

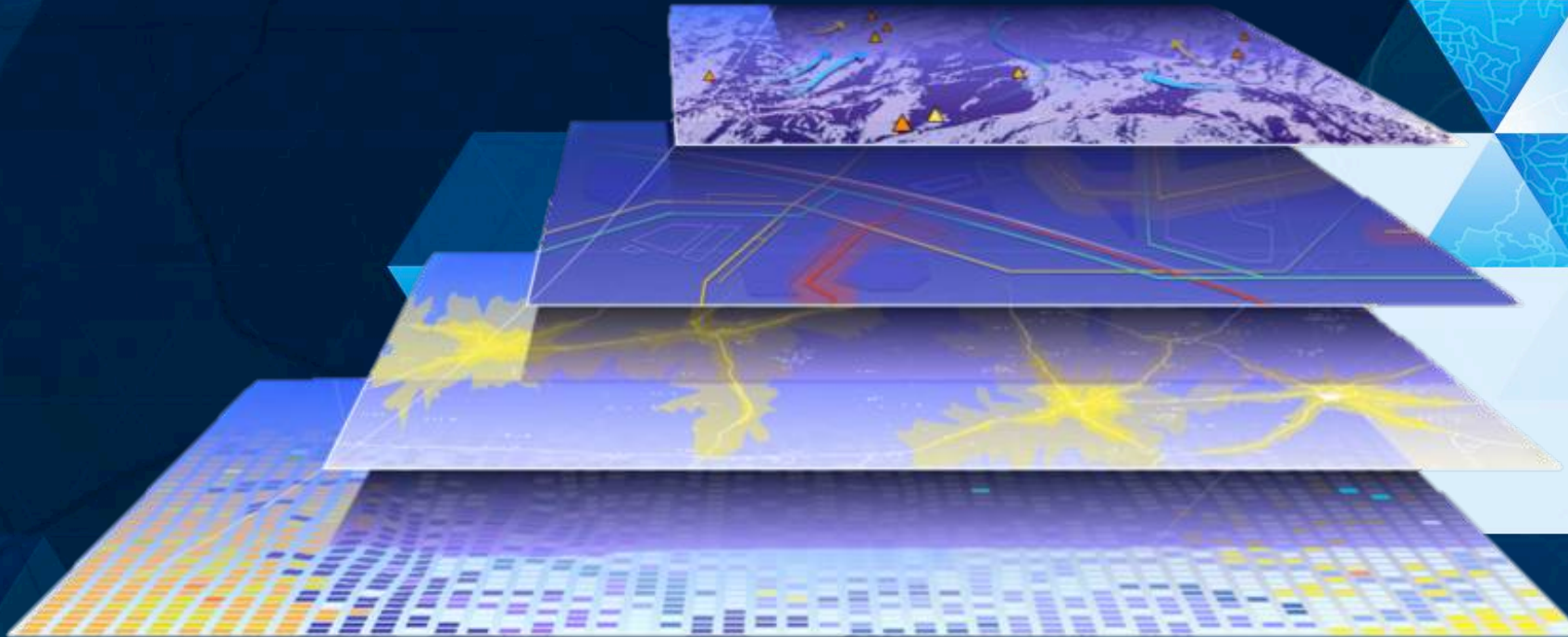


MSDI Open Forum
Building a Maritime Spatial Data Infrastructure
“Are the principles at odds with strategies for delivery?”



Geospatial Information Developments beyond Europe

Rafael Ponce
Global Maritime Business Development Manager, Esri Inc.

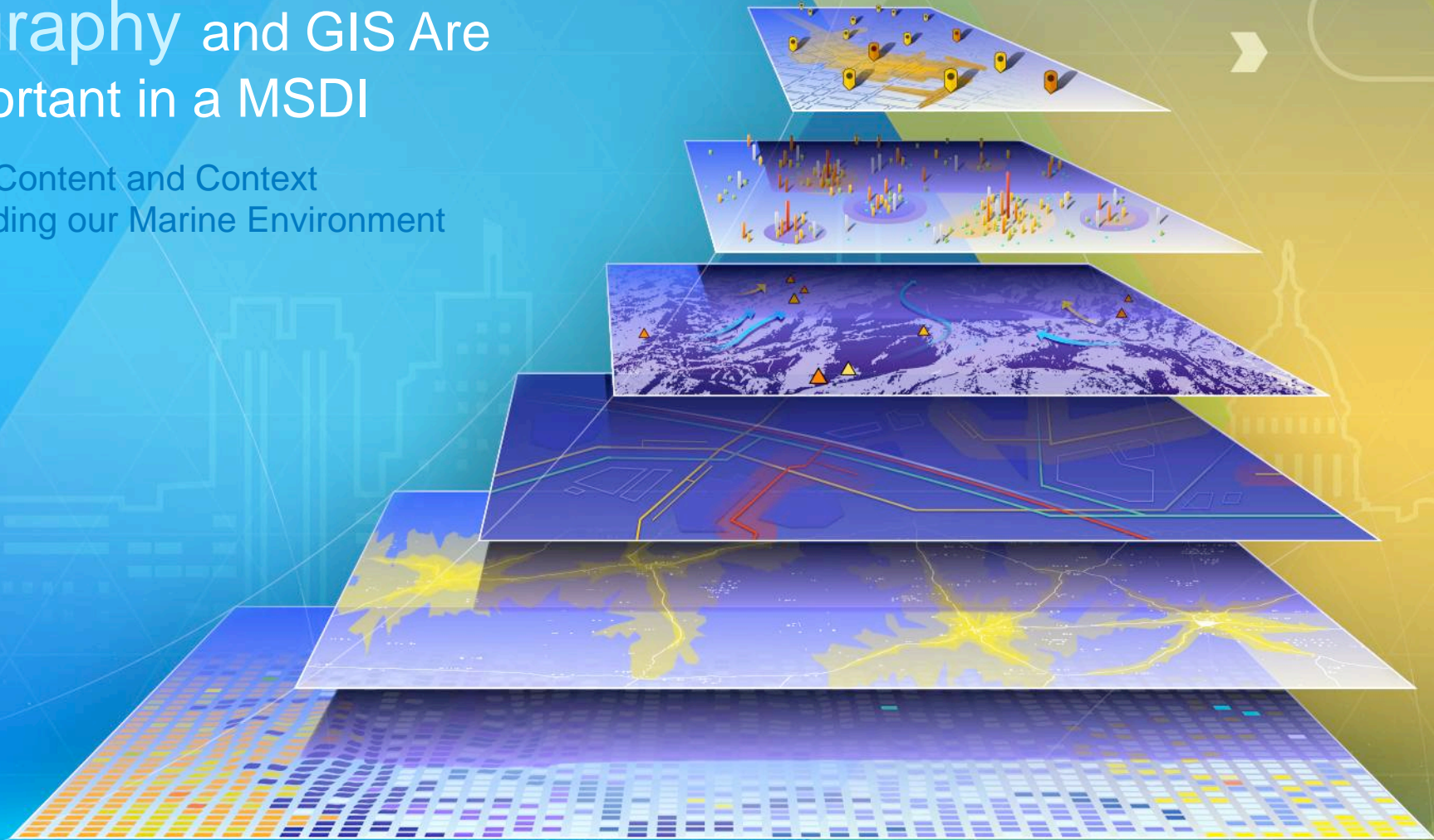


Tuesday, March 3rd 2015



Hydrography and GIS Are Very Important in a MSDI

Providing the Content and Context
for Understanding our Marine Environment



GIS Is Integrating Hydrography into Everything We Do

Changing the Way We Think and Act



*Bringing Together Data, Technology, and People . . .
 . . . Creating a Framework for Solving Complex Problems*

