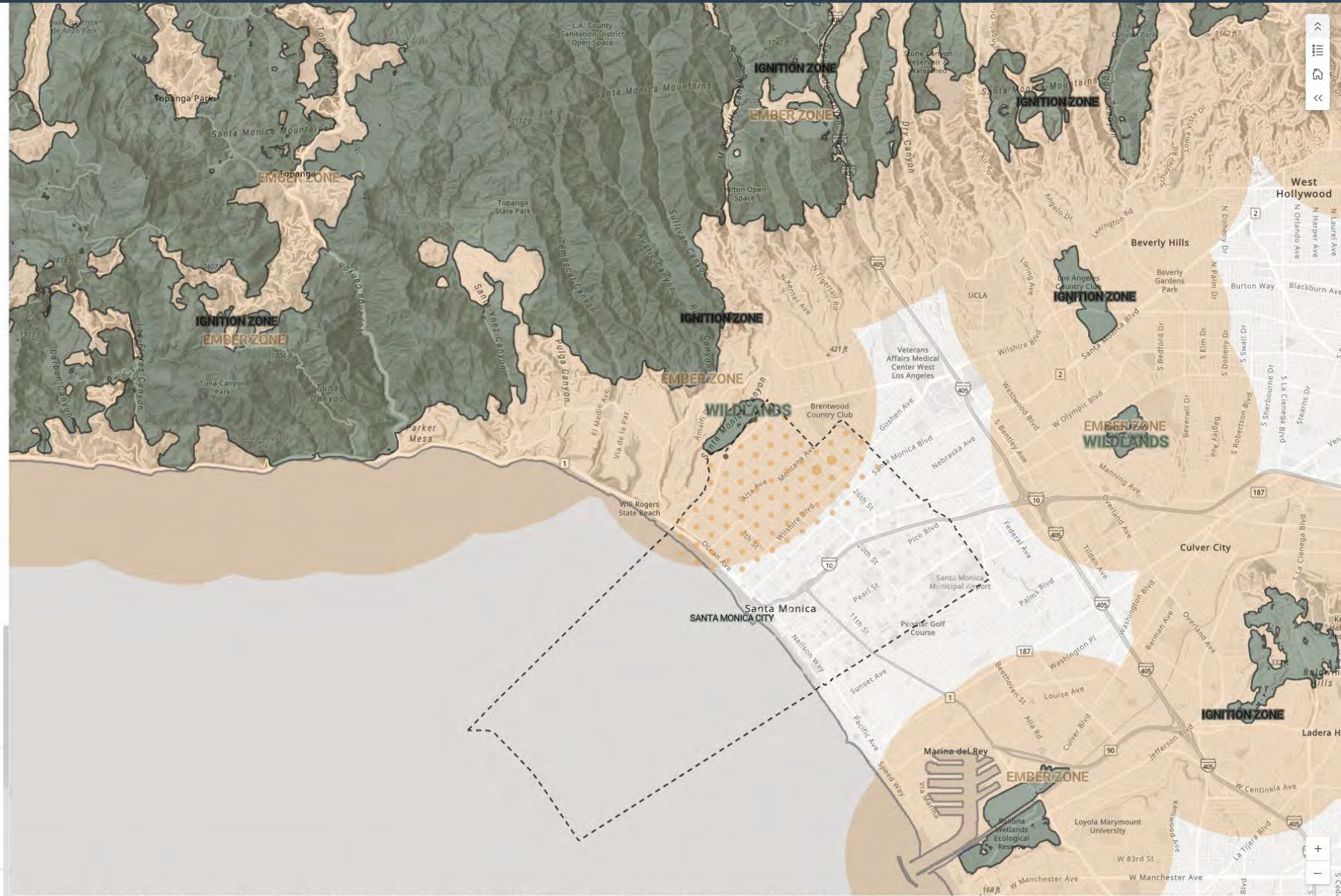
WUI Ember Zone - Level 9

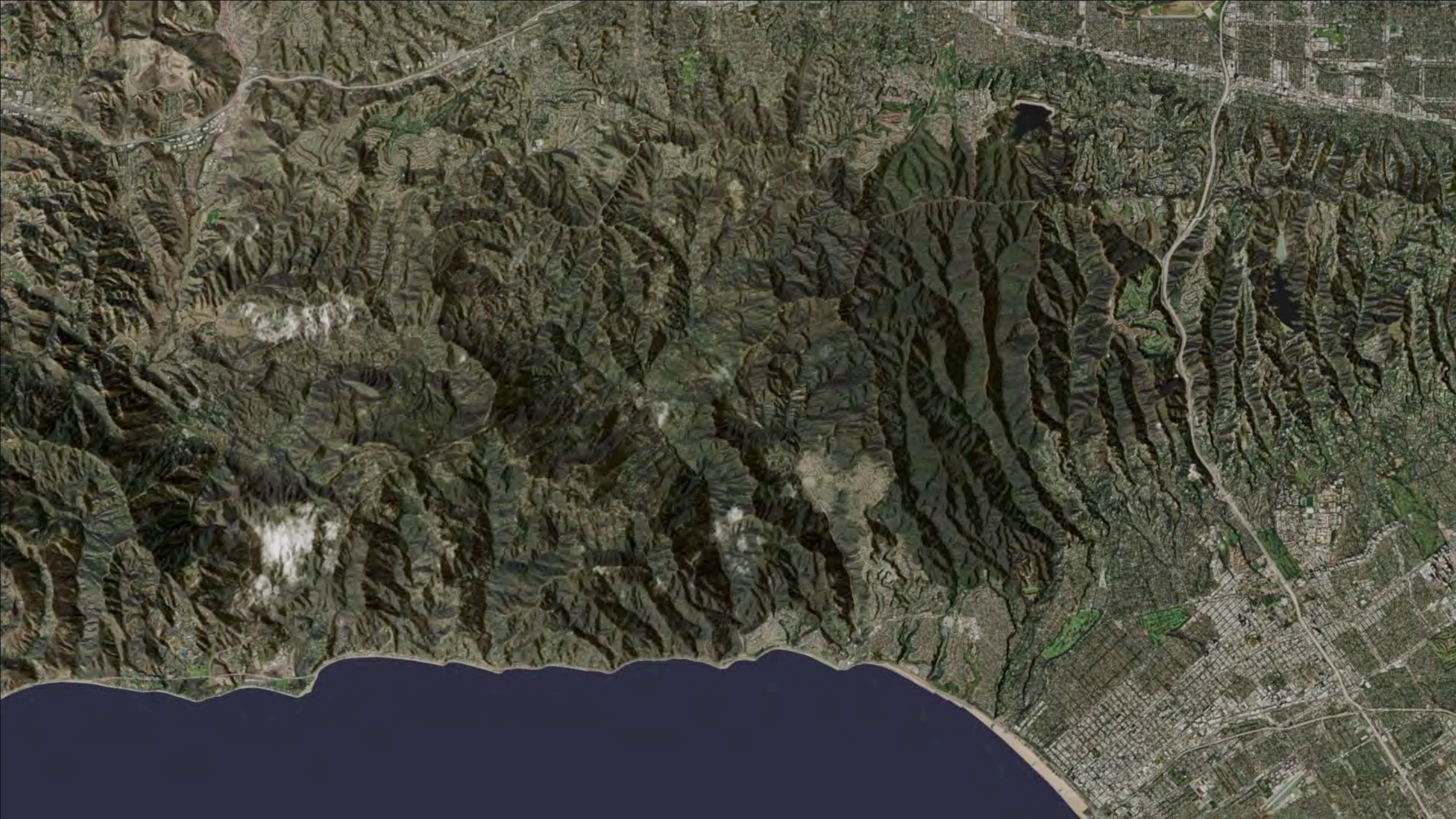
Ember Zone Count

- Less than 5
- 5 - 25
- Greater than 25

Disclaimer: Numbers in the indicators may differ than those shown in map due to generalizations. Indicators change once a selection is made in the "Select an Area" selector.

