





Leveraging the Technology Revolution

Science, technology, and innovation to measure and monitor progress



UN-GGIM-AP

REGIONAL COMMITTEE OF
UNITED NATIONS
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT
FOR ASIA & THE PACIFIC

Moxie Zhang

张剑宇



A central image of the Earth, showing continents and oceans, is surrounded by a complex digital interface. The interface consists of numerous glowing blue lines, squares, and rectangles, some of which are semi-transparent and overlap the globe. The background is a deep blue with scattered white and light blue dots, suggesting a data-rich or networked environment.

**We are living in a world that is
constantly under development**



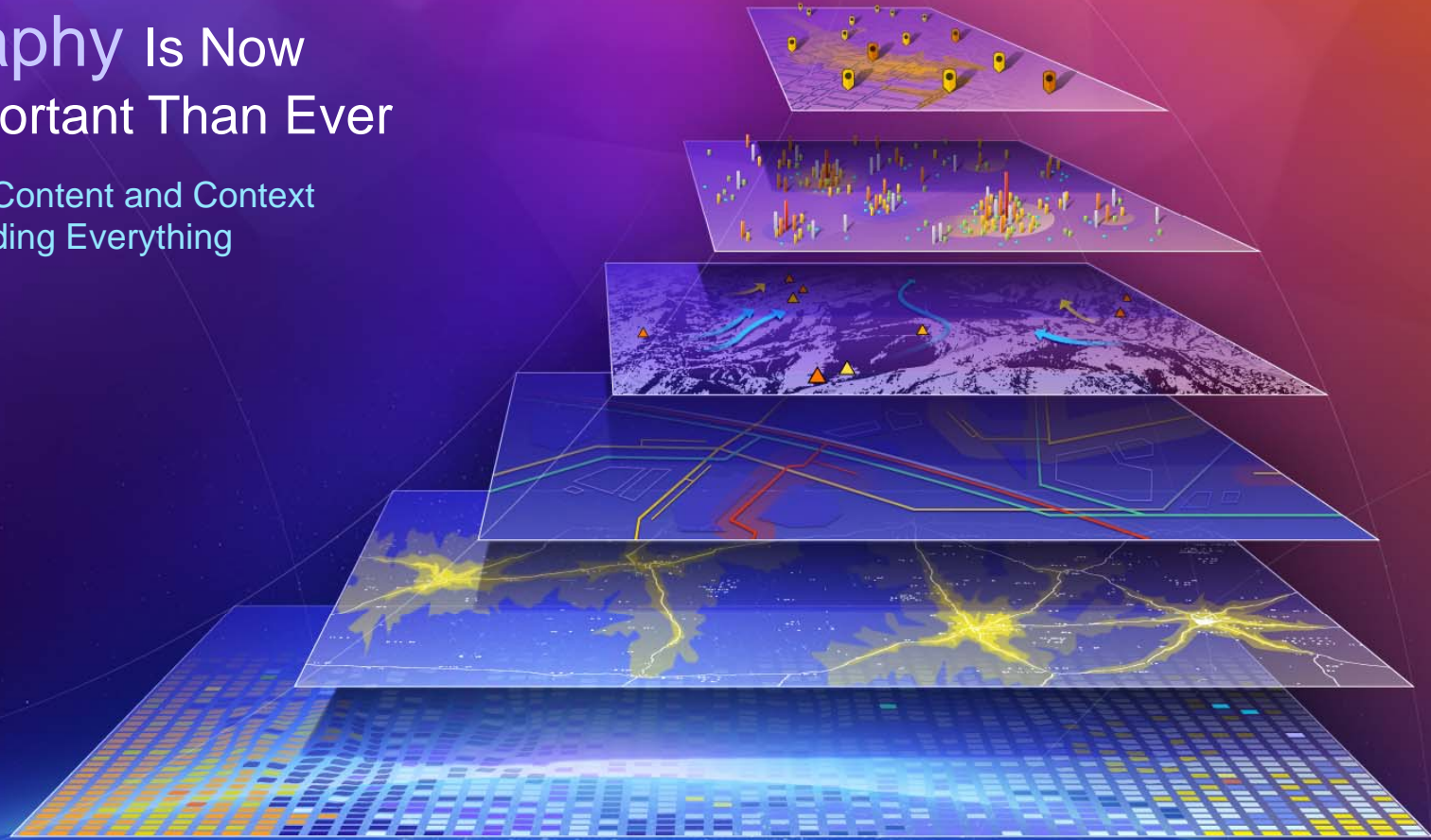
Our World Is full of prosperities



Our World Is Facing Serious Challenges too

Geography Is Now More Important Than Ever

Providing the Content and Context
for Understanding Everything



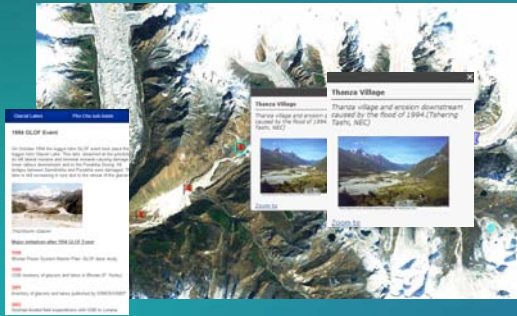
GIS Is Integrating Geography into Everything We Do

