Disaster Risk Reduction

Advancing the use of Geospatial Data and Services for DRR

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Science for Disaster Reduction
International Disaster Risk Reduction Working Group

Presentation Agenda

- Background Information
- Community Engagement
- Addressing Gaps, Barriers and User Needs
- Pilots and Prototypes
- Next Steps

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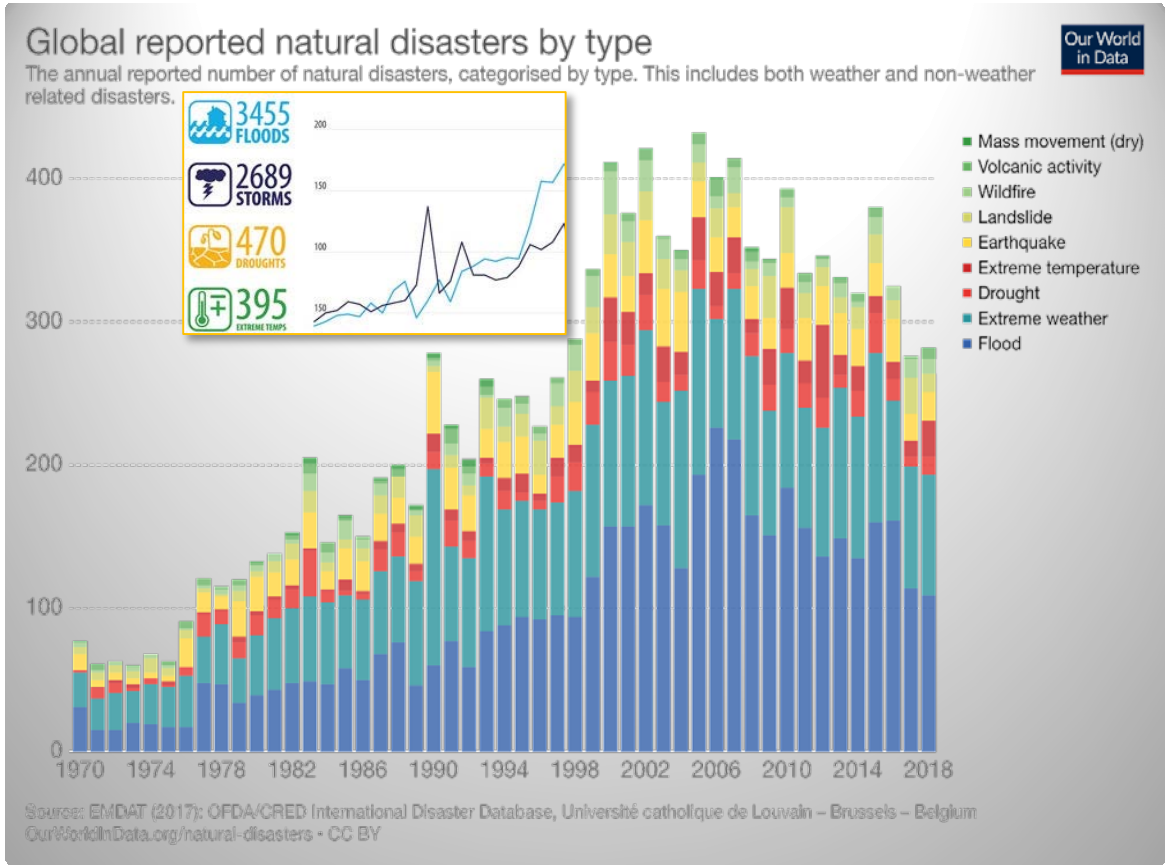
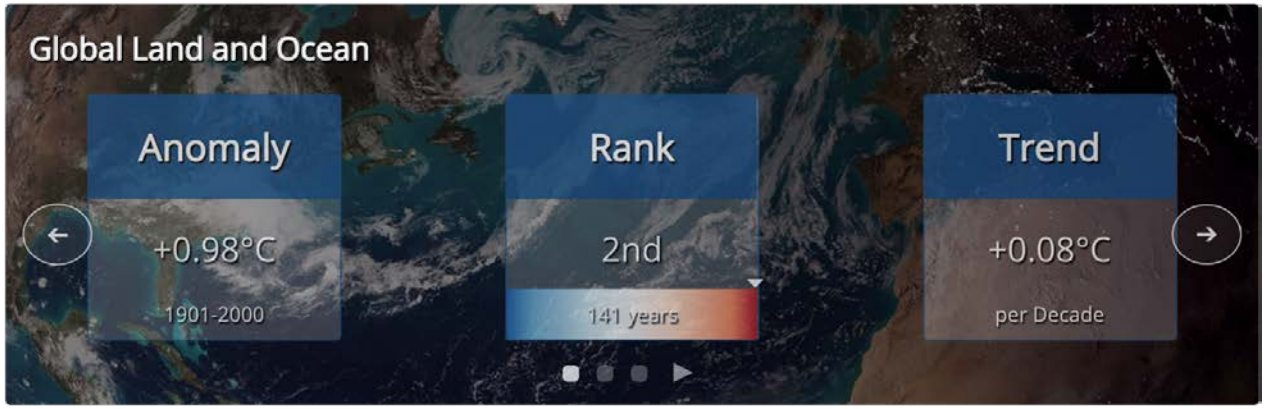
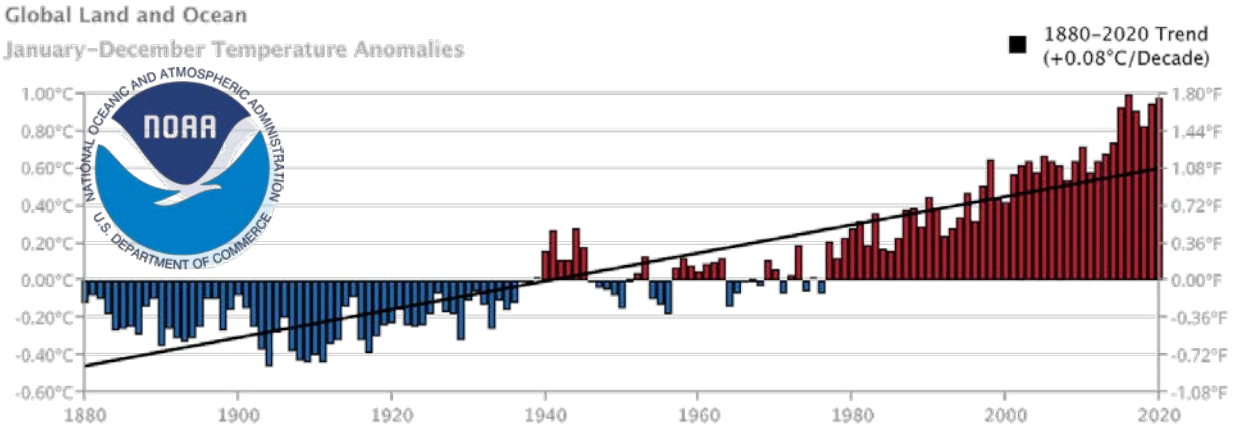
The number of disaster events have increased substantially over the past 50 years



