
1. What is ecityrisk's Disaster Response Data Service?

The foundation of eCityRisk Disaster Response Data Service is 'Visual Business Intelligence' for a range of catastrophe risks including hurricane, earthquake, wildfire flood and storm surge, which enables re/insurers and financial service companies to directly assess post-event damage to P&C portfolios and high-value facilities, and produce an independent ground-up loss calculation.

In the aftermath of recent events, re/insurers have placed their trust in the ability of catastrophe models to compute market share and ground-up losses, only to find that these initial estimates were extremely inaccurate. To independently verify initial losses obtained from cat models and claims intelligence, the industry's most progressive risk managers are now incorporating visual intel into the initial phase of intelligence gathering and internal response planning, together with board level discussion prior to going public.

2. What is Visual Business Intelligence (VBI)?

'Visual Business Intelligence' or visual intel describes a class of post-disaster response images that depict damage, together with extracted information such as flood boundaries and surge impact areas. Using high-resolution aerial and satellite reconnaissance images captured in near-real time after the event, visual intel provides companies with an objective visual assessment of the real-world situation. Features of visual intel include:



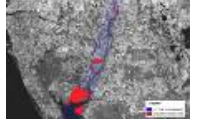
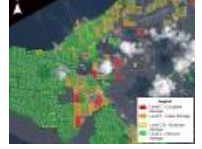
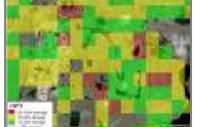

- **Real-world damage:** Records the actual damage state (rather than modeled) of insured properties, high-value facilities, commercial, industrial and offshore structures.
- **Accurate:** Provides an accurate and detailed record of the in-field situation in the immediate aftermath of the event.
- **Rapid:** Is collected in near real-time, within hours, or at most days of the event striking. The time window for aerial imagery is typically 24-72 hours, and for satellite collection is typically 1-4 days although this is constantly improving as the global constellation of high-resolution sensors expands.
- **GIS compatible:** Is provided in a Google Earth or GIS compatible framework and may be viewed or compared with other spatial data.



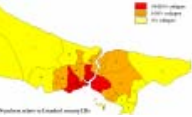


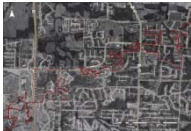
Remote sensing and GIS are the building blocks underlying ecityrisk's response data services. Remotely sensed data, including satellite and airborne imagery, records the damage states of buildings, infrastructure, and critical lifelines after the disaster. It also captures the impact area for events including flood and storm surge. Combined with 'before' imagery from Google Earth or Virtual Earth and GIS analysis, this offers a powerful tool for estimating post-disaster damage, as the input to a visual intel-based (oppose to model-based) ground-up loss calculation.

eCityRisk's Response Data services provide the following data options:

- **Images recording damage** (aerial, satellite)
- **Impact area footprints** (for example, flood boundary, storm surge inundation zone)
- **Zonations by damage level** (e.g. zip code) and **damage state maps**

3. Technical specifications for Visual Business Intelligence disaster response data

HAZARD	SERVICES	DESCRIPTION	SPECIFICATION	ATTRIBUTE
MOST PERILS	1. eCityRisk Field Reconnaissance Service 	<p>High-resolution imagery of damage to commercial and high-value facilities such as refineries. Records property damage due to wind, surge, wildfire etc, and hazard extent (e.g. flood boundary).</p> <p>See Field Reconnaissance Services technical document for detailed specification of imagery options. You can download the document at: http://ecityrisk.com/pdf/technical%20guide_Fiel d%20Recon%20Services_final.pdf</p>	<p>Aerial and ground-based imagery</p> <p>Delivery 24-72 hours after the event</p>	<p>Georeferenced imagery for User-specified facilities or areas, provided according to User-defined projection and datum</p>
	2. eCityRisk Visual Intelligence Image Acquisition Service 	<p>Custom tasking and data archive sourcing service spanning major commercial satellite (e.g. DigitalGlobe, MDA, Geoeye) and aerial data providers. As an established data intermediary, we receive preferential delivery and can often offer discounted rates.</p> <p>Data specifications are available from third party data provider websites, see: www.ecityrisk.com/useful_links/</p>	<p>Aerial imagery Optical satellite imagery Radar satellite imagery</p> <p>Delivery 24 hours -7 days after the event</p>	<p>Georeferenced imagery provided according to user-defined projection and datum</p>
HURRICANE (wind)	3. Impacted urban area 	<p>Region-wide database and map showing the boundaries of urban areas sustaining hurricane force wind speeds.</p> <p>Rapid and independent estimate of impact area, developed using first available NOAA wind data.</p>	<p>GIS polygon, SHP, KML Accuracy: ~ 75%</p> <p>Delivery time: 1-2 days of event</p>	<p>PolygonID, Areatype, Area, Comment</p>
	4. Wind damage by severity zone 	<p>Classified zones with GIS boundaries around complete, major, moderate, minor/ no damage in populated areas.</p> <p>Developed using expert interpretation of building damage.</p>	<p>GIS polygon , SHP, KML</p> <p>Available for US and other global locations.</p> <p>Accuracy: >65% (on a per neighborhood basis)</p> <p>Delivery time 1-5 days after the event</p>	<p>PolygonID, Areatype, Area, DamageState, Comment</p>
	5. % hurricane building damage by zipcode or zone 	<p>Zone-based map showing % of damaged buildings by zipcode or user-specified grids within populated areas.</p> <p>Developed using expert interpretation of building damage.</p>	<p>GIS polygon SHP, KML</p> <p>Available for US and other global locations.</p> <p>Accuracy: ~80% (on a per building basis)</p> <p>Delivery time: 2-3 days after the event</p>	<p>PolygonID, Areatype, GridArea, PercentDamage, Comment</p>
	6. Per building wind damage 	<p>Per-building map and count of damaged structures using proprietary HAZUS-compatible damage level indicators of complete, major, moderate, minor/none damage in populated areas with hurricane wind speeds.</p>	<p>GIS points SHP, KML</p> <p>Available for US and other global locations.</p> <p>Accuracy: ~80% (on a per building basis)</p> <p>Delivery time: 4-6 days after event</p>	<p>PointID, FeatureType, DamageState, Comment</p>