Interoperability

Ensuring Data and
System Interoperability

Standards



Industry Formats and Models



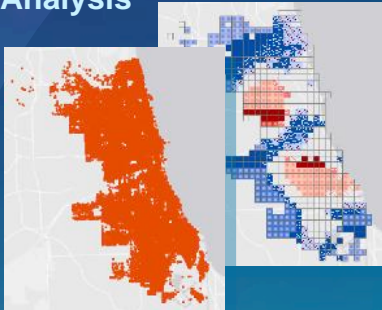
Providing an Open Platform

Spatial Analysis

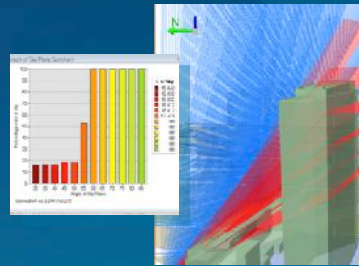
Supporting Demands for
Better Understanding

Desktop

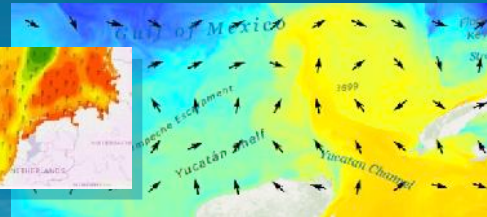
Space-Time
Pattern Analysis



3D Analysis



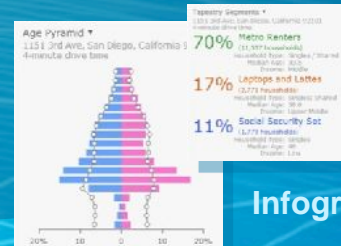
Flow Visualization



Improved Modeling



Multidimensional Data



Infographics

Big Data



Online

Aggregation



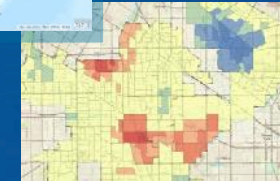
Route Planning



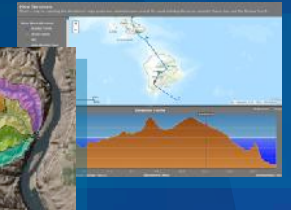
Find Similar



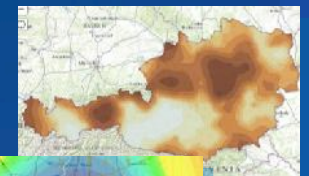
Hot Spots



Terrain Analysis



Interpolation



For better decision making

Imagery

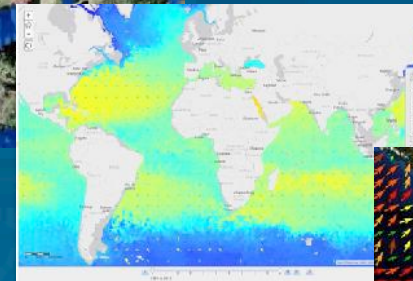
Managing, Analyzing, and
Serving Intelligent Imagery

- Scientific Formats (HDF, GRIB, NetCDF)
- Segmentation and Classification Tools
- Visualization and Analytics