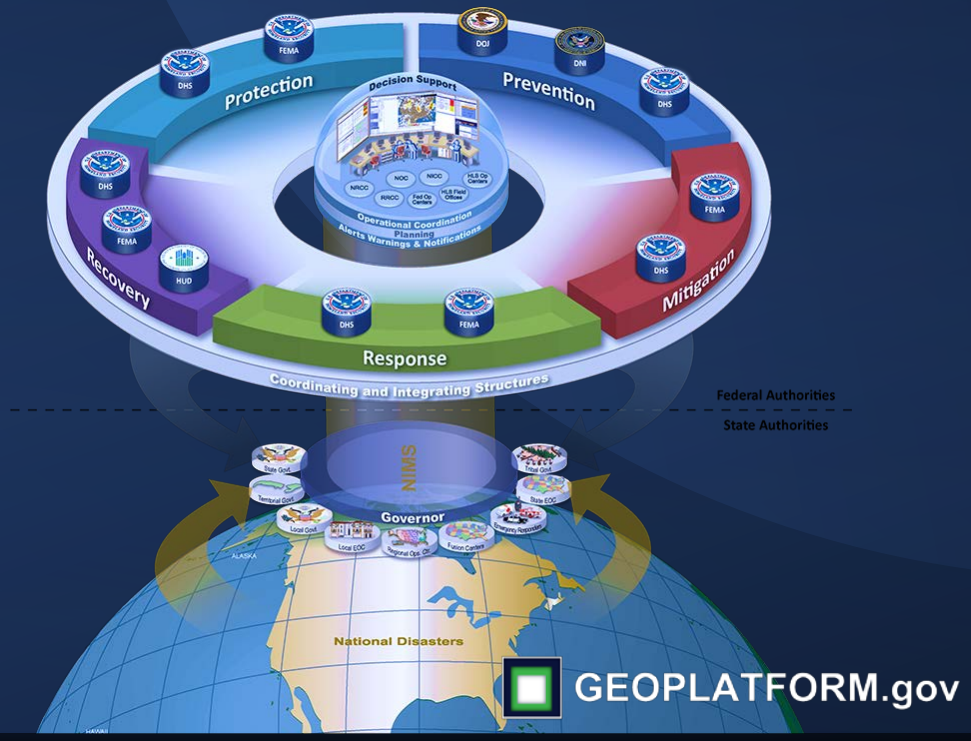
Assessing the U.S. Climate in 2020—2nd Warmest