Changing the Way We Think and Act



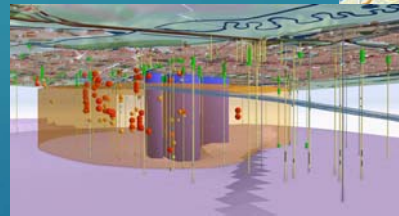
Environmental Monitoring and Assessment

Glacial Melt



Bhutan (ICIMOD)

Groundwater Contamination



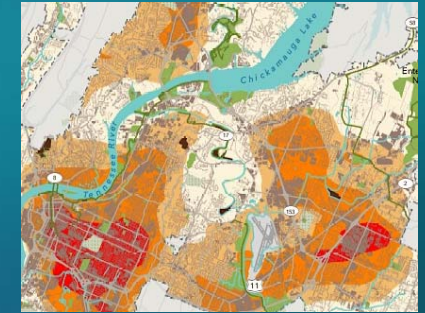
Holland

Water Quality Monitoring



China

Heat Islands



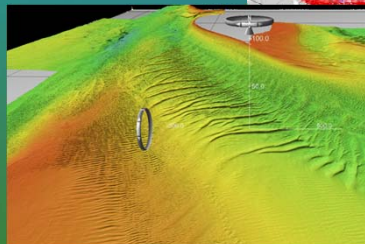
Tennessee

Sea Level Rise



San Francisco

Bathymetry



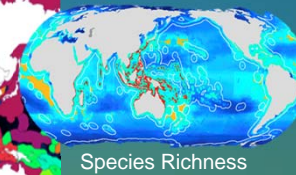
England

Ocean Health Index

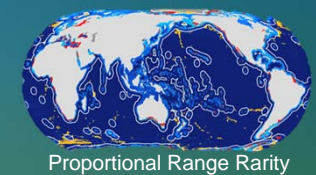


Conservation International Global

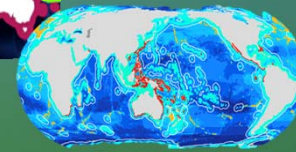
Marine Biodiversity



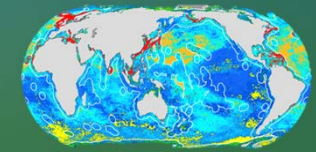
Species Richness



Proportional Range Rarity



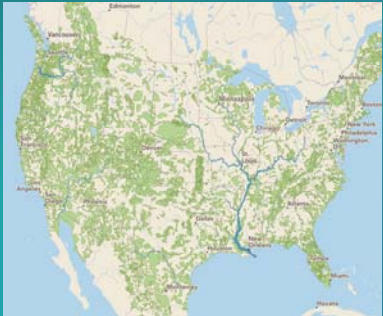
Range Rarity



Cumulative Human Impacts

Managing Natural Resources

Priority Conservation Areas



TNC - US

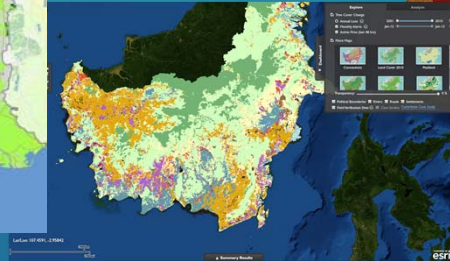
Restoration



Ghana

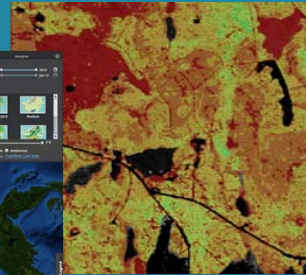
Forest Management

Cover Analysis



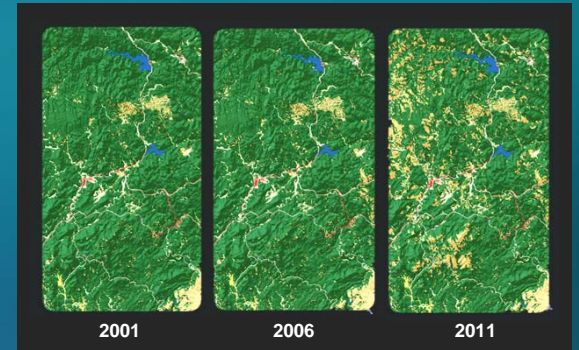
Indonesia

Timber Modeling



Sweden

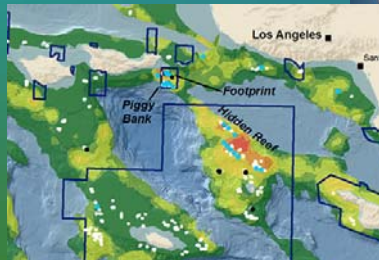
Bark Beetle Infestation



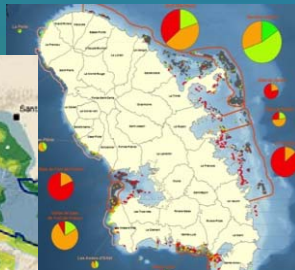