Distance from Wildland Structural Separation





GIS

and The Geographic Approach

Provide a Framework for Resilience

Integrating Everything. . . Everywhere
. . . Through a National SDI

Becoming a science and technology
innovation platform

- *Measure*
- *Visualize*
- *Analyze / Model*
- *Design / Plan*
- *Evaluate*
- *Action*



Mapping Indoors

Supporting resilience within and around buildings

Monitoring



Risk Analysis



**ArcGIS
Indoors**

Planning



Response



Indoor Positioning
System

ArcGIS IPS

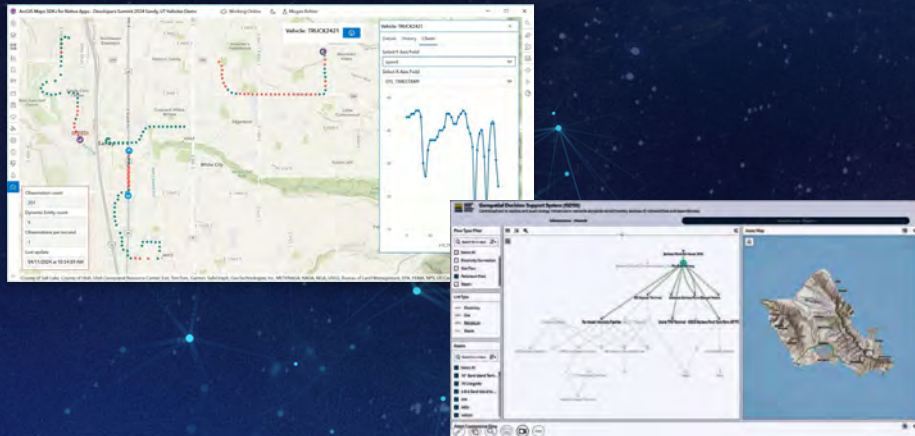
Leverages CAD, BIM & Point Cloud Data

GIS-based indoor system of record



Monitoring In Real-Time

Integrating Sensors & Dynamic Data



*Supporting Operations &
Improving Decision-Making*

Enhanced with AI

Delivering Transformational Value

Monitoring Change



GeoAI



Capturing and
Updating of Data



Assistants

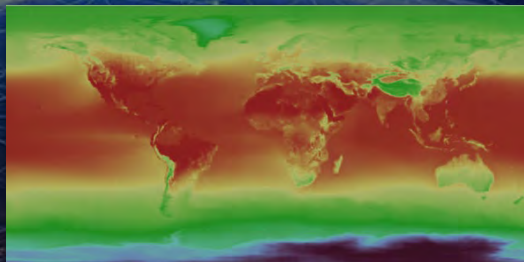
Providing
Guidance

Improving
Productivity &
Efficiency

Automating
Workflows

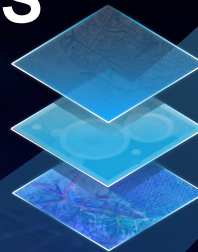
Opening
Access to
Everyone

Predictive Analytics



Advancing
Geographic
Modeling

GIS



Integrating GIS with
Agentic Ecosystems



GIS
Agents



*Accelerating Geospatial Intelligence
... Helping everyone do their work better*

The Age of Megacities

Megacities in 2030



GIS Supports Megacity Resilience

Providing a framework for megacities. . .



. . . to reduce risk and build resilience



THE FUTURE OF
**GLOBAL
DISASTER**
RISK REDUCTION

THANK YOU

Ryan Lanclos | rlanclos@esri.com
Esri





esri[®]

**THE
SCIENCE
OF
WHERE[®]**

Copyright © 2025 Esri. All rights reserved.