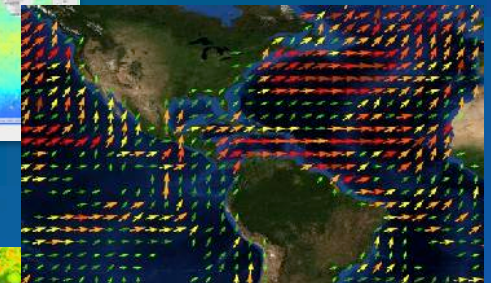
Impervious Surface



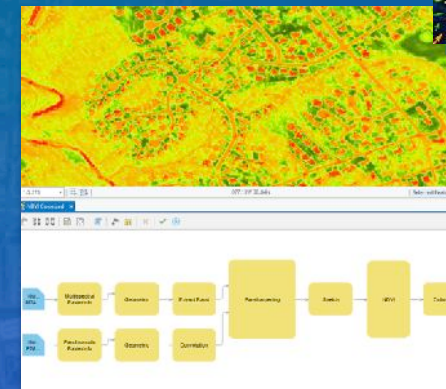
Multi-dimensional Data



Advanced Visualization



On-the-Fly Modeler



Dynamic Products



Full Motion Video

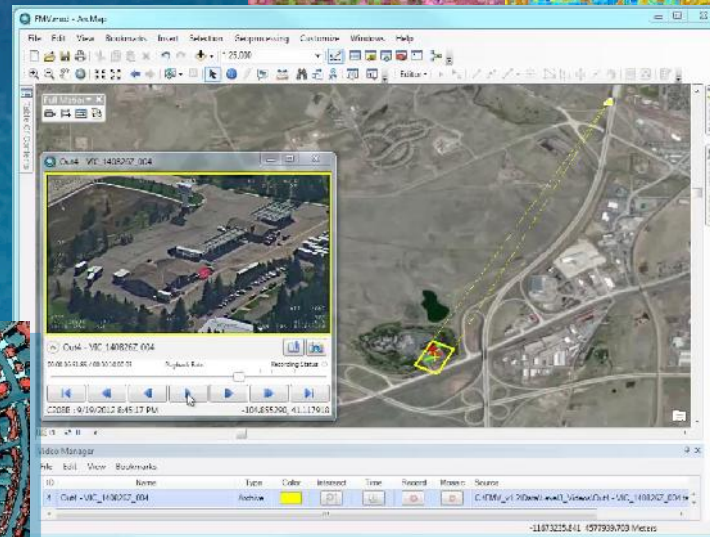


Image Segmentation

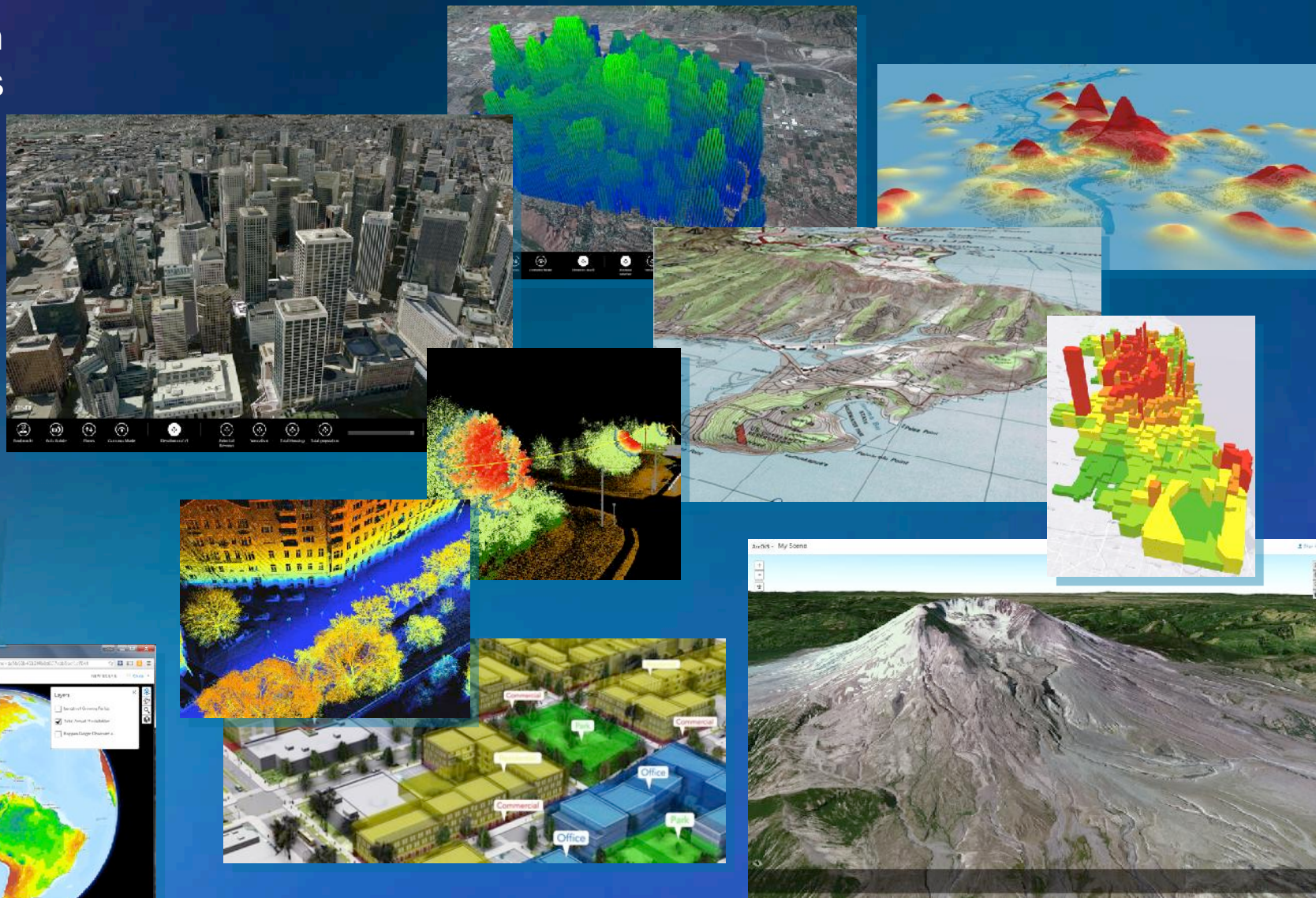


Single Scenes . . .
. . . and Massive Collections

3D

Visualization and Analysis

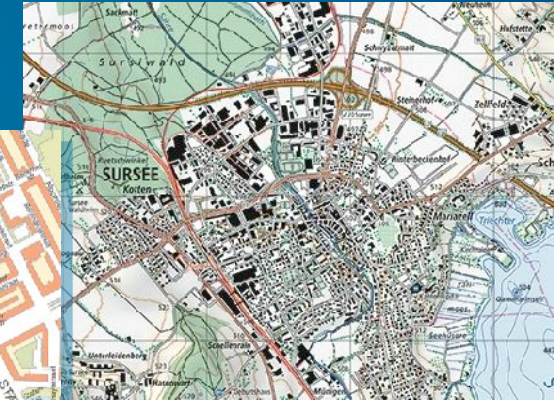
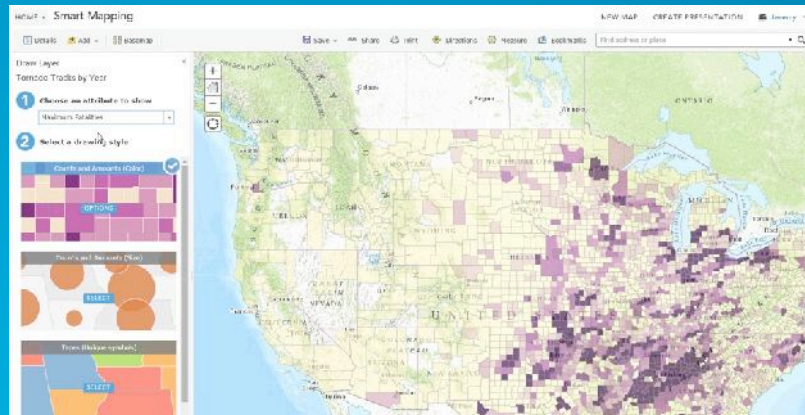
- ! Web Scenes
- ! Lidar Analysis
- ! Rule-Based Symbology
- ! Editing and Designing
- ! Performance



Mapping and Visualization

Advanced Tools
for 2D and 3D

Smart Mapping

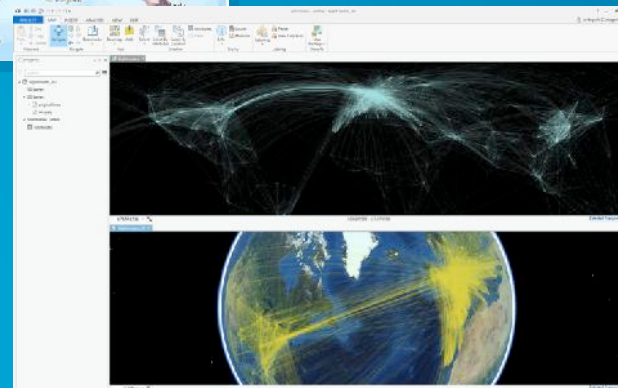


Advanced Cartography

Whole Earth Visualization



Mobile Devices



Vector Tiles



Real-Time

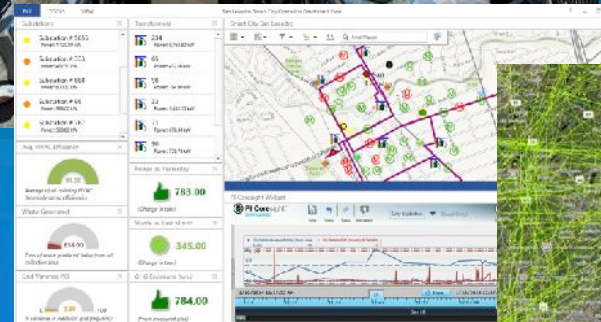
Supporting Geographic Monitoring and Alerting

Arctic Shipping and Sea Ice

- ! Many Sensors
- ! Stream Service
- ! Spatial Analysis



PG&E

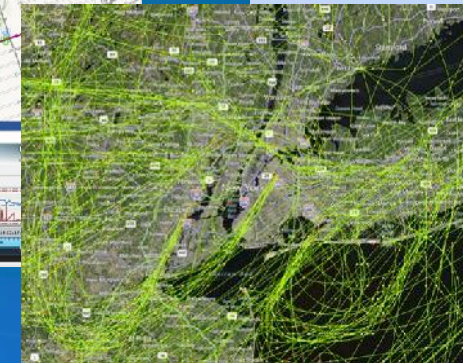


OSIsoft Integration



exactEarth

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Big Data

BIG Data

GIS Analysis and Visualization of Massive Data

AIS Ship Movements

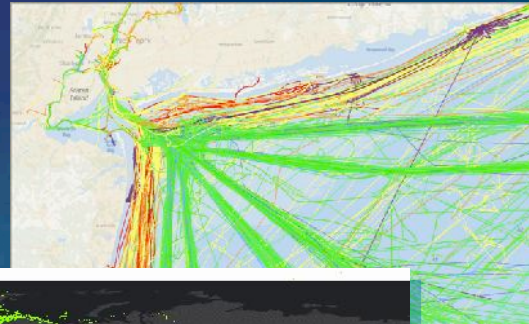


Dec 31 2011 1:00:00 PM - Jan 1 2012 1:00:00 PM

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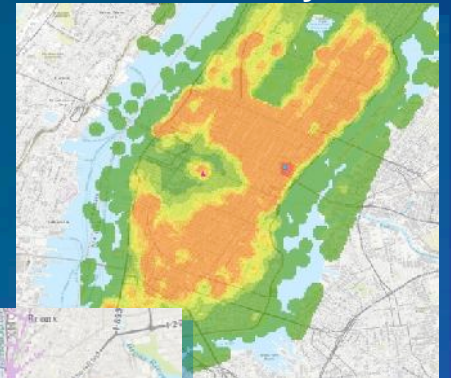
NYC Ship Tracks