South Dakota

Coral Communities

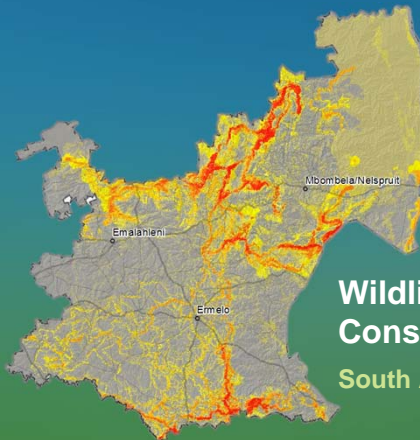
Coral Reef Modeling



California

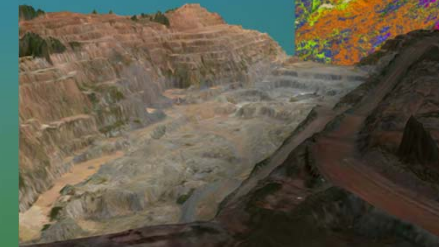


Martinique



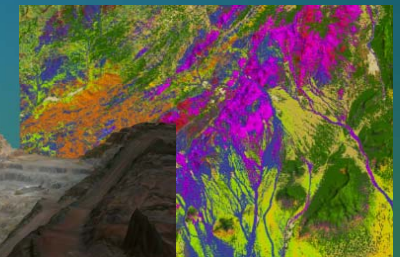
Wildlife Conservation
South Africa

Mining



Suriname

Mineral Assessment



Afghanistan

Urban and Regional Planning

Land Use Management



Singapore

New Town Design

World Cup



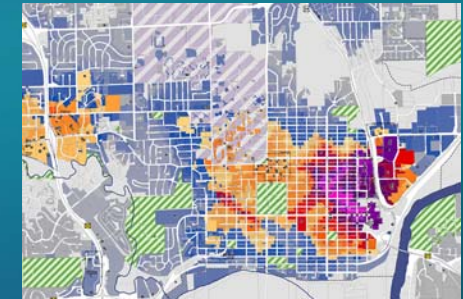
Lusail, Qatar

Neighborhood Planning



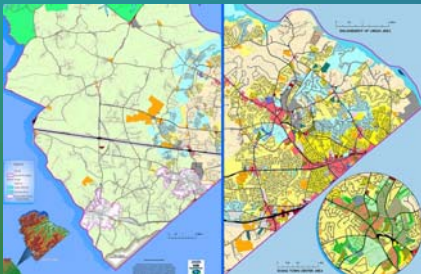
California

Walkability Assessment



New York

Zoning



Columbia, Georgia

Urban Design



Rochester, New York

Urban Forestry



Holland, Michigan

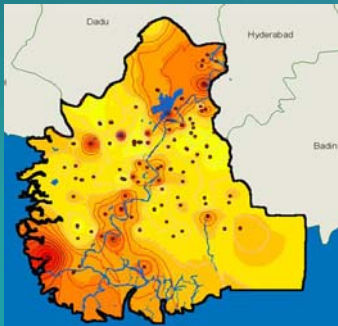
Urban Observatory



Cities around the World

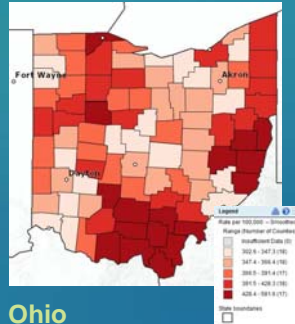
Understanding Human Health

Malaria Distribution



Pakistan

Heart Disease and Poverty



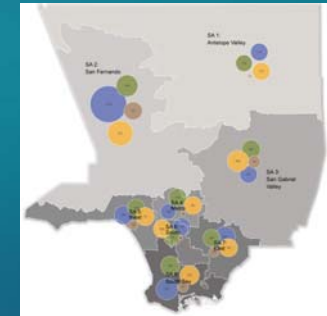
Ohio

Cardiac Hot Spots



Nebraska

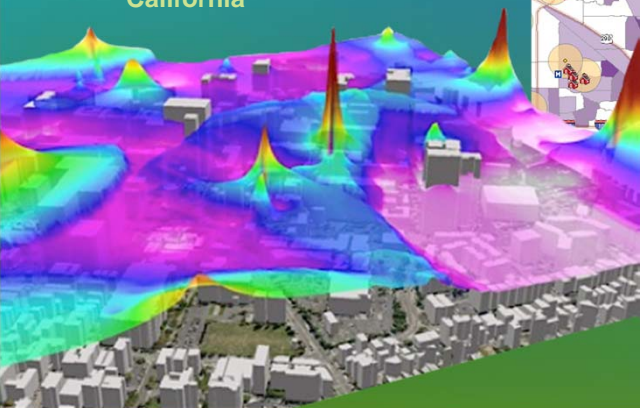
Mental Health Outcomes



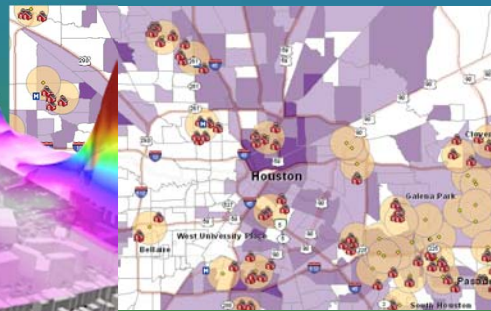
Los Angeles

Public Health

Air Quality California

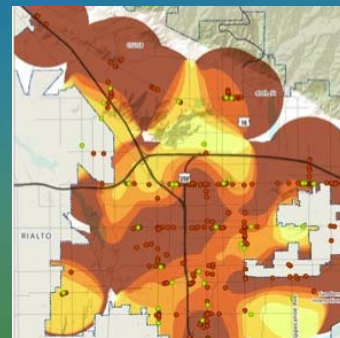