Background Information

National Efforts



Geospatial Concept of Operations (GeoCONOPS)

Example Global Efforts

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION

GEO GROUP ON EARTH OBSERVATIONS

UN-GGIM: Américas
REGIONAL COMMITTEE OF UNITED NATIONS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT FOR THE AMERICAS

FGDC working with member agencies and partners are supporting efforts to advance the use of GeoSpatial data and Services for DRR

NSDI Vision: Empowering a geo-enabled Nation and world for place-based decision making.

Strengthen Partnerships	Increase and strengthen current partnerships and expand partnerships with additional stakeholders
Outreach & Education	Create awareness of the data and services stakeholders provides to support disaster preparedness/resilience
Address Needs & Gaps	Improve understanding of community needs and close gaps in data, tools, services, skills, and other barriers to using stakeholder and other institutional-related services for disasters
Usability Pilots	Engage a broad community of users through interviews, workshops and pilots to use stakeholder data and services and provide stakeholder feedback on additional needs

Open Geospatial Consortium

The world's leading and comprehensive community of experts making location data more findable, accessible, interoperable and reusable.

A Global consortium representing over 500 industry, government, research and academic member organization

A hub for thought leadership and innovation for all things related to location

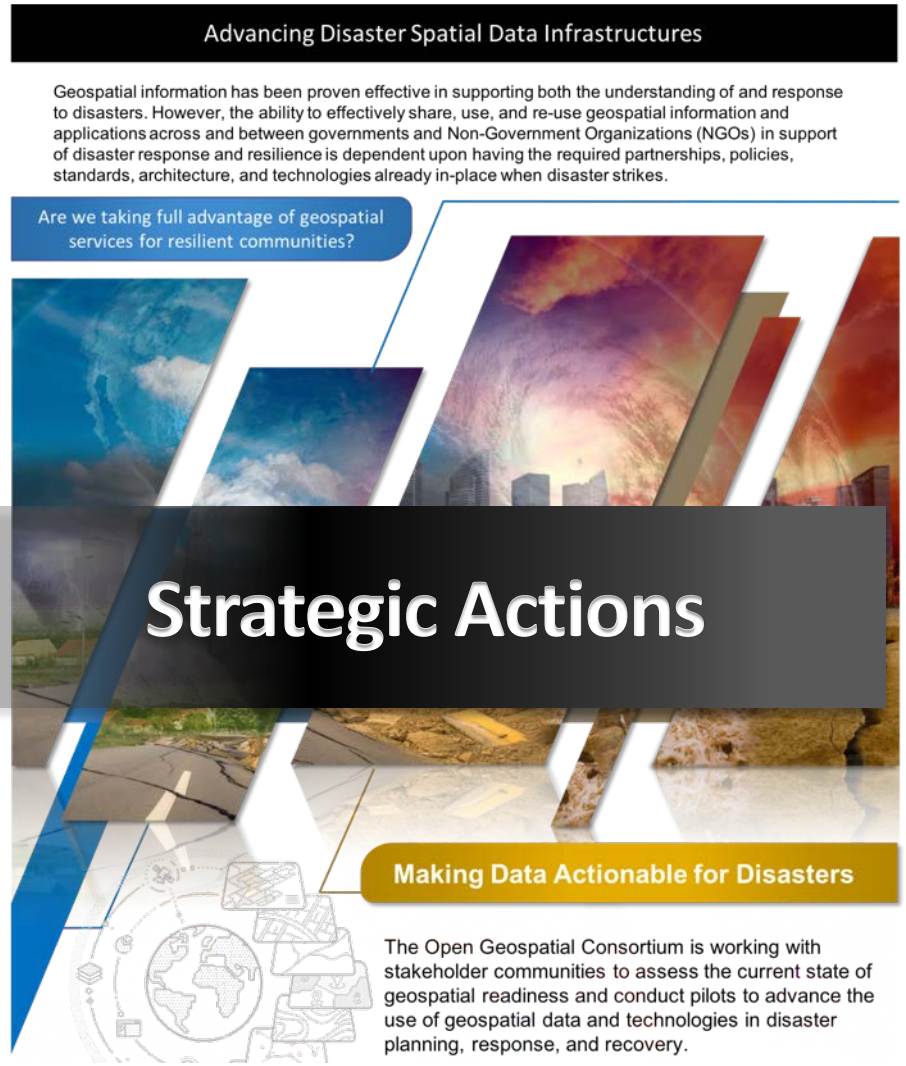
A neutral and trusted forum for tackling interoperability issues within and across communities