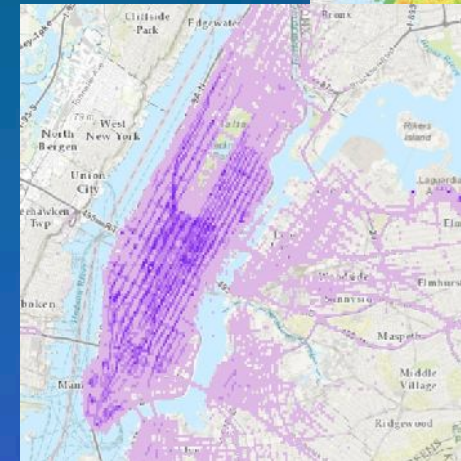
NYC Taxi Saturday Night



NYC Taxi Density



NYC Taxi 2013



Online Content

Ready-to-Use
Web Maps and Layers

Earth Observation

Lifestyles

Landscape

Transportation

Urban Systems

Boundaries and Places

Historical

Demographics

Largest Digital Map Library in the World



Apps



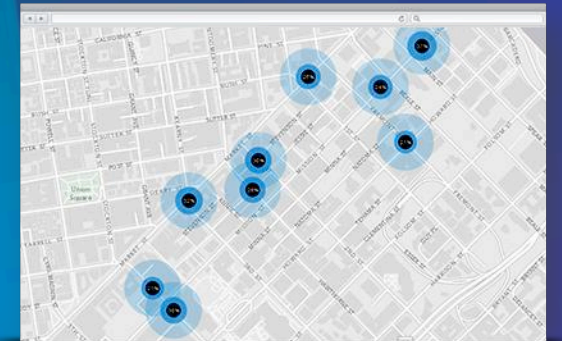
ANDROID



iOS / MAC



WINDOWS

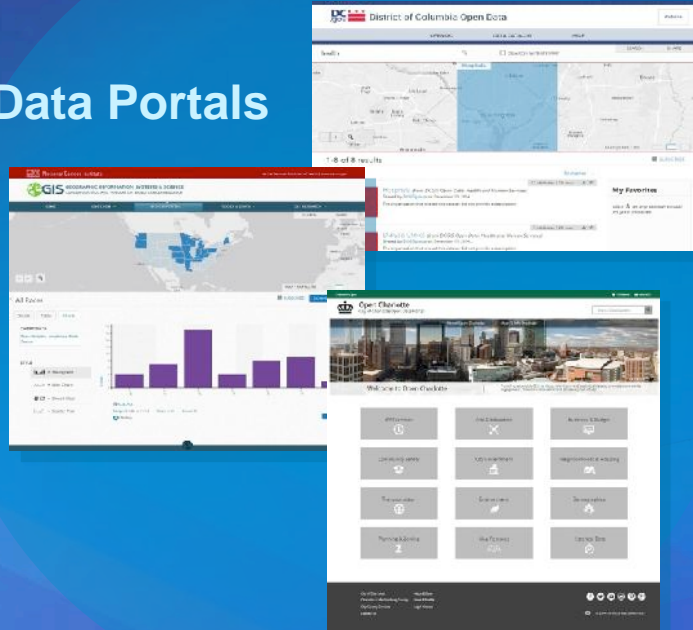


WEB BROWSERS

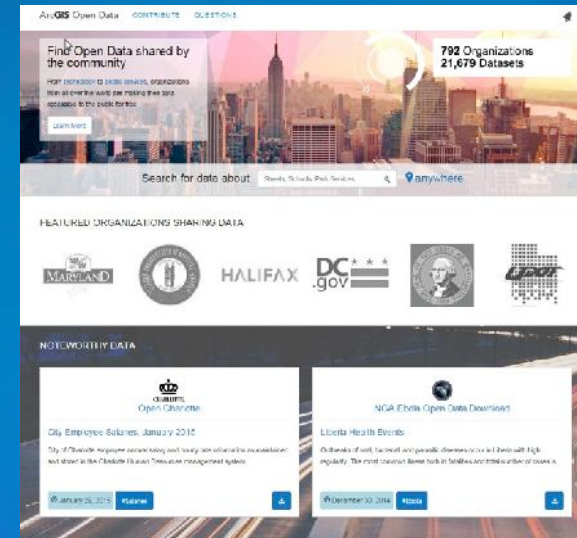
Open Data

Integrated Workflows to Share
Geospatial and Tabular Data

Open Data Portals



Portal for All Open Data



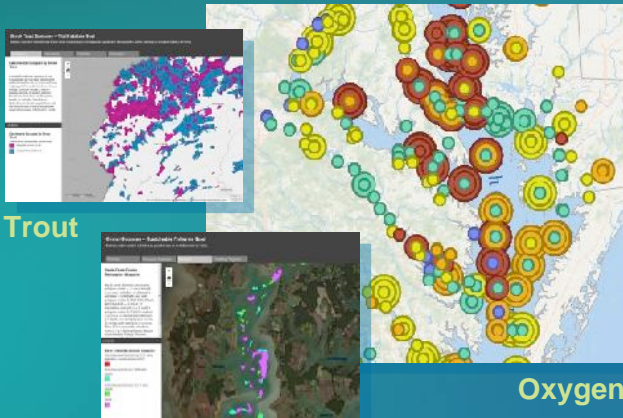
OpenData.ArcGIS.com

*Powering Thousands of Open Data Sites . . .
. . . Enabling Open Data Everywhere*

How MSDIs support GI today?