High-Risk Chemical Locations

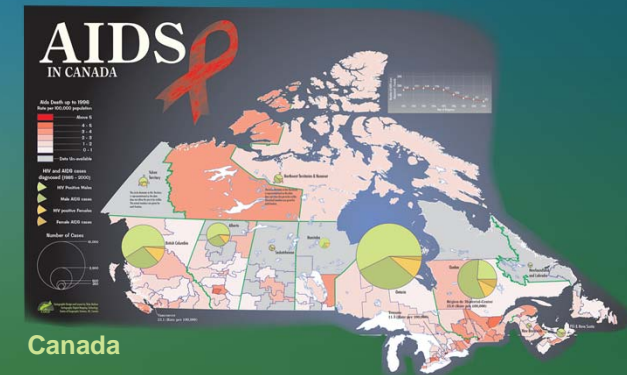


Texas

Healthy Food Access



California



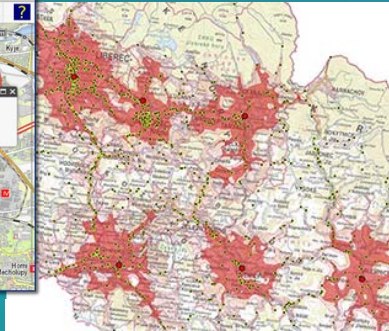
Canada

Public Safety and Security

Fire Rescue



Fire Response Times



Czech Republic

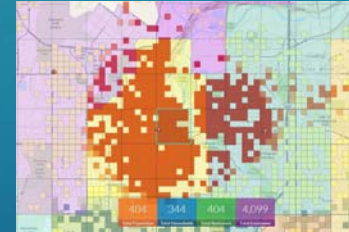
Crime Analysis



South Carolina

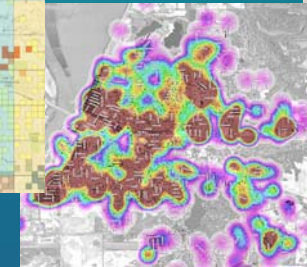
Incident Response

EMS



South Dakota

Police Calls



Illinois

911 Response



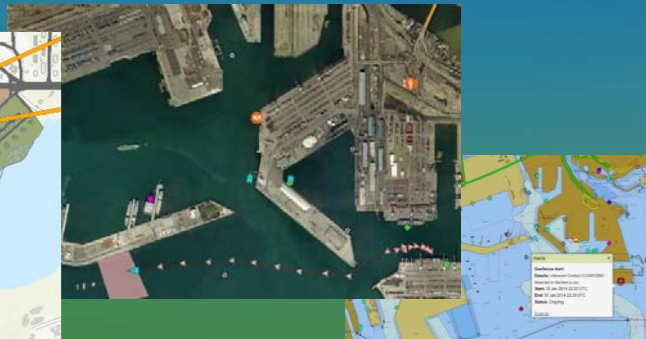
United States

Cybersecurity



Russia

Common Operational Picture

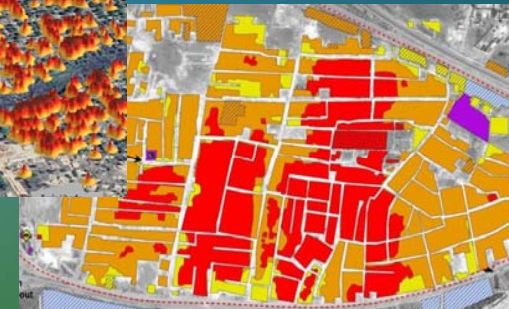


Port of Long Beach

Social and Ethnic Violence



Central African Republic



Human Rights Watch, Syria

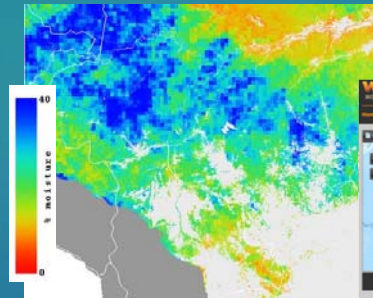
Preparing for and Responding to Disasters

Flood Assessment



Illinois

Fire Prediction



Amazon

Fire Incident Reporting



San Diego

Wildfire Progression



Oregon

Malaysia Airlines Search



Australia

Capstone – EOC



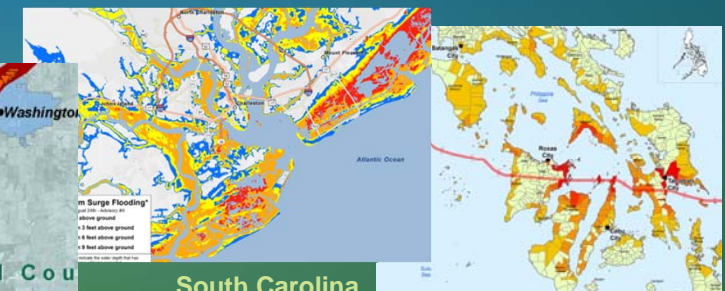
Illinois

Predicting Tornado Intensity



Illinois

Predicting Storm Surge



South Carolina

Philippines



Technology revolution is on going...

