Disaster Risk Reduction
Advancing the use of Geospatial Data and Services for DRR

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Geospatial services for resilient communities
Presentation Agenda

- Background Information
- Community Engagement
- Addressing Gaps, Barriers and User Needs
- Pilots and Prototypes
- Next Steps
The number of disaster events have increased substantially over the past 50 years.

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

- Anomaly: +0.98°C
- Rank: 2nd
- Trend: +0.08°C per Decade

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International Disaster Risk Reduction Working Group

- Strengthen Partnerships
- Outreach & Education
- Address Needs & Gaps
- Usability Pilots
Background Information

National Efforts

Example Global Efforts

SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION

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

FGDC.gov

Geospatial Concept of Operations (GeoCONOPS)

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International Disaster Risk Reduction Working Group
NSDI Vision: Empowering a geo-enabled Nation and world for place-based decision making.

<table>
<thead>
<tr>
<th>Strategic Goals, Objectives and Activities</th>
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<tr>
<td><strong>Strengthen Partnerships</strong></td>
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<tr>
<td>Increase and strengthen current partnerships and expand partnerships with additional stakeholders</td>
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<td><strong>Outreach &amp; Education</strong></td>
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<td>Create awareness of the data and services stakeholders provides to support disaster preparedness/resilience</td>
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<td><strong>Address Needs &amp; Gaps</strong></td>
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<td>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</td>
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<td><strong>Usability Pilots</strong></td>
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<td>Engage a broad community of users through interviews, workshops and pilots to use stakeholder data and services and provide stakeholder feedback on additional needs</td>
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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
Over the past 4 years engaged the community to work together to address and remove barriers.
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
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?
Overview of the Disaster Risk Resilience Initiative

The FGDC is partnering with the Open Geospatial Consortium (OGC) to advance the use of geospatial services for disasters. Geospatial information has been proven effective in supporting both the understanding of and response to disasters. However, the ability to effectively share, use, and reuse geospatial information and applications across and between governments and nongovernmental organizations in support of disaster response and resilience is dependent upon having the required partnerships, policies, standards, architecture, and technologies already in place when disaster strikes.

Geospatial Data and Technology for Preparedness, Response, and Recovery
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=PLQsQNjIDU8zs69bNX__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**

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

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

5. **Use Case Development and Demonstrations**

6. **DELIVERABLES**
   - Workshops
   - Use Cases
   - Products | Services
   - Data Model
   - Standards Recommendations
   - Assessment Report
   - Cookbooks/User Guides
   - Best Practices
   - Lessons Learned
Addressing Gaps, Barriers and User Needs

Key Goals and Objectives

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

SAMPLE INDICATORS

- Health Risk
- Economic Risk
- Environmental Damage
- Property Damage
- Infrastructure
- Public and Commercial Services

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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

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

PRODUCTS
Applications
Imagery
Datasets
Services
Tools

DATA – Integrate a variety of Interdisciplinary

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

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Addressing User Needs – GeoScience Services

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

TECHNOLOGY–Integrate a variety of architectures, technologies, models, applications

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

<table>
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<tr>
<th>OGC Disaster Pilot:</th>
<th>Interviews &amp; Analysis</th>
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<tr>
<td>Integration of state-of-the-art technologies for multi-hazard analysis and disaster response</td>
<td>Currently Underway</td>
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</tbody>
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| To participate in the pilot contact: | 
| Joshua Lieberman | jlieberman@ogc.org |

| Earth Observation Applications Pilot | 
| Deployable applications for Earth Observation platforms | 
| ogc.org/eoapps |

| Interviews & Analysis | 
| Currently Underway |

| Call for Participation | 
| 18 December 2020 |

| Scenario Planning & Development | 
| Currently Underway |

| DROUGHT | FIRE |
| FLOODS | LANDSLIDES | HURRICANES | PANDEMIC | EARTHQUAKES |

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

Health Spatial Data Infrastructure
Empowering Healthcare with Findable, Accessible Interoperable and Reusable (FAIR) Location Information

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

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

17 December 2020

6 January – February 12, 2021

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Joshua Lieberman jlieberman@ogc.org

https://www.ogc.org/pressroom/pressreleases/4374
Earth Observation Applications Pilot
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Empowering Healthcare with Findable, Accessible Interoperable and Reusable (FAIR) Location Information

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

Thank you!