



VIII International Symposium for Latin American Experts
September 3-6, Rio de Janeiro, Brazil

GEOSPATIAL DATA for Intelligent Solutions in Public Health

Naphtali Rishe

Carlos Espinal, Tajana Lucic, Yelena Yesha, Yaacov Yesha
Kalai Mathee, Aileen Marty

NSF Industry-University Cooperative Research Centers
and Industrial Member Consortium





VIII International Symposium for Latin American Experts
September 3-6, Rio de Janeiro, Brazil

Terra Fly





Advanced Center for Innovative Solutions for Tropical and Emerging Infectious Diseases (ACISTED)





High Performance Database Research Center

Expertise:

- Data visualization
- Spatial databases
- Aggregation of heterogeneous databases
- Database design methodologies
- Information analysis
- GIS
- Location Data



Director: Dr. Naphtali David Rische

The Inaugural Outstanding University Professor of FIU

Awards: \$40M, Patents: 4, Books: 4, Papers: 250



TerraFly

GIS Solutions Based On Geo-Spatial Research Technology

- Internet geo-visualization & spatial cloud-computing platform and service
- Data integration, amelioration, geo-referencing
- Advanced geo-spatial computing engine
- Open architecture, API provided
- 40 TB database of aerial imagery and spatial data
- Rich datasets, user-friendly geo-queries
- Customizable to domain requirements
- NASA, NSF, IBM and USGS funded technology





Web-Based

TerraFly Geo Databases at FIU sponsored by NSF, USGS, NASA, and IBM - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://terrfly.com/

TerraFly Geo Databases at FIU s...

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Photography:
Aerial Satellite

Maps:
Topo Terra Atlas

Prints:
Custom aerial Posters Photo cards

Data:
U.S. Census 2000 Demographic ring analysis Life quality

Corporate, Government:
Customize imagery overlays
Converters address -> coordinates measures
Imagery aerials satellite mosaicing TerraAtlas

Vertical

FIU, Miami, FL 33199

Navigate the map, doubleclick it to get local point-data, easily geo-query vast databases, and fly with TerraFly® Web tools, from [autopilots](#) to pro viewers. View Imagery and Data anywhere in the United States and in much of the World.

A public service of Florida International University sponsored by [NSF](#) and by [NASA](#), [USGS](#), and [IBM](#).

Open Architecture API

Engineering and Computer Science (ECS): houses the School of Computing and Information

GO ? SR 90 Main Street

SR 90 University Park 17K Perrine

2.4 Meters per Pixel 200m

Browse Advanced

Examples: USA: [Albuquerque](#) [Anchorage](#) [Atlanta](#) [Augusta](#) [Austin](#) [Baltimore](#) [Baton Rouge](#) [Bismarck](#) [Charlotte](#) [Chicago](#) [Cleveland](#) [Colorado Springs](#) [Corpus Christi](#) [Dayton](#) [Denver](#) [Detroit](#) [El Paso](#) [Fort Wayne](#) [Fresno](#) [Ft. Lauderdale](#) [Greensboro](#) [Honolulu](#) [Houston](#) [Jackson](#) [Jefferson City](#) [Knoxville](#) [Lexington](#) [Lincoln](#) [Louisville](#) [Lubbock](#) [McAllen](#) [Miami](#) [Minneapolis](#) [Mobile](#) [Modesto](#) [Montgomery](#) [Nashville](#) [Oklahoma City](#) [Orlando](#) [Palm Bay](#) [Philadelphia](#) [Pierre](#) [Pittsburgh](#) [Portland](#) [Riverside](#) [Sacramento](#) [Saint Louis](#) [San Diego](#) [San Francisco](#) [San Juan](#) [Seattle](#) [Tampa](#) [Washington](#) World: [Venice](#) [Berlin](#) [Havana](#) [Varadero](#) [Caracas](#)

Applications: **Real Estate:** [Miami](#) **AutoPilots:** [Miami Port](#) [NSF](#) [Washington](#) [Rio Grande](#) [Detroit](#) [Seattle](#) [Star Island](#) [FIU Oleta Park](#) [Spiral](#) [Authoring](#) **Historical imagery:** [Miami through Time](#) [Washington](#) [Dubai](#)

Geo-Spatial Mapping Solution

TerraAtlas Central Washington DC

Milestones

01/30/2009 - TerraFly Real Estate Engine receives RAMB award of Innovative Product of the Year.