...GIS is evolving



GIS Is Evolving

Empower People with simplicity

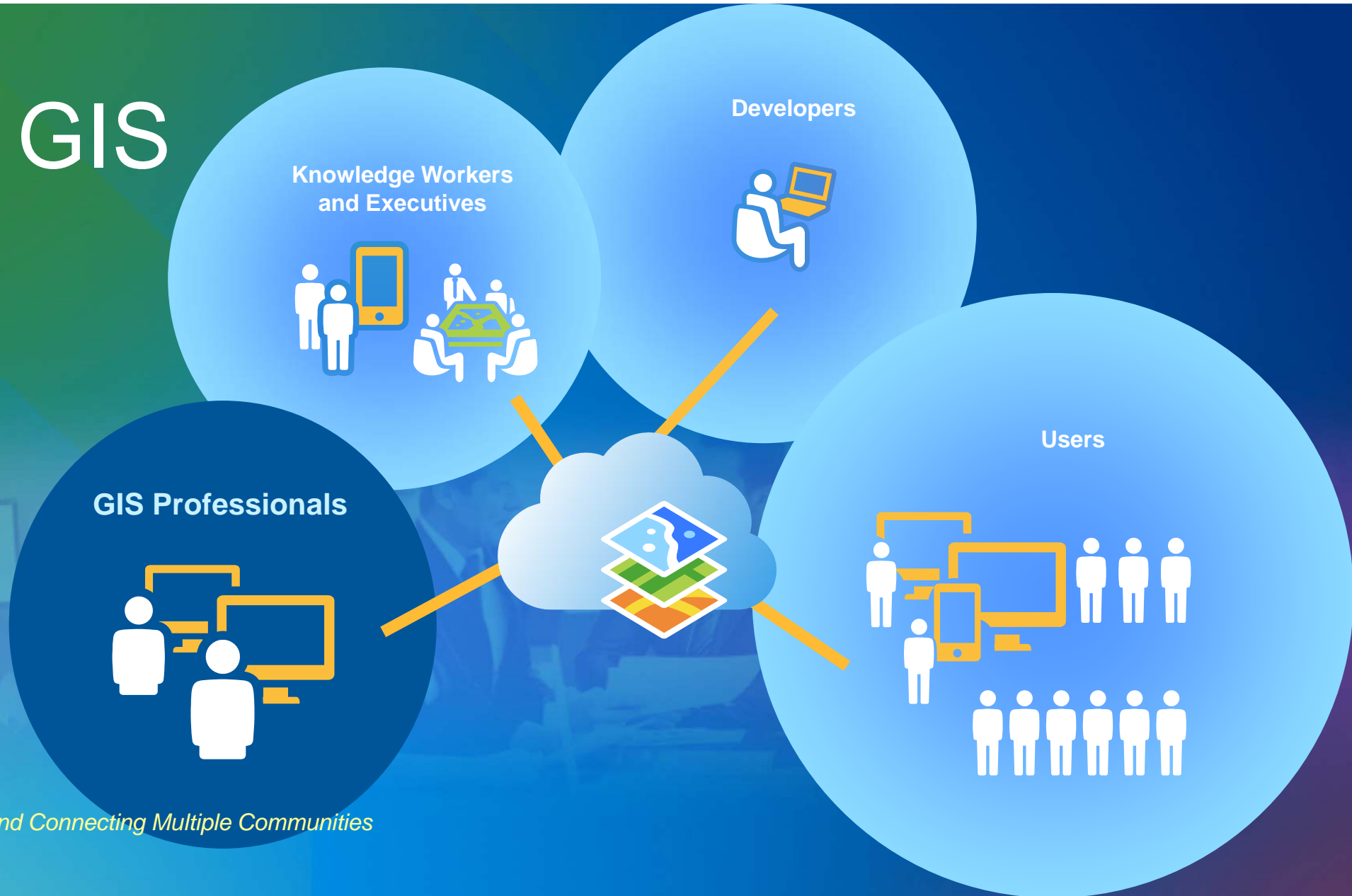
Connect People in motion

Enlighten People with information insight

Empower People

... embracing the web

Web GIS



Supporting and Connecting Multiple Communities

Web GIS Leverages Advancing Technology

In Measurement, Computing, and Networks



Real-Time

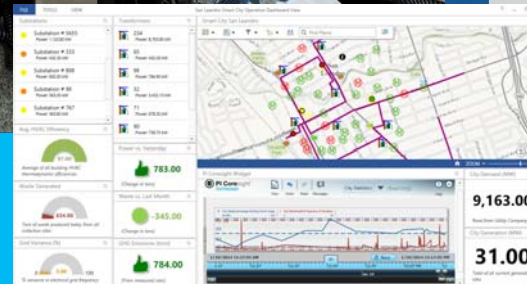
Supporting Geographic
Monitoring and Alerting