Monitoring and Managing Natural Resources

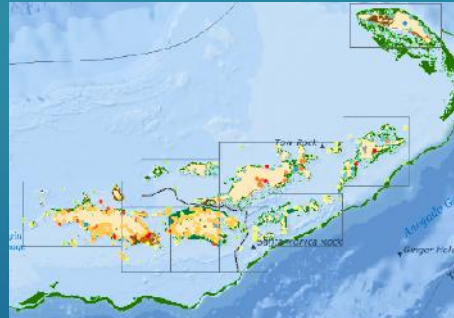
Managing the Chesapeake Bay



Trout

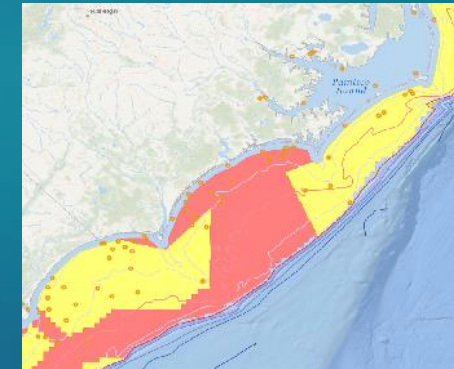
Oxygen

Environmental Sensitivity Assessment



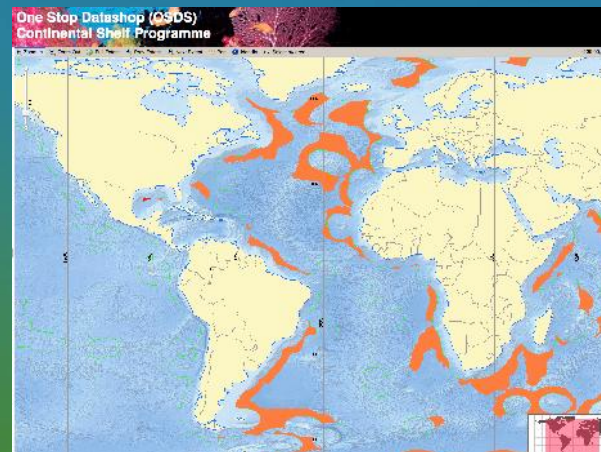
UNEP, US Virgin Islands

North Carolina Offshore Renewable Energy Planning



US Marine Cadastre

Continental Shelf Programme



GRID Arendal

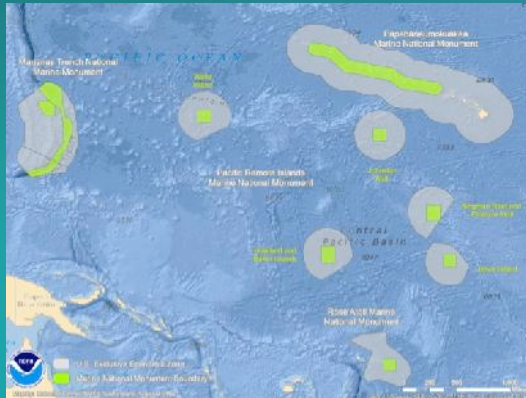
Coral Reef Watch



UNEP, US Virgin Islands

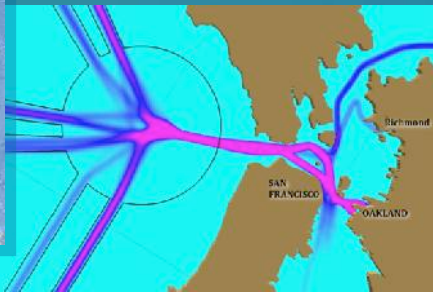
Ocean Science Applications

Marine National Monuments



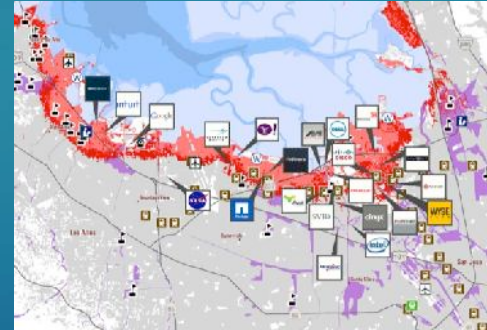
NOAA

Vessel Traffic



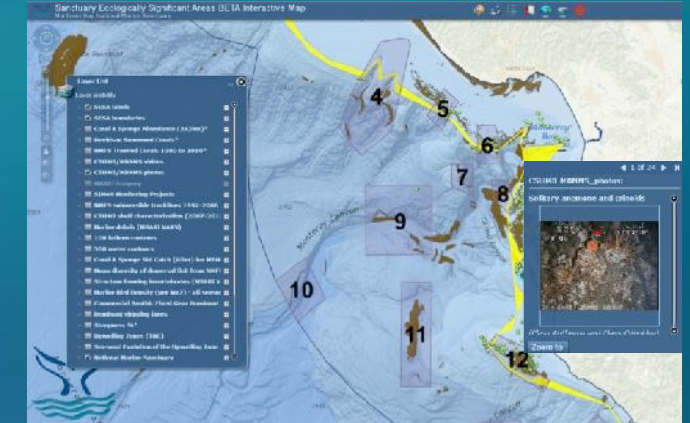
San Francisco

Sea Level Rise



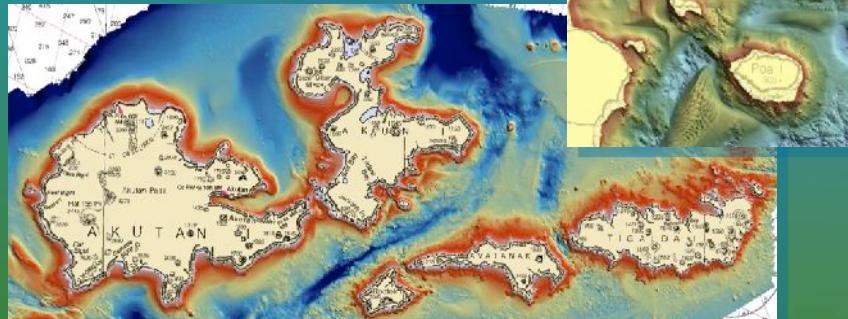
San Francisco

Ecologically Significant Areas



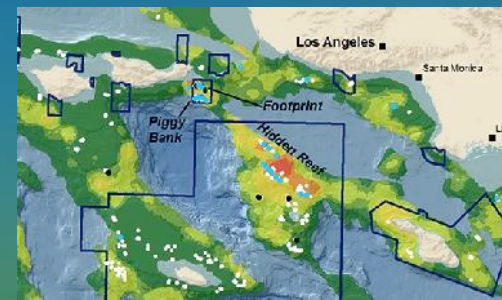
NOAA, Monterey Bay

Bathymetric Relief Modeling



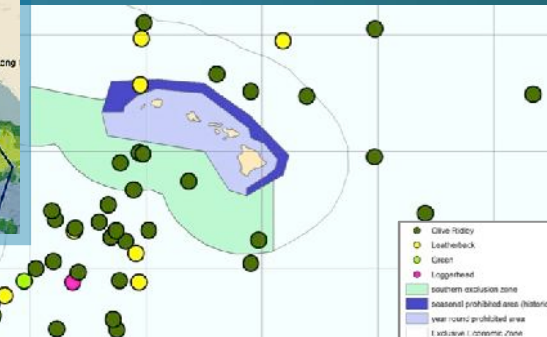
NOAA, Alaska

Coral Reef Modeling



California

Protecting Sea Turtles



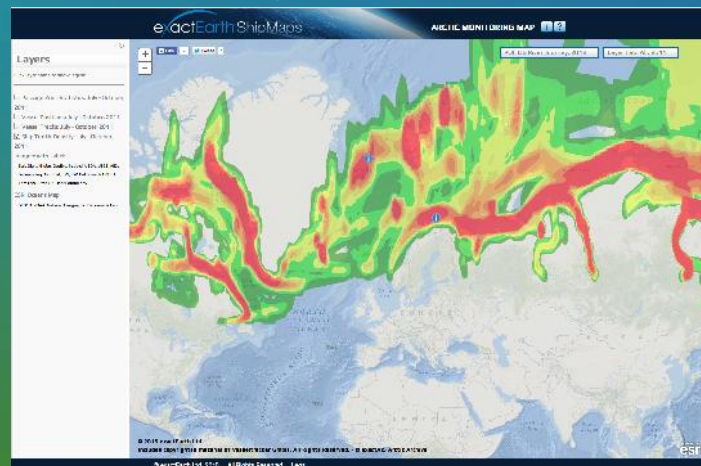
NOAA Fisheries, Hawaii

Transportation Management

Public Transportation Advocacy



Arctic Shipping

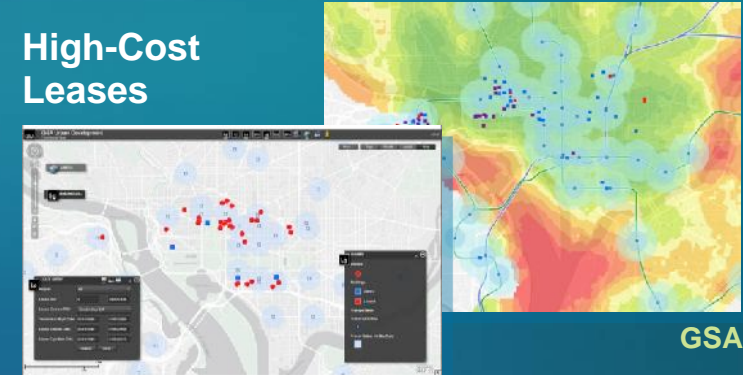


exactEarth ShipMaps

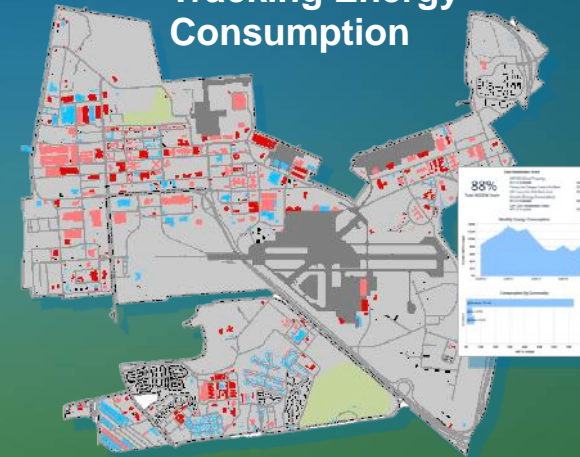