08/01/2008 - National Science Foundation increases TerraFly research funding by \$2.5M to \$7.5M.

07/06/2007 - TerraFly covered by FOX News and NPR

02/01/2007 - TerraFly powers searches for neighborhood demographics, hotels, real estate, hospitals, clinics, dentists.

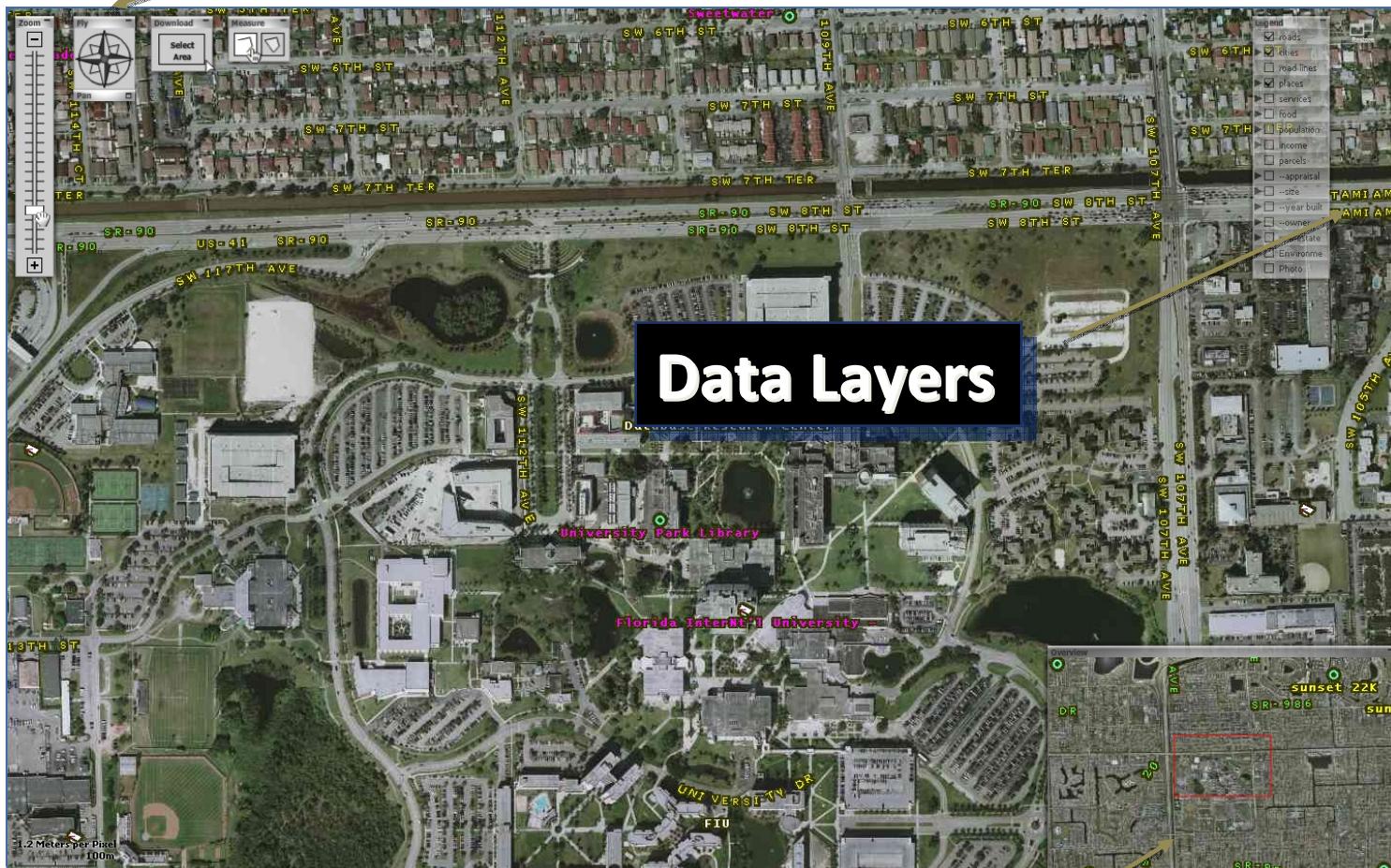
More >

Awards

DM REVIEW 2002 World Class Solution Award



Map Tools



Overview Area Map

Address Locator

Preview

Local Information

The screenshot displays three main windows from the TerraFly Geo Databases at FIU website:

- Address Locator:** Shows a map of Coral Gables, FL, with a callout for "1200 Anastasia ave Coral Gables FL". Below the map is a list of nearby facilities, restaurants, business directory entries, yellow pages, and offshore locations.
- Preview:** Shows a preview of a USGS 30CM map with TerraFly overlays. A callout highlights a specific area with the text "Watermarks. (times larger) which represents (resampled)".
- Local Information:** Shows a list of hub cities near the address: MIAMI FL, HOLLYWOOD FL, and HOMESTEAD FL.

Demographic Data

Demographic Data

11200 SW 8 ST, MIAMI, FLORIDA 33174-- TerraFly Point-Data - Info

File Edit View History Bookmarks Tools Help

11200 SW 8 ST, MIAMI, FLORIDA ...

Download Images & Data, Prints, Atlases

You can get aerial images, prints, and data reports:

width: 1000 height: 1000 meters

OR get imagery of a whole region below

Areas containing the current object (click)

Nested Areas

Florida

Miami-Fort Lauderdale, FL Metro

Miami-Dade County

Congressional District 21

South Westside division

University Park

ZIP 33174

Census Tract 89.04

Block Group 89.04.1

Maps

Physical Maps: 1 2 3 4 5 6 Map Servers: MapQuest Google Windows Local FL Maps
Fees: Aerials Prints TerraAtlas Topo-maps Posters

Streets nearby (house number is approximate)

+867' ✓
+900' ✓
+1103' ✓
+1160' ✓
MORE

10929 SW 3 ST, SWEETWATER, FL 33174-- TerraFly Point-Data - Info/Maps/Images of a Location - Mozilla Firefox

File Edit View History Bookmarks Tools Help

11200 SW 8 ST, MIAMI, FLORIDA 33174

10929 SW 3 ST, SWEETWATER, FL ...

Jump to: 11

People

Life Quality Report for Zip Code 33174

Towns and In

Click to see Quality of Life Report for zip code 33174

Life quality for Zip 33174

Income	Zip	Regional	National
Median household income, \$	44974	47186	39702
Median per capita income, \$	14440	23727	18598

Crime	Zip	Regional	National
Violent crime (10=worst)	6	7	3
Property crime (10=worst)	3	7	3

Cost of living	Zip	Regional	National
Overall cost of living (national average=100)	108.50	117.80	100

Physical Maps: 1 2 3 4 5 6 Map Servers: MapQuest Google Windows Local FL Maps
Fees: Aerials Prints TerraAtlas Topo-maps Posters

10929 SW 3 ST, SWEETWATER, FL 33174

Jump to: 11

Doral Virginia Beach Sweetwater Westchester Sunland Lakes

Nationwide Layers: US Census, Businesses, Schools, Travel, Transportation, Facilities, Healthcare, Property lines and ownership, Environment and much more

Transferring data from 131.94.133.178...

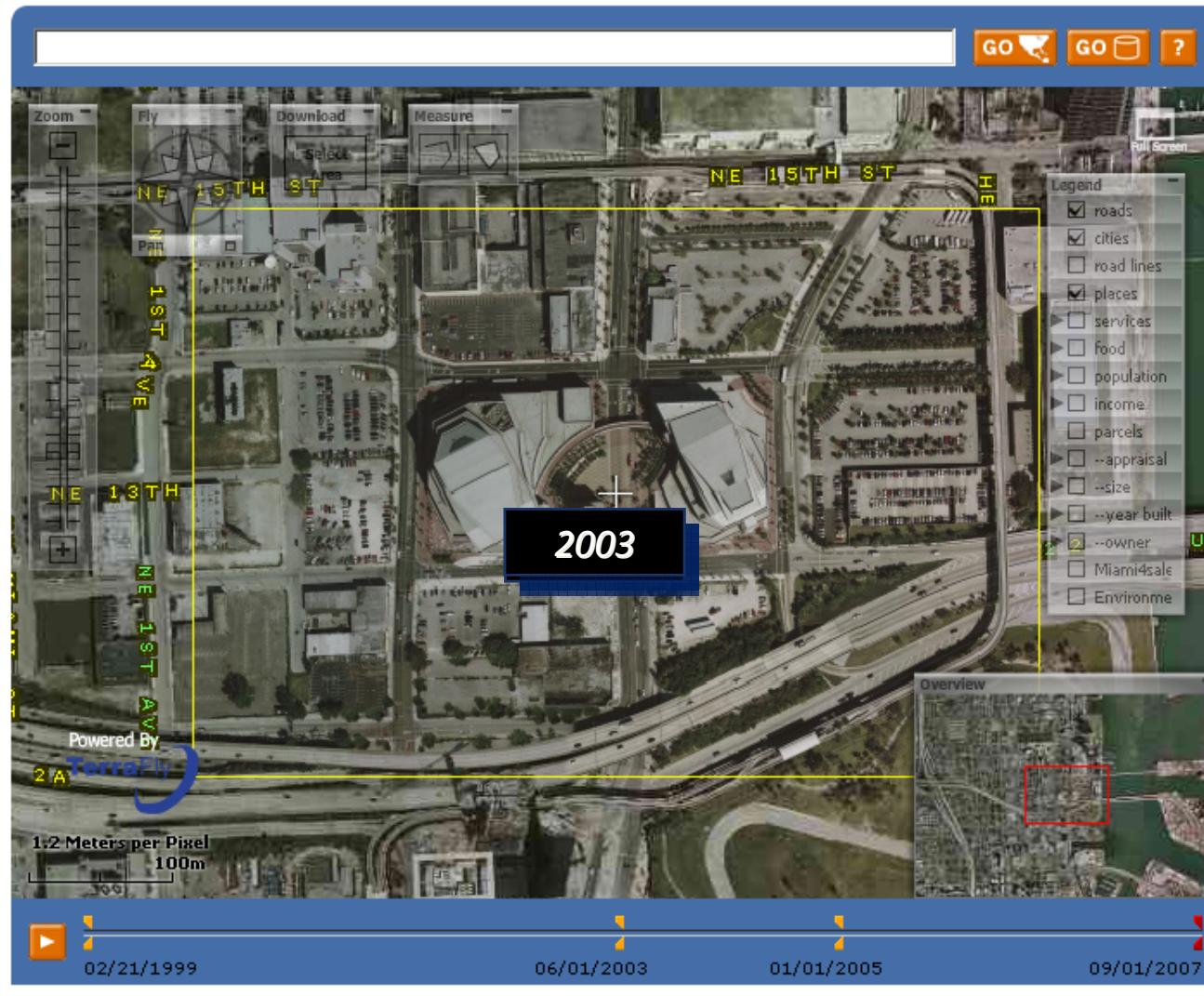
4.9740	Owned homes, %	55.11	51.39	63.40
1.6n	Vacant homes, %	3.15	12.23	14.91

http://n150.cs.fiu.edu/geodata/bstp.lq?Query=GetAreaDetails&format=html&aid=233174