- Many Sensors
- Spatial Analysis
- Stream Service
- Big Data
- OSIssoft Integration



PG&E

Arctic Shipping and Sea Ice



OSIssoft Dashboard



Big Data

Exact Earth

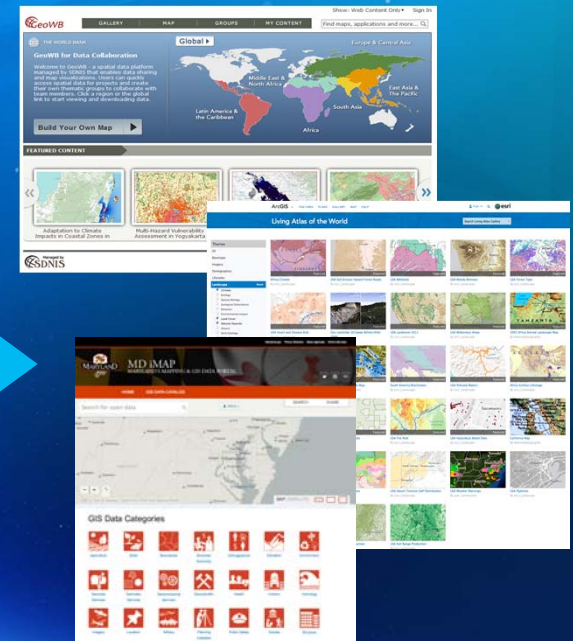
Web GIS Integrates All Types of Information