Facility Planning and Management

Asset Management

High-Cost Leases



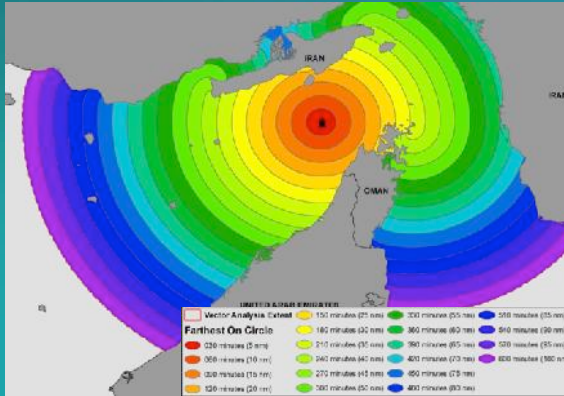
Tracking Energy Consumption



Norfolk Naval Station, Norfolk, VA

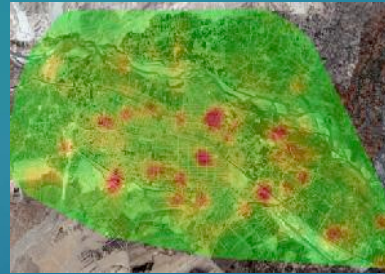
Defense and National Security

Vessel Reach by Time



NGA, Middle East

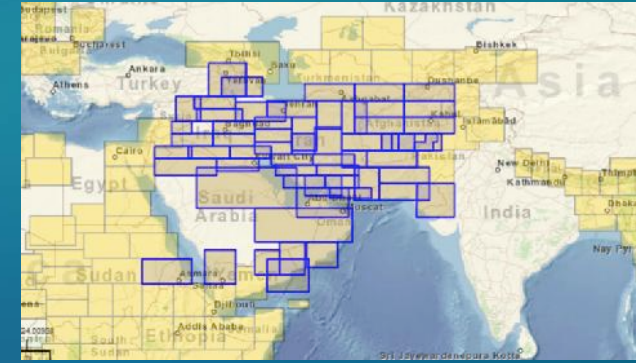
SAGE Tools



US Army



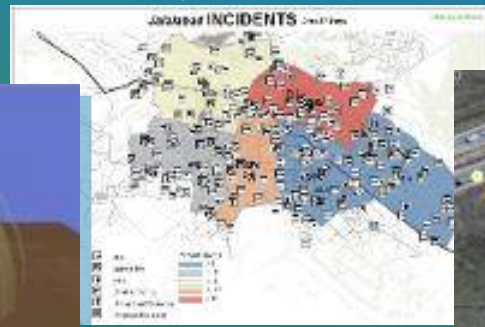
Map Catalog



Defense Logistics Agency

Intel Templates

Incident Analysis



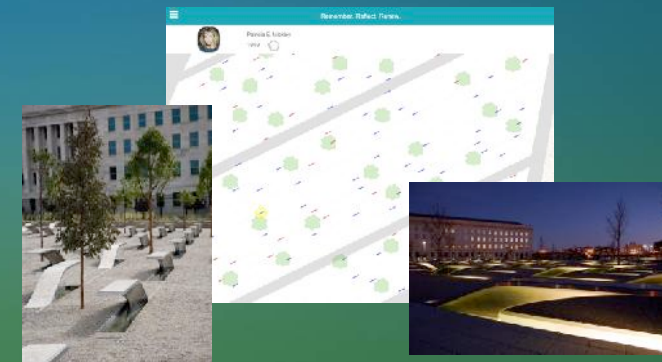
FMV Analysis



Threats



National 911 Pentagon Memorial



Public Safety

Preparing for and Responding to Disasters

Border Protection Portal



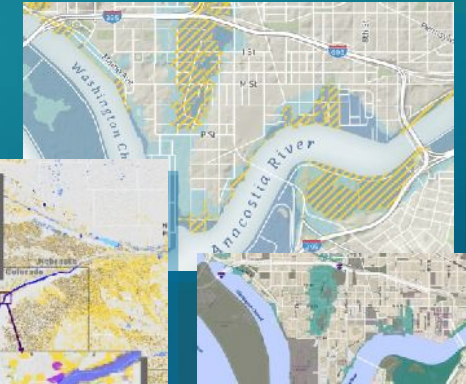
CBP, DHS

NFL Security



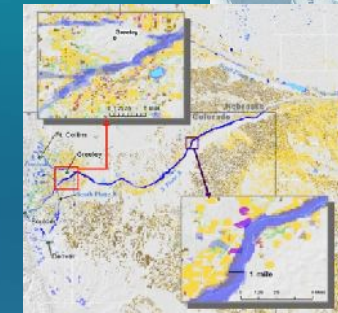
Seattle PD

Floodplain Management



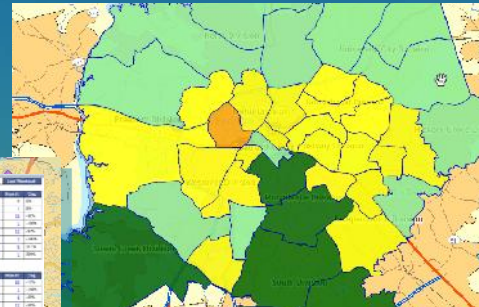
DC GIS, Washington, DC

Flooding



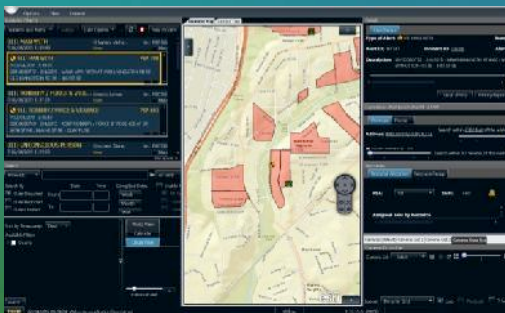
USDA, Colorado

Crime Prediction Map



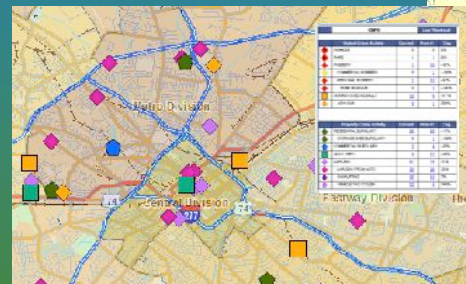
Charlotte –
Mecklenburg Police Dept.

Operations Dashboard—AWARE



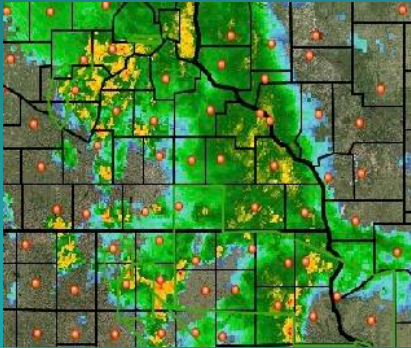
Washington, DC

COMPSTAT Reporting



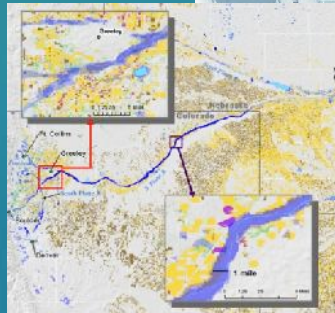
Preparing for and Responding to Disasters