A consensus-based open standards organization for location information

Background Information

Over the past 4 years engaged the community to work together to address and remove barriers.

Advancing Spatial Data Infrastructures for Disasters



2018 Concept Development Study

Assessed the current state of geospatial readiness in disaster planning, response, and recovery.

- Lack of an integrated policy and operational framework
- Inability to quickly discover and understand which information sources are most useful—*context of a user's need especially first responders.*
- Inability to properly fuse and synthesize multiple data sources
- The need for a persistent platform to organize and manage disaster related geospatial information and tools

Addressing User Needs

Data science
80/20 rule

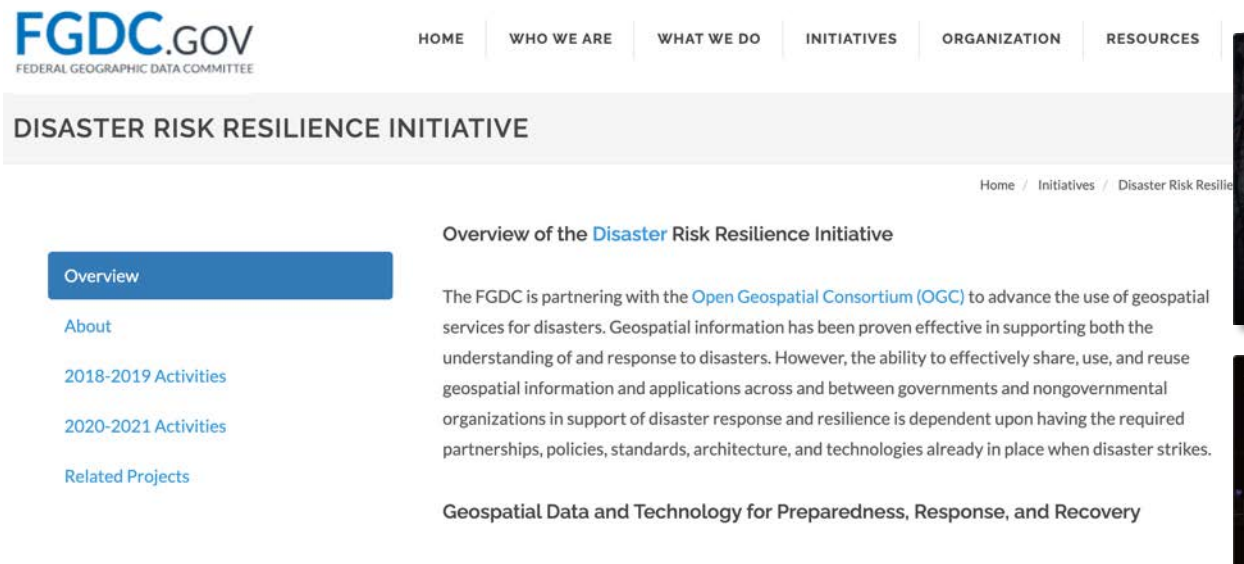
Users spend **80%** of their time finding, cleaning, and reorganizing huge amounts of data, and only **20%** of their time on actual data analysis that informs decision making.

How can we optimize and accelerate synthesis and analysis to get information into the hands of decision makers?

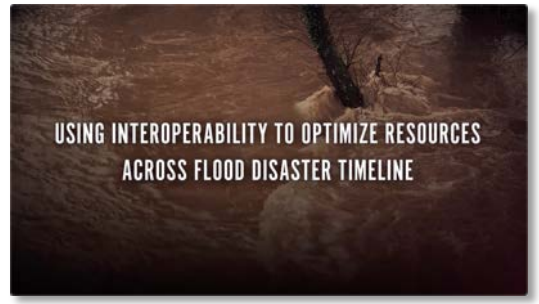
OGC DRR Pilot Outcomes

2019–2020 OGC DRR Pilot Demonstrations

FGDC.GOV FEDERAL GEOGRAPHIC DATA COMMITTEE



Pilot demonstrations available on YouTube



2020–2021 Activities

https://www.fgdc.gov/initiatives/disaster-risk-resilience

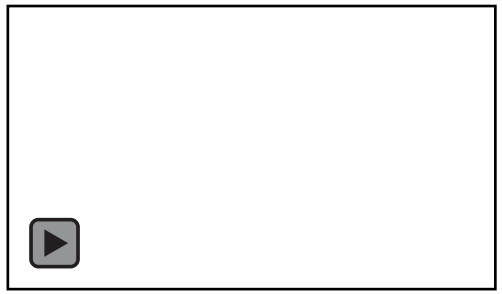
DROUGHT FIRE FLOODS LANDSLIDES HURRICANES PANDEMIC EARTHQUAKE

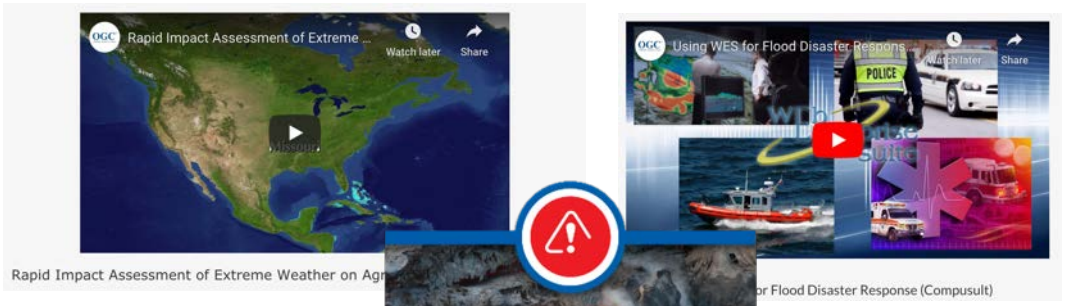
OGC Disaster Pilots Outcome Example

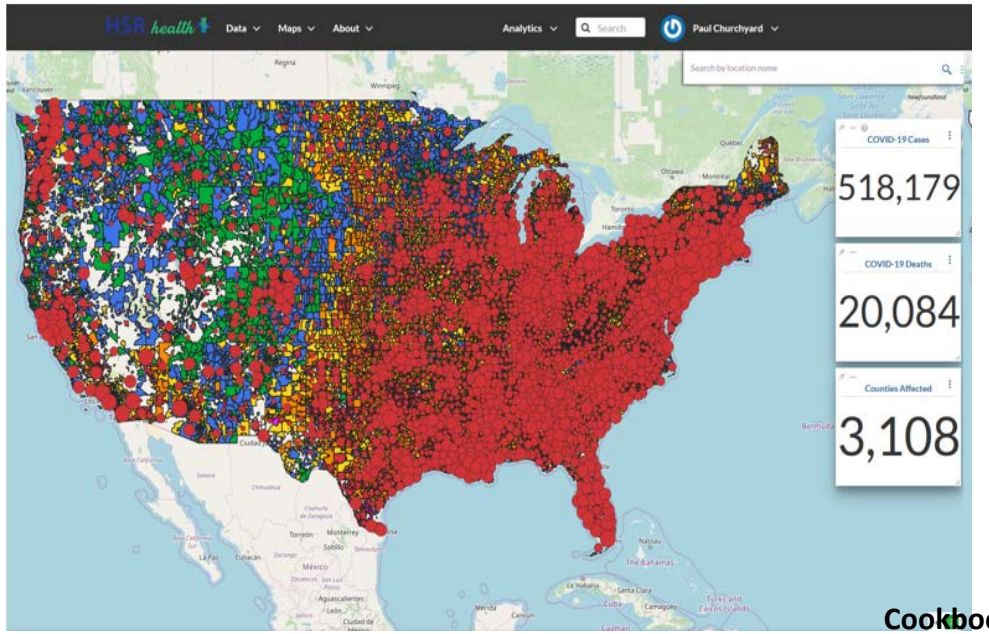
OPEN GEOSPATIAL CONSORTIUM

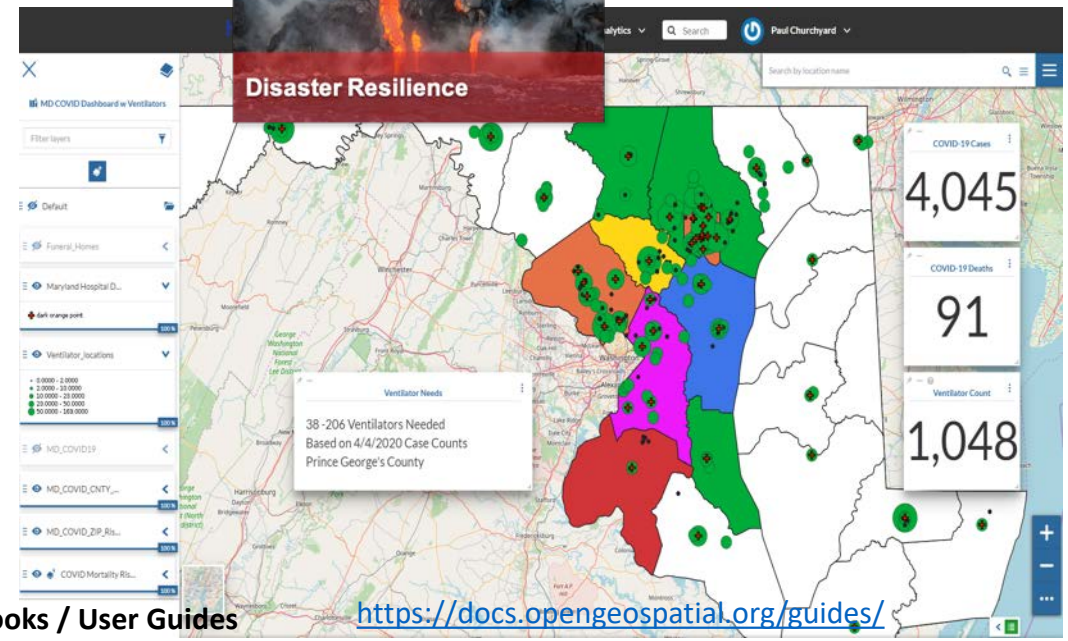
OGC Disaster Pilot:

Integration of state-of-the-art technologies for multi-hazard analysis and disaster response









Sample Deliverables

https://www.youtube.com/playlist?list=PLQsQNjNIDU84zs69bNX__QfZZCTHbq5YN

Cookbooks / User Guides https://docs.opengeospatial.org/guides/

Health Spatial Data Infrastructure http://docs.opengeospatial.org/wp/19-076.html

Key areas of application

5 Use Case Development and Demonstrations

1 INDICATORS

- HEALTH RISK
- ECONOMIC RISK
- ENVIRONMENTAL DAMAGE
- PROPERTY DAMAGE
- INFRASTRUCTURE
- PUBLIC AND COMMERCIAL SERVICES

2 DATA – Integrate a variety of Interdisciplinary

- SOCIAL
- ECONOMIC
- ENVIRONMENTAL
- ANALYSIS READY DATA
- ANALYSIS READY
- REAL TIME & TIME SERIES

3 STANDARDS –Test and integrate a variety of standards

- OPEN PROCESSING AND GEOSMS
- GEOPACKAGE
- ROUTING API
- SENSOR THINGS API
- VECTOR TILES
- OGC API

6 DELIVERABLES

- Workshops
- Use Cases
- Products | Services
- Data Model
- Standards Recommendations
- Assessment Report
- Cookbooks/User Guides
- Best Practices
- Lessons Learned

4 TECHNOLOGY–Integrate a variety of architectures, technology's, models, applications

- Cloud Optimized Computing
- Artificial Intelligence
- Internet of Things
- Machine Learning
- Blockchain technologies
- Mobile Devices

Addressing Gaps, Barriers and User Needs

HEALTH RISK | ECONOMIC RISK | ENVIRONMENTAL DAMAGE | PROPERTY DAMAGE | INFRASTRUCTURE | PUBLIC AND COMMERCIAL SERVICES

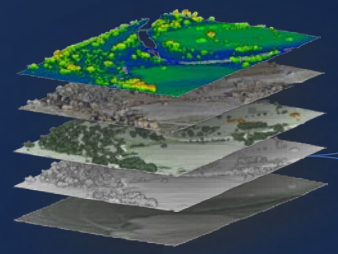
SAMPLE INDICATORS

Key Goals and Objectives

- Improve Awareness, Discovery & Access
- Analysis Ready Data
- Optimize GeoServices
- Decision Ready Products, Tools and Services

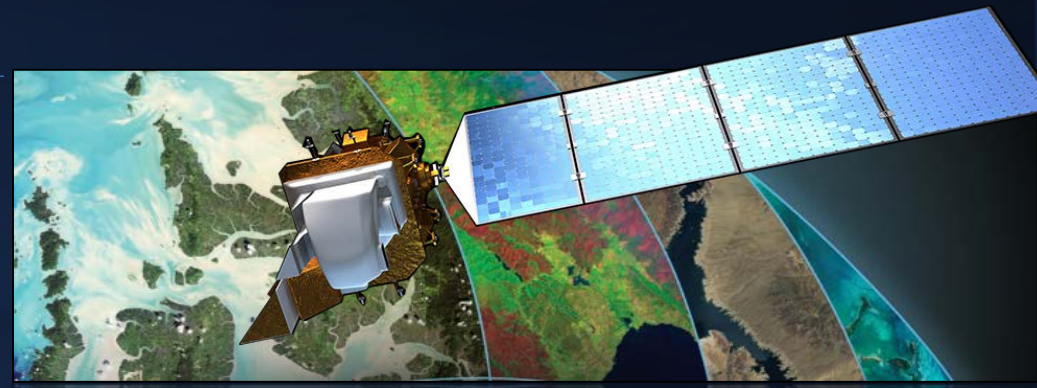
Addressing User Gaps and User Needs - DATA

DATA – Level 0 to "Analysis Ready"
Connecting a global ecosystem of data

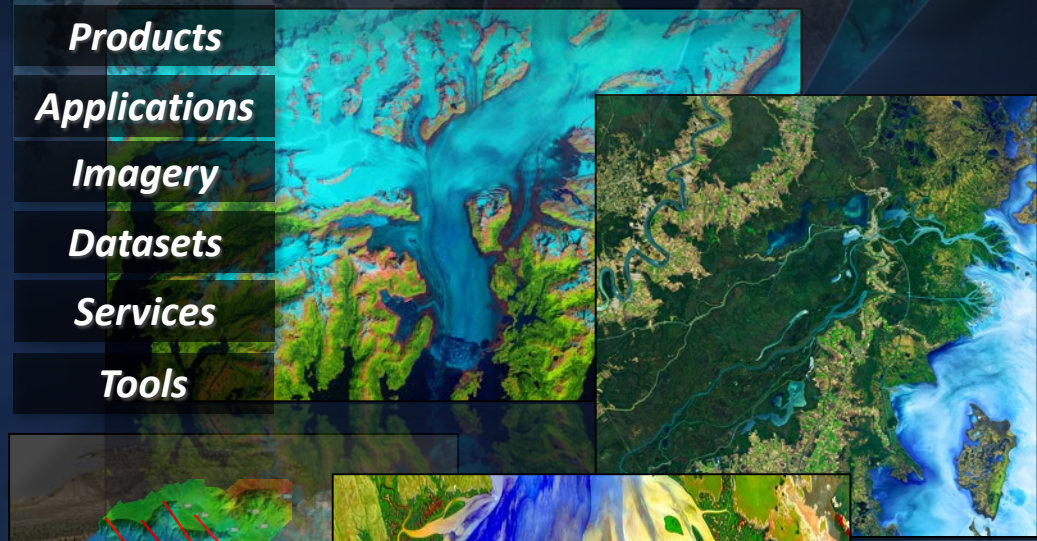


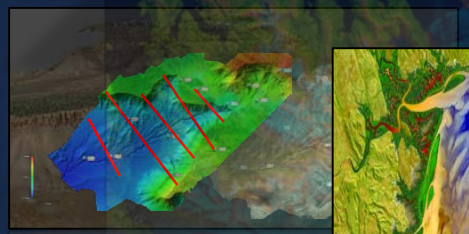
DATA – Integrate a variety of Interdisciplinary