Organizing and Sharing Your Work



Web Maps and Services

Portal

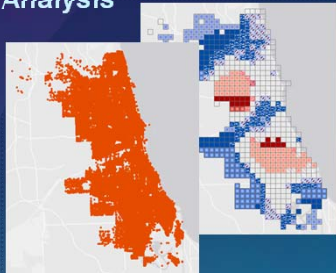


Both Internally and on the Open Web

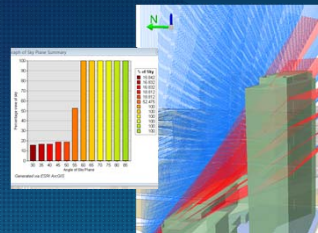
Spatial Analysis

Desktop

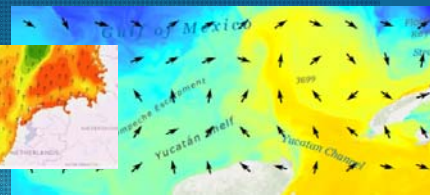
Space-Time
Pattern Analysis



3D Analysis



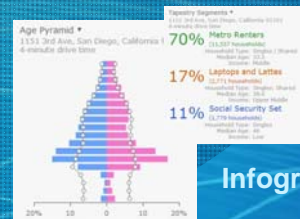
Flow Visualization



Improved Modeling



Multidimensional Data



Big Data

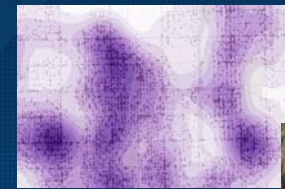


Infographics



Web

Interpolation



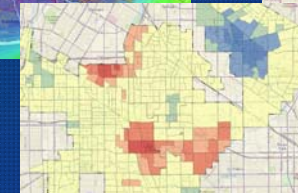
Density

Route Optimization



Buffer

Overlay

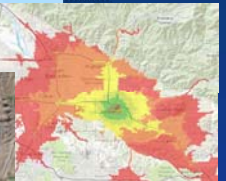


Hot Spots

Terrain



Drive-Time Areas



Find Nearest

Aggregation



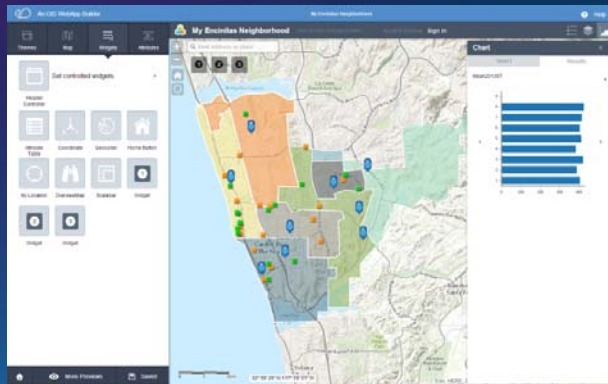
GeoEnrichment

Advancing the Science of Geography

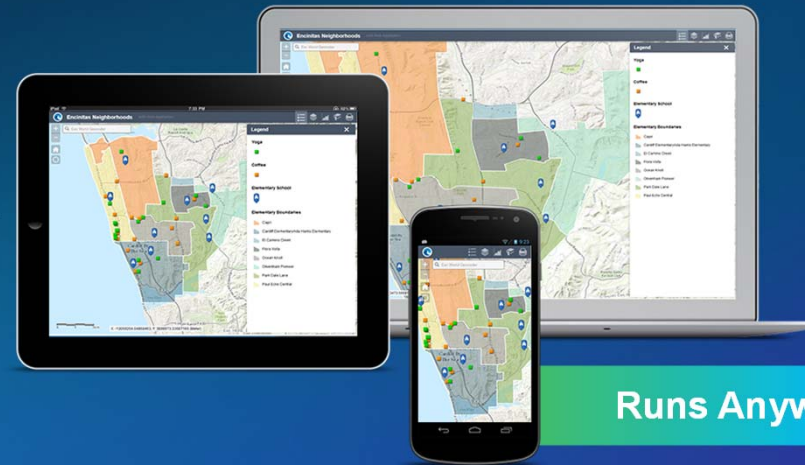
App Builder

Cross-Platform
Framework for Web Apps

Builder



Ready-to-Use App



Runs Anywhere



Widget Library

*Easy App Development . . .
. . . across the Organizations and Enterprise*

Connect People

... any device, anywhere, anytime

The App Revolution

Is Making Web GIS Available Everywhere



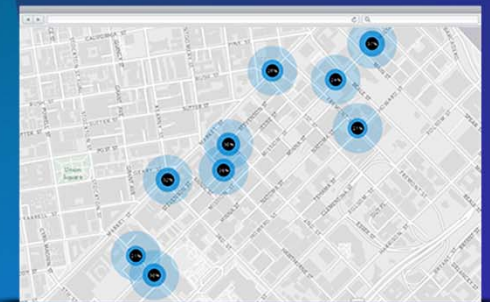
ANDROID



iOS / MAC



WINDOWS



WEB BROWSERS

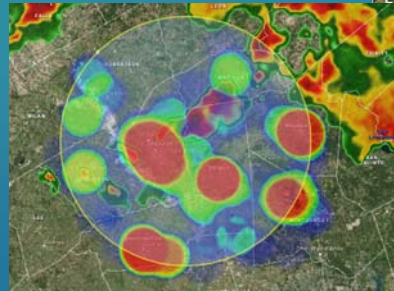
Citizen Engagement and Crowdsourcing

Spot the Station



World

Social Media Mapping



Canada

Social Media



United States

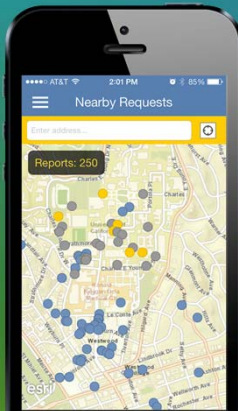
Web-Based Community Planning



Norway

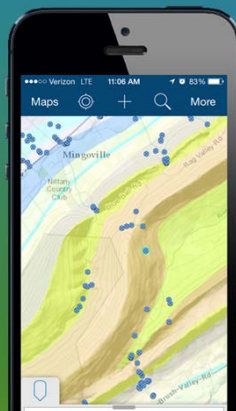
Ask a Citizen

California



Geology Field Stations

Pennsylvania

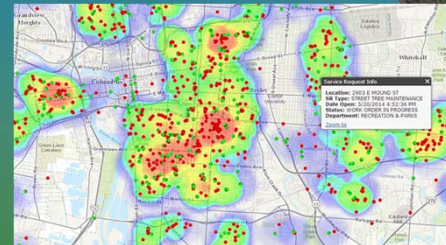


Community Services

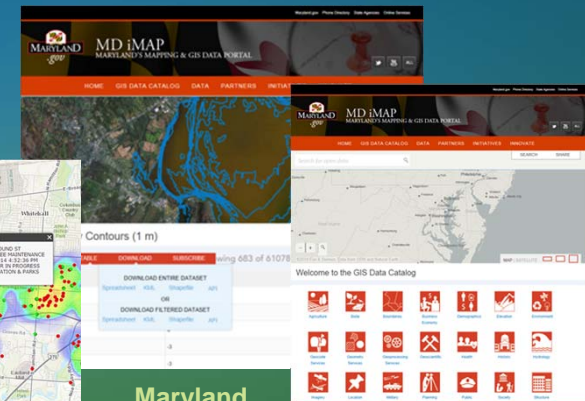
Australia



311 Requests



Open Data



Ohio

Maryland



APP STUDIO

Create the app your map deserves.