Extreme Weather



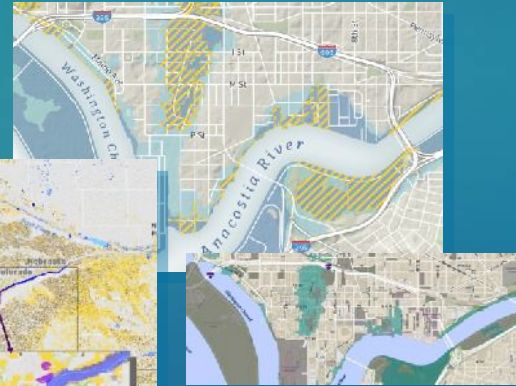
USDA, Upper Midwest

Flooding



USDA, Colorado

Floodplain Management



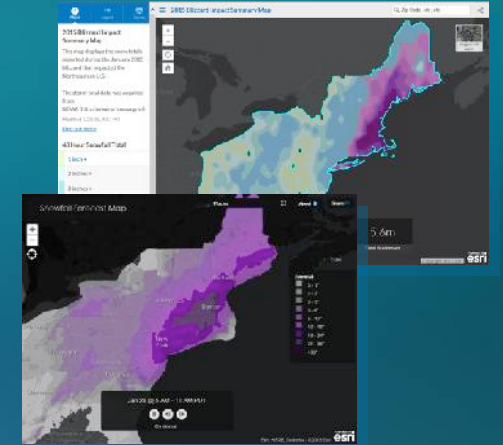
DC GIS, Washington, DC

Winter Weather Operations



Georgia

Blizzard Impacts



Northeast US

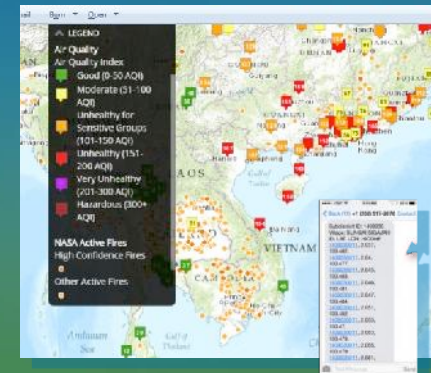
CAPSTONE Earthquake Exercise



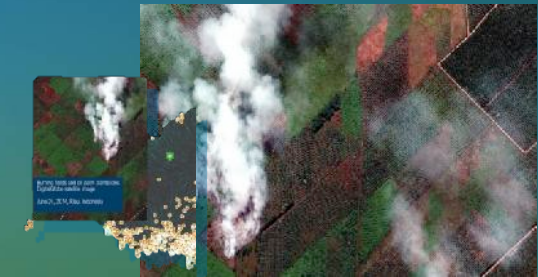
DHS—State of Missouri



Monitoring Air Quality



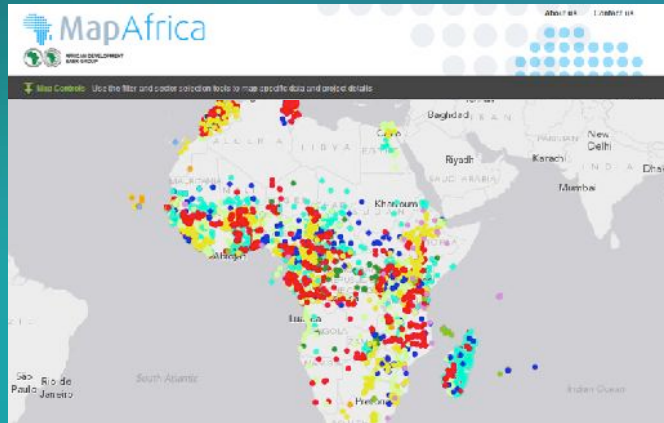
Southeast Asia



Global Forest Watch

Supporting Humanitarian Missions and International Development

Economic Development



AirData, Africa

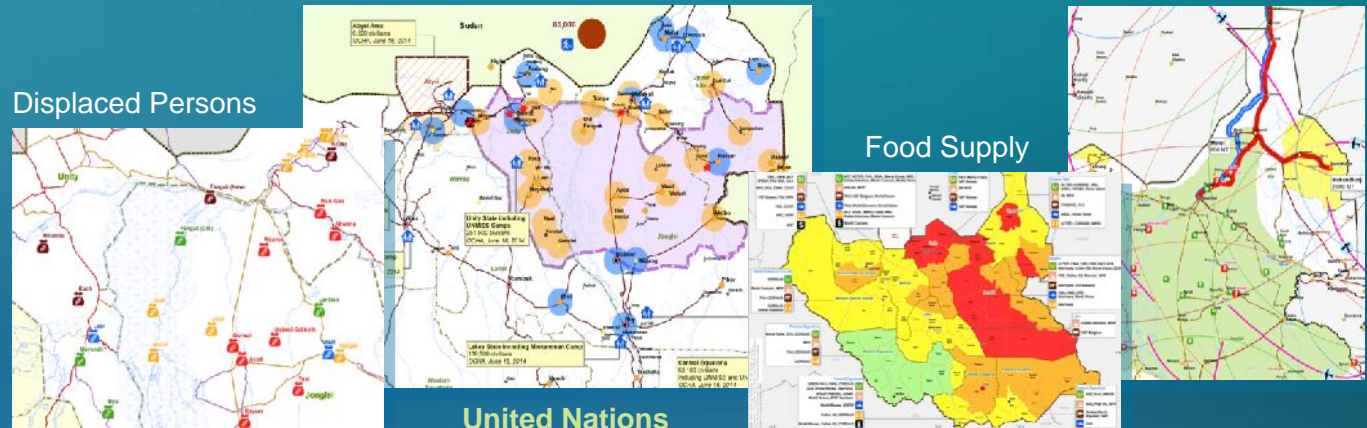
South Sudan Humanitarian Operations

Refugee Situation

Food Supply Airdrop

Displaced Persons

Food Supply



United Nations

Social and Ethnic Violence

Ebola Epidemic



Central African Republic

Human Rights Watch, Syria



USAID, West Africa

Cartography

Aeronautical Charts

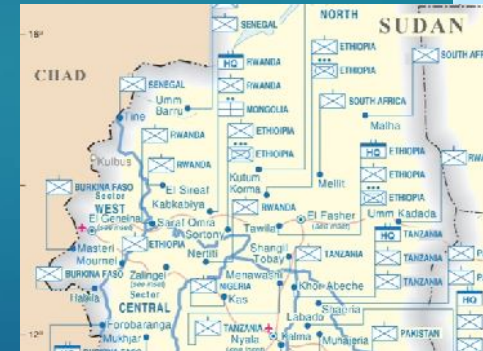


Honduras



Turkey

Military Cartography



UN Peacekeeping



NATO

Topographic Mapping

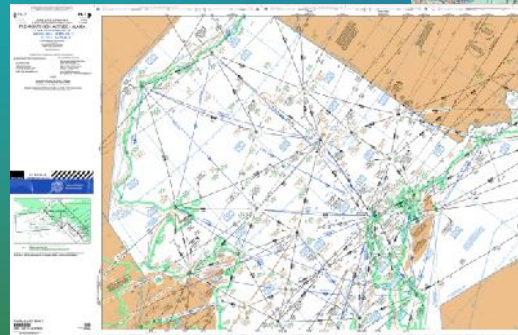


MGCP Agencies & Partners

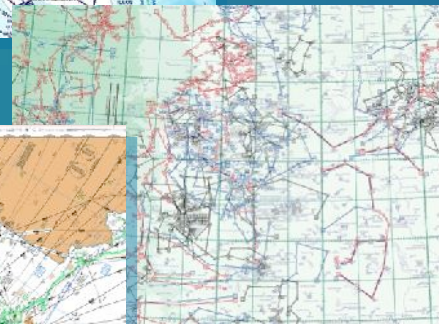
Nautical Charts



NOAA



FAA



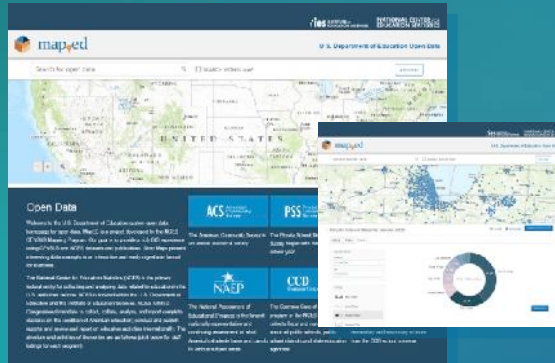
NGA

Portals for Geospatial Content Management / Access



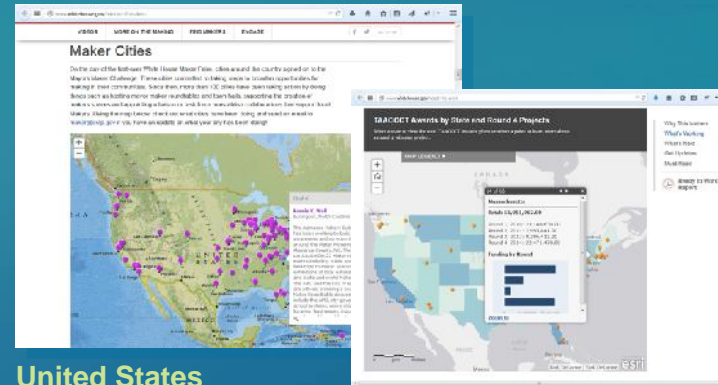
Open Data and Citizen Engagement

MapED



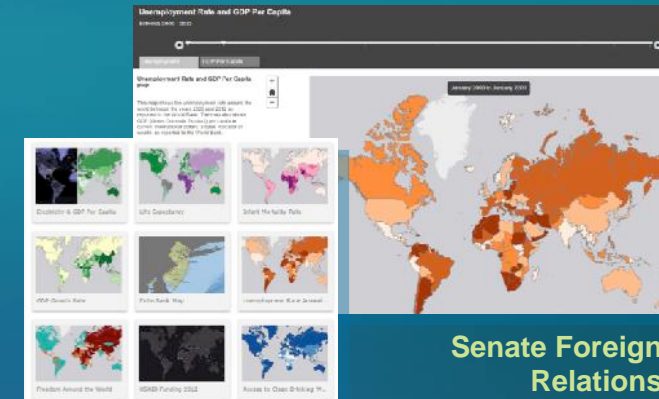
NCES, Chicago, IL

White House Maps



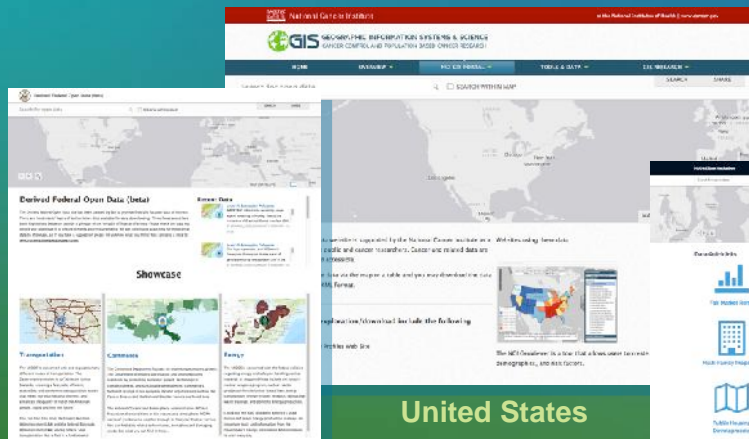
United States

Congressional Policy Assessment



Senate Foreign Relations

Federal Portals



United States

State Portal



Maryland

International Portals



AirData, Philippines

AirData, Indonesia

Data Sharing

The key for success



The screenshot shows the homepage of DATA.GOV. At the top, there is a navigation bar with links for DATA, TOPICS, IMPACT, APPLICATIONS, DEVELOPERS, and CONTACT. The main header features the DATA.GOV logo and a large blue banner with the text "The home of the U.S. Government's open data" and a subtext "Here you will find data, tools, and resources to conduct research, develop web and mobile applications, design data visualizations, and more." Below this is a "GET STARTED" section with a link to "SEARCH OVER 138,201 DATASETS" and a search bar containing the text "Credit Card Complaints". The bottom section is titled "BROWSE TOPICS" and displays a grid of 14 topic icons with labels: Agriculture, Business, Climate, Consumer, Ecosystems, Education, Energy, Finance, Health, Local Government, Manufacturing, Ocean, Public Safety, and Science & Research.

DATA.GOV

DATA TOPICS - IMPACT APPLICATIONS DEVELOPERS CONTACT










The home of the U.S. Government's open data

Here you will find data, tools, and resources to conduct research, develop web and mobile applications, design data visualizations, and more.

GET STARTED
SEARCH OVER 138,201 DATASETS

Credit Card Complaints

BROWSE TOPICS

						
Agriculture	Business	Climate	Consumer	Ecosystems	Education	Energy
						
Finance	Health	Local Government	Manufacturing	Ocean	Public Safety	Science & Research

Data Sharing

The key for success

GeoSUR La Red Geoespacial de América Latina y el Caribe



HOMESEARCH FOR DATAREGIONAL MAP VIEWERNEWSCONTACT US



GEOSERVICES

- Map Viewers
- WMS Services
- WFS Services
- CSW Services
- Topographic Service
- Hydro-Electric Potential Assessments
- Flood mapping in near-real-time



The Mexican Ministry of Energy has developed this map viewer showcasing the National Inventory for Renewable Energy, providing access to national maps on geothermal, wind, biomass, ocean and solar energy sources. The data includes existing energy sources as well as potential resources not yet exploited. The inventory is a collaborative effort of more than 10 Mexican agencies.

LATEST NEWS

- GeoSUR announces the publication of numbers 5 and 6 of the Newsletter
- Publication of the fourth edition of the GeoSUR newsletter
- GeoSUR Award 2014
- GeoSUR presentation at the JIIDE Meeting in Lisbon

Map of the Month

GEOSUR PROGRAM

- About the Program
