

Jamaica's Susceptibility to Hazards

- Hurricanes
- Flooding (coastal & riverine),
- Landslide
- Drought
- Earthquakes



Jamaica's Susceptibility to Hazards

Overview of Climate Related Risk (10yr period) in Jamaica

Nature of Event	Year	Cost of Damage (JA\$)	# Roads Affected	# Communities Affected	Casualties
<i>Tropical Depression Nicole</i>	2010	20,573,500.00	189	130	48
<i>Tropical Storm Gustav</i>	2008	15,051,000,000.00	151	76	12
<i>Hurricane Dean</i>	2007	23,000,000,000.00	269	169	4
<i>Port Maria Rains</i>	2006	48,862,500.00	9	24	-
<i>November Rains</i>	2006	533,200,108.00	17	93	-
<i>Hurricane Emily & Dennis</i>	2005	5,976,910,000.00	14	15	1
<i>Hurricane Wilma</i>	2005	3,419,202,845.40	90	106	1
<i>Hurricane Ivan</i>	2004	35,900,000,000.00	111	177	17
<i>Hurricane Charlie</i>	2004	248,912,460.00	-	-	1
<i>May – June Rains</i>	2003	203,347,750.00	-	27	-
<i>Tropical Storm Lili & Isidore</i>	2002	840,394,883.00	-	185	0
TOTAL		85,242,404,046.40	850	1002	84

Factors Contributing to Jamaica's Susceptibility to Hazards

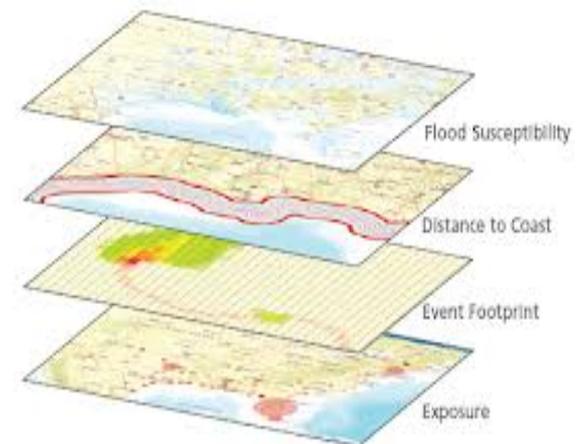
- Improper Land Use for Urban Areas
- Lack of adherence to building codes
- Squatting (~754 informal communities scattered across the island, comprising 0.6 -0.9 million people (25% to 33% of the population) - Ministry of Housing Survey 2008
- Development in high-risk areas (along gully courses, on steep hillsides, and on road and railway line reserves).
- Environmental degradation.



Hazard and Risk Management Geospatial Data Requirements

Categories	Geospatial Data
Physical Infrastructure	Roads, Telecommunication, Electricity, Building Foot Prints
Socio economic	Distribution of settlements, demographic and socio-economic data (population distribution by age, sex, income, education)
Administrative Boundaries	Communities, Parishes
Cadastral	Parcel
Hazards	Landslide
Social Facilities	School, emergency shelters, evacuation locations and critical facilities)
Land use	Forestry Reserves, Protected Areas
Geology	
Base Map	

Integration of Datasets

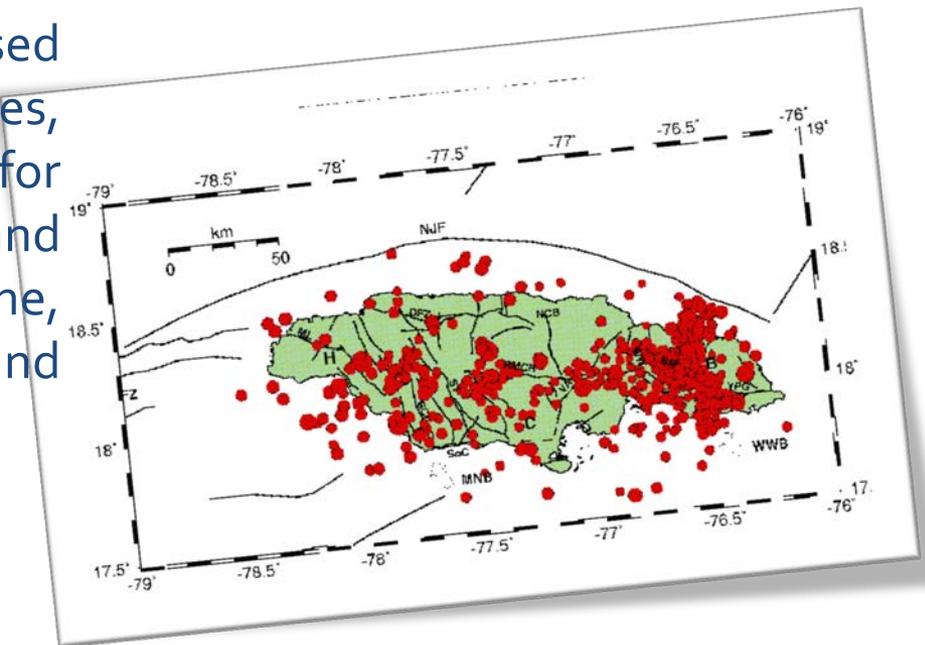


Hazard and Risk Geospatial Data Requirements - Case Study – Earthquake 1993 and 1907

Lessons Learnt : Geospatial Requirements

Need for State-of-the-art, GIS-based hazard maps dealing with landslides, earthquakes, flooding, storm surge for following urban areas Kingston and St.Andrew, Clarendon and St.Catherine, South Coast of Jamaica, Portland, and Montego Bay areas

(Source: Rafi Ahmad , ****)



Geospatial Data - Case Study : Annotto Bay Urban Area Hazard Assessment

Objective: Multi hazard Risk assessment for the Annotto Bay .