Create your app



Enlighten People

... data visualization with more dimensions

The 3D GIS is evolving

and providing powerful insight into the data



3D Buildings and Campus Management

Building Evaluation



Evacuation Planning



Indoor Traffic Monitoring



Space Planning



Campus Energy Analysis

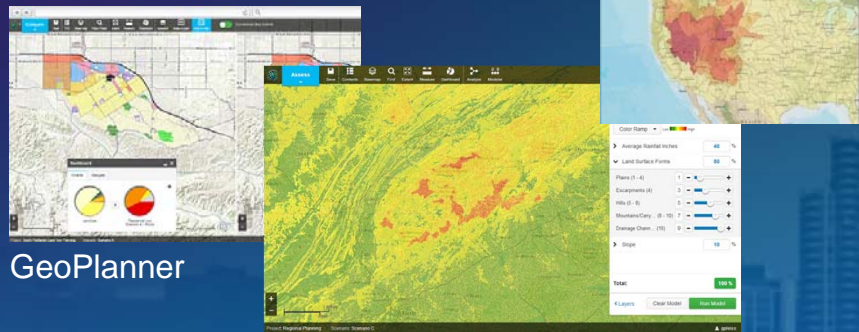


Facilities Management



3D Geodesign is Integrating the Design Process into GIS

Geographic Planning



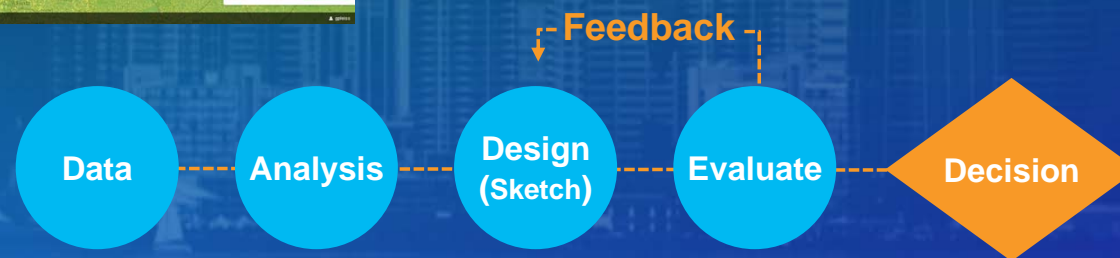
GeoPlanner



Urban Design



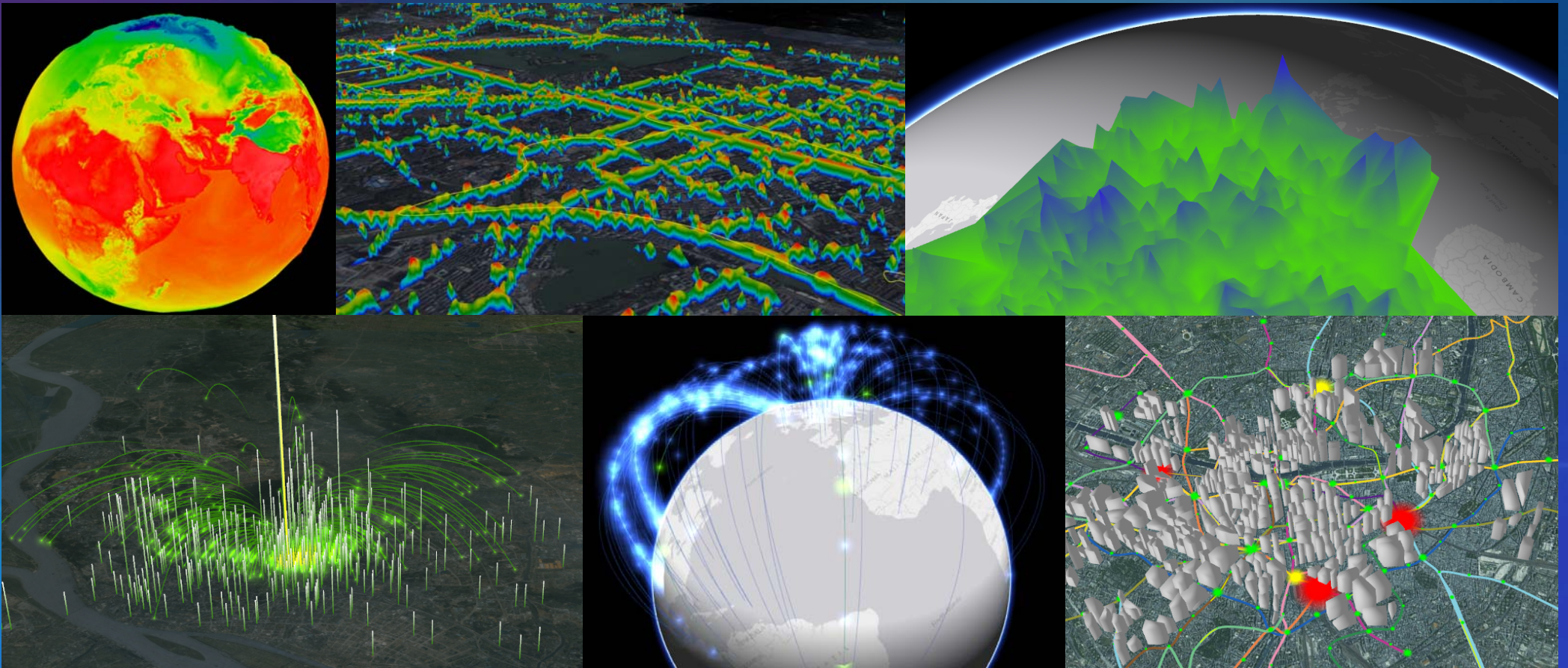
CityEngine
Procedural
Modeling



... Discipline-Independent Tools and Methods

3D

Web 3D is visualizing scientific data as well as large scale of data set from the Internet of Things (IoT)



empower connect enlighten

Leveraging the changes



Population Growth Nature Conservation Oceans Transportation Government Human Health Agriculture
Utilities Environment Energy Infrastructure Business Climate Change Urbanization & Development Education
Economic Recovery Water Resources Social Conflicts Pollution Defense & Security Mapping Science & Technology

We

A Global Network of Geo Communities

Backgrounds

Organizations

Cultures

Disciplines

Interests