FLOOD & SURGE	<p>7. Flooded area and boundary</p> 	<p>Area of flood inundation and surrounding boundary. Flood extent can be timed to coincide with a particular day/date or flood maximum.</p>	<p>GIS polygon, SHP, KML</p> <p>Available across the US, throughout Europe, and for other global locations.</p> <p>Accuracy: area ~80%; boundary 90-95% with 500m and 100% within 1km</p> <p>Delivery time: 2-5 days of the event.</p>	<p>PolygonID, Areatype, Area, Comment</p>
	<p>8. Surge impact area</p> 	<p>Storm surge impact zone.</p>	<p>GIS polygon, SHP, KML</p> <p>Available across the US and for other global locations</p> <p>Accuracy: 80%</p> <p>Delivery time: 2-4 days of the event.</p>	<p>PolygonID, Areatype, Area, DamageState, Comment</p>
EARTHQUAKE	<p>9. % earthquake building damage</p> 	<p>Zone-based map classified into 50-100% collapse, 10-50% collapse, <10% collapse for areas sustaining \geqMM8.</p>	<p>GIS polygon, SHP, KML</p> <p>Available across the US and for other global locations</p> <p>Accuracy: With SPOT imagery ~65%; accuracy with high-resolution optical imagery >75%</p> <p>Delivery time: 3-4 days of the event.</p>	<p>PolygonID, Areatype, Area, DamageState, Comment</p>
WILDFIRE	<p>10. Fire Extent</p> 	<p>Boundary defining extent of fire burn perimeter at a given time.</p>	<p>GIS polygon, SHP, KML</p> <p>Available across the US and for other global locations.</p> <p>Accuracy: Area to the nearest 0.5km.</p> <p>Delivery time: 2-5 days of the event.</p>	<p>PolygonID, Areatype, Area, Comment</p>
	<p>11. Per building wildfire damage</p> 	<p>Per-building map and count of destroyed structures.</p>	<p>GIS points SHP, KML</p> <p>Available for US and other global locations.</p> <p>Accuracy: ~80% (on a per building basis)</p> <p>Delivery time: 4-6 days after event</p>	<p>PointID, FeatureType, DamageState, Comment</p>
TORNADO	<p>12. Impacted urban area</p> 	<p>Tornado swath showing where tornado winds made landfall for actual events.</p>	<p>GIS polygon, SHP, KML</p> <p>Available throughout the US, or within selected states.</p> <p>Accuracy: Actual damage swath identified from in-field assessment.</p> <p>Delivery time: 1-4 days of event</p>	<p>PolygonID, Areatype, Area, Comment</p>

4. Contact us

If you want guidance on sourcing our response data services and Visual Business Intelligence in general, consider eCityRisk. Reach us via e-mail at sg@ecityrisk.com or mjh@ecityrisk.com. The following services are available:

Visual Business Intelligence (VBI) and Data Acquisition Service: We handle all aspects of data collection for independent post-disaster damage assessment and ground-up loss calculations. We cover a range of perils including flood, earthquake, hurricane wind, storm surge and tsunami, tornado and wildfire. For further information, please download our brochure at http://ecityrisk.com/pdf/ecityrisk_brochure.pdf

Consulting and in-house support: Our visual business intelligence experts can provide your organization with training or on-the-ground support to help you with your response activities. Call us at 020 8123 9864 (UK) or 562 628 1675 x228 (US).