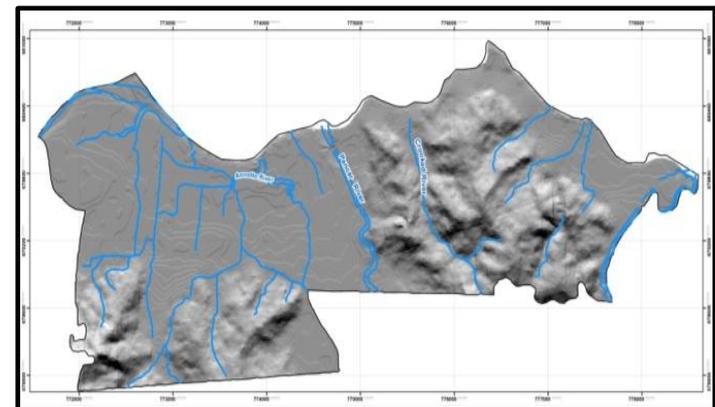
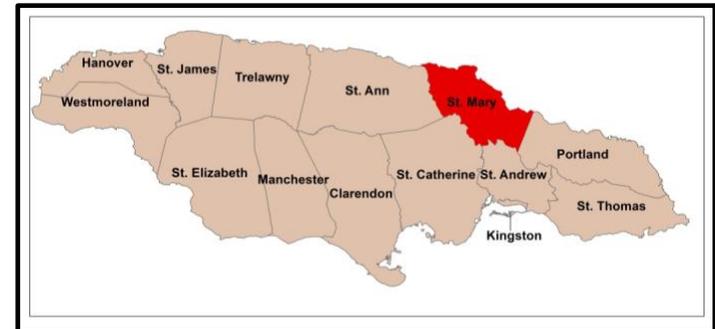
Output:

- Development/update land use plans based on risk assessments
- Using plans to prevent/control development in risk areas
- Prescribing restrictions on building type, use, occupancy and density in high risk areas.
- Population vulnerability

Geospatial Data - Case Study : Annotto Bay Urban Area Hazard Assessment

Annotto Bay, St. Mary

- Coastal town located on Jamaica's NE coast
- Low lying – elevations of 1-3m above sea level
- Community is traversed by 4 rivers- Annotto, Pencar, Mother Ford Drain, Crooked Rivers.



Geospatial Data Management Requirements - Case Study : Annotto Bay Urban Area Hazard Assessment

Geospatial Data Requirements/Input- Hazard Assessment

- 1632 assets mapped.
- The following attributes were described:
 - ✓ Land use
 - ✓ # of floors
 - ✓ Material of construction
 - ✓ Replacement cost for buildings
 - ✓ Finished floor level

The screenshot shows the ArcMap interface for a project titled 'Vulnerability_Assess - ArcMap - ArcInfo'. The map displays an aerial view of a coastal area with numerous purple points representing mapped assets. The Table of Contents on the left lists various layers, including 'Building Inventory' which is currently selected. Below the map, a data table is visible, showing the following columns: FID, Shape*, Asset_name, Material_T, Bldg_Type, Land_Use, Floors, Hazard, Rcvr_Type, GPS_Date, GNSS_Heigh, Northing, and Easting. The table contains 8 rows of data, with the first row being a header and the subsequent rows representing individual asset records.

FID	Shape*	Asset_name	Material_T	Bldg_Type	Land_Use	Floors	Hazard	Rcvr_Type	GPS_Date	GNSS_Heigh	Northing	Easting
0	Point ZM	St James Anglican CHURCH	Stone/Brick	Detached	PA	1 floor		Juno Series	7/10/2012	4.311	680284.736	774986.65
1	Point ZM	house	Wood	Detached	RES_SF	1 floor		Juno Series	7/10/2012	3.991	680273.133	774986.606
2	Point ZM	house	Wood	Detached	RES_SF	1 floor		Juno Series	7/10/2012	0.937	680284.47	774982.777
3	Point ZM	house and shop	Wood/Conc	Semi_Detached	RES_COM	1 floor		Juno Series	7/10/2012	2.71	680247.523	774981.754
4	Point ZM	shop	Conc/Block	Detached	RES_COM	1 floor		Juno Series	7/10/2012	0.383	680231.14	774985.338
5	Point ZM	house	Conc/Block	Detached	RES_SF	2 floors		Juno Series	7/10/2012	2.448	680209.83	774971.547
6	Point ZM	house	Wood	Detached	RES_SF	1 floor		Juno Series	7/10/2012	3.463	680197.808	774953.247
7	Point ZM	house	Conc/Block	Detached	RES_SF	1 floor		Juno Series	7/10/2012	5.157	680194.128	774938.723
8	Point ZM	house	Conc/Block	Detached	RES_SF	2 floors		Juno Series	7/10/2012	0.195	680297.649	775001.219

Geospatial Data Management Requirements - Case Study : Annotto Bay Urban Area Hazard Assessment

