Geo-Information, the key to Prevention, Planning & Response

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Addressing challenges that affect all in our planet

- Land Sustainability
- Food Sustainability
- Water Sustainability
- Natural Resources Sustainability
- Environment Monitoring/Compliance

How can we address the basic needs of all inhabitants for water, food, energy and materials in a sustainable way?

- Human Rights
- National Security

How can we protect human rights and prevent war?

- Infrastructure Development
- Location-Based Services and Utilities

How can we improve overall quality of life for everyone?
Global Natural Disasters

Chart 1
Calamity strikes
The frequency of natural disasters across the globe has increased steadily since 1960, dipping only in the past decade.

(number of disasters)

Sources: EM-DAT International Disaster Database; and IMF staff calculations.

Chart 2
Hardest hit
Disasters affect more people in developing countries than in high-income countries.

(average people affected per year, percent of population)

Sources: EM-DAT International Disaster Database; and authors’ calculations.
DigitalGlobe high performance satellites capacity can address many global missions simultaneously.

<table>
<thead>
<tr>
<th>Target Areas</th>
<th>Percent Land Area</th>
<th>Group Area (sqkm)</th>
<th>Recovery Rate</th>
<th>Applied Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Group Percent</td>
<td>Annual Area</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Image Ops</td>
<td>(sqkm)</td>
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<td></td>
<td>Image Window</td>
<td></td>
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<tr>
<td>Global Land Use Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Areas</td>
<td>1.50%</td>
<td>2,224,500</td>
<td>100%</td>
<td>115,674,000</td>
</tr>
<tr>
<td>LOC Corridors</td>
<td>3.00%</td>
<td>4,449,000</td>
<td>100%</td>
<td>231,348,000</td>
</tr>
<tr>
<td>Arable Land</td>
<td>13.13%</td>
<td>19,471,790</td>
<td>50%</td>
<td>778,871,600</td>
</tr>
<tr>
<td>Permanent Crops</td>
<td>4.71%</td>
<td>6,984,930</td>
<td>50%</td>
<td>279,397,200</td>
</tr>
<tr>
<td>Permanent Pastures</td>
<td>26.00%</td>
<td>38,558,000</td>
<td>100%</td>
<td>77,116,000</td>
</tr>
<tr>
<td>Forests</td>
<td>32.00%</td>
<td>47,456,000</td>
<td>100%</td>
<td>94,912,000</td>
</tr>
<tr>
<td>Other (e.g., barren)</td>
<td>9.95%</td>
<td>14,755,850</td>
<td>100%</td>
<td>14,755,850</td>
</tr>
<tr>
<td>Antarctica</td>
<td>9.71%</td>
<td>14,399,930</td>
<td>100%</td>
<td>14,399,930</td>
</tr>
<tr>
<td>Total Land Area</td>
<td>100.00%</td>
<td>148,300,000</td>
<td></td>
<td>1,606,474,580</td>
</tr>
</tbody>
</table>
We can process and see the world every day
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Feature Extraction – Railways
Feature Extraction – Rivers & Lakes
Feature Extraction – Airport
Feature Extraction - Roads
Feature Extraction – Man Made Buildings
Identify Watershed Boundary & Stream Network
Understand Direction & Flow
Track the Flood Plain over time

42m standard river height

2m raise in the water level from normal

From normal flow, 8m raise in the water level from normal
Standards: Data is structured based on NGA’s 13 core themes of Human Geography

**Human Geography**

- Religion
- Ethnicity
- Medical Groups
- Communication
- Demographics
- Significant events
- Transportation
- Education
- Economy
- Language
- Land
- Water

**Human foot print**

- **Communication**: TV, radio, telephony, cellular coverage
- **Demographics**: National / regional / local level statistics
- **Transportation**: Roads, railways, airports, bus networks and schedules
- **Economy**: GDP/GNP, labor market
- **Significant events**: HADR
- **Education**: Rates/levels of education and literacy, schools, enrollment
- **Religion**: Faith-based places of worship (churches, mosques, temples)
- **Ethnicity**: Racial composition, tribal and clan groups, alliances and rivals
- **Medical/Health**: Facilities, conditions, basic needs index, nutrition levels
- **Groups**: Civil, political, ideological
- **Language**: Coincides with ethnicity and groups, language
- **Land**: Use, cover, ownership
- **Water**: Hydrology layers, watershed, seasonal fluctuations
Human Landscape Capability: Image Chip
The Unexpected
Gulf of Mexico Oil Spill
DigitalGlobe Enables Actionable Insight

Physical geography, human geography & spatial event data

Expertise, tradecraft & tools

Geospatial insight
Crowdsourced Image Annotation

**Problem:** Exploiting mountains of imagery (DG collects 3,000,000 km² every day!)

**Solution:** FAST Image insight through crowdsourcing

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**CrowdRank™**

Key features
Leveraging the Crowd

- 7M+ Participants
- 850,000 sign ups with emails
- 800 Million Map views
- 200,000+ km² of imagery
- New imagery added daily
- Every pixel viewed by human eyes at least 50 times
- Over 6.7 million features have been tagged in the imagery by the crowd
- Aircraft at low altitudes can only cover 30km² in 8 hours
...Into This Damage Map, In an Hour
DigitalGlobe Pattern Analysis Workflow

Our methodology statistically characterizes the environment where past actions took place ...

... and then identifies statistically similar places where the likelihood is highest for future actions to occur.