SOCIAL | ECONOMIC | ENVIRONMENTAL | ANALYSIS READY DATA | DECISIION READY | REAL TIME & TIME SERIES



Products
Applications
Imagery
Datasets
Services
Tools





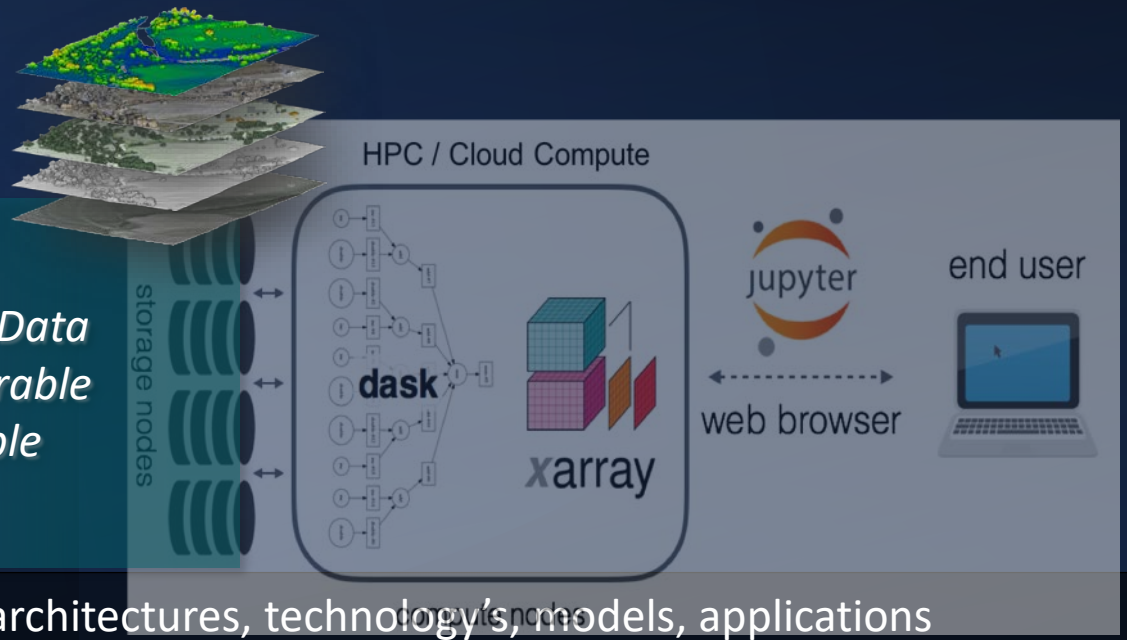
Addressing User Needs – GeoScience Services

Example: Leveraging EO Platforms such as PanGEO to accelerate synthesis and anlysis

PANGEO

Standards Compliant Data

- *Discoverable*
- *Accessible*
- *Usable*

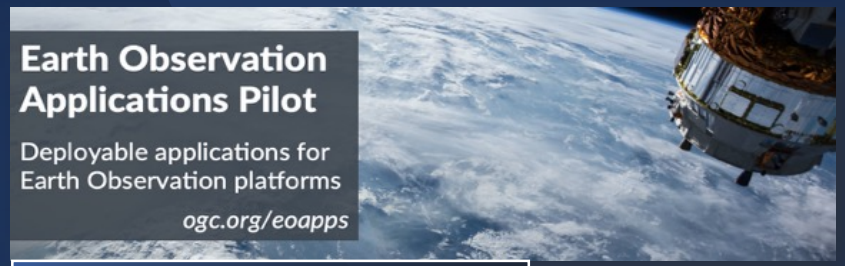


4 TECHNOLOGY–Integrate a variety of architectures, technology's, models, applications

- Cloud Optimized Computing
- Artificial Intelligence
- Internet of Things
- Machine Learning
- Blockchain technologies
- Mobile Devices

Current Status of Activities

To participate in the pilot contact:
Joshua Lieberman jlieberman@ogc.org



Interviews & Analysis
Currently Underway

To participate in the pilot contact:
Joshua Lieberman jlieberman@ogc.org

Request for Information	Interviews & Analysis
6 January – February 12, 2021	Currently Underway

https://www.ogc.org/pressroom/pressreleases/4378

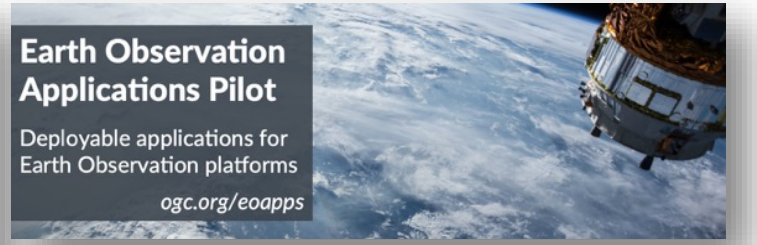
OPEN GEOSPATIAL CONSORTIUM

OGC Disaster Pilot:
Integration of state-of-the-art technologies for multi-hazard analysis and disaster response

Call for Participation	Scenario Planning & Development
18 December 2020	Currently Underway

DROUGHT FIRE FLOODS LANDSLIDES HURRICANES PANDEMIC EARTHQUAKES

https://www.ogc.org/pressroom/pressreleases/4374



Thank you!

Additional Information and Contacts

FGDC Initiative Website:
https://www.fgdc.gov/initiatives/disaster-risk-resilience

For questions on current activities:
Rich Frazier efrazier@fgdc.gov

To participate in the pilot contact:
Joshua Lieberman jlieberman@ogc.org