- Technical Assistance
- Participants
- GeoSUR's Library
- Frequently Asked Questions
- GeoSUR Blog
- Available Data

Welcome to GeoSUR

The GeoSUR Portal provides an entry point to spatial data published by Latin American and Caribbean agencies. The data may be consulted directly by means of partner map services, a **regional map viewer** contained in this portal or through various metadata services.

Most of the spatial information available in this portal is available in map services operated by participating agencies in a decentralized fashion. These services are owned by spatial data producers from the region. These institutions register their various geoservices and their metadata with the portal in order to make them available to the public. No special skills or special software is required to use the portal; it is free and open to the public.

The GeoSUR Program is led by CAF – the Latin American Development Bank and PAIGH the Pan American Institute of Geography and History. The Portal was developed with the technical support of the U.S. Geological Survey (USGS).



Data Sharing

The key for success



INTEGRATED
OCEAN
OBSERVING
SYSTEM

GLOBAL | NATIONAL | REGIONAL

Search

Home | IOOS In Action | About | Data | Observing Systems | Modeling | Themes | Education | Communications



IOOS® Northwest Region Hosts Hands-on Workshop for Educators

U.S. IOOS®, Integrated Ocean Observing System

U.S. IOOS is a vital tool for tracking, predicting, managing, and adapting to changes in our ocean, coastal and Great Lakes environment.

U.S. IOOS delivers the data and information needed, so that decision-makers can take action to improve **safety**, enhance the **economy**, and protect the **environment**.

Observing Partnerships and Plans

Global

National

Regional

U.S. IOOS Data and Assets




IOOS Works: Themes



Glinters and Glider Asset Map

Where are the Gliders Today?



High Frequency Radars and Global Network



Observation Apps and Mobile Websites

Smart Devices



News and Announcements

[New York Harbor added to Surface Current Web Product](#)

[IOOS Supports Safe Ship Navigation](#)

[A Year of Highlights at the NERACOS Annual Meeting](#)

[An Interview with NOAA Fisheries Scientist Jeffrey Polovina](#)

[AOOS Celebrates 10 Years of Ocean Observing](#)

[IOOS Ocean Enterprise Study Highlighted at Blue Tech & Blue Economy Summit](#)

[Report Shows a Significant Blue Economy in Mississippi](#)

[U.S. IOOS Director Expanding Partnerships for Ocean Observing and HF Radar in Europe](#)

[U.S. IOOS and IOOS RAs Featured at GEO 11th Plenary](#)

[Phase 1 Report for the U.S. IOOS Ocean Enterprise Released](#)

[IOOS Pacific Region Launch Ocean Acidification Data Portal](#)

[San Pedro South Buoy Deployment](#)

IOOS supports NOAA's 2014 Atlantic Hurricane Outlook through [related research](#) (pdf) and [Predicting Severe Weather](#)

The U.S. IOOS Data Management and Communication (DMAC) core services' [fifth QARTOD manual](#) - 05/2014

The **U.S. IOOS Summit Report**, published by the Interagency Ocean Observation Committee (IOOC) - 09/2013

[U.S. Integrated Ocean Observing System \(U.S. IOOS®\) 2013 Report to Congress](#) (pdf), 06/2013

- Improving our understanding of **Ocean Acidification**



So,

Are the principles at odds with strategies for delivery?

There are examples telling otherwise

But

There is a risk to be left out

Bi-directional communication

Lots of free data

User groups working together

Private and Public sectors

Services

HOs not engaged

Too focus on products

Moving slowly

The MSDI WG . . .

. . . Can be the link with these user communities

Provide guidance to HOs

- . . . On how to be part of their national SDI
- . . . On how to promote their data assets
- . . . On how to build a Marine SDI
- . . . On promoting data sharing
- . . . On taking advantage of S-100

Realizing the Vision of Shared Geospatial Knowledge . . .

. . . Will Require new paradigms

Creating an Infrastructure For a Sustainable Future

Thank you



Understanding our world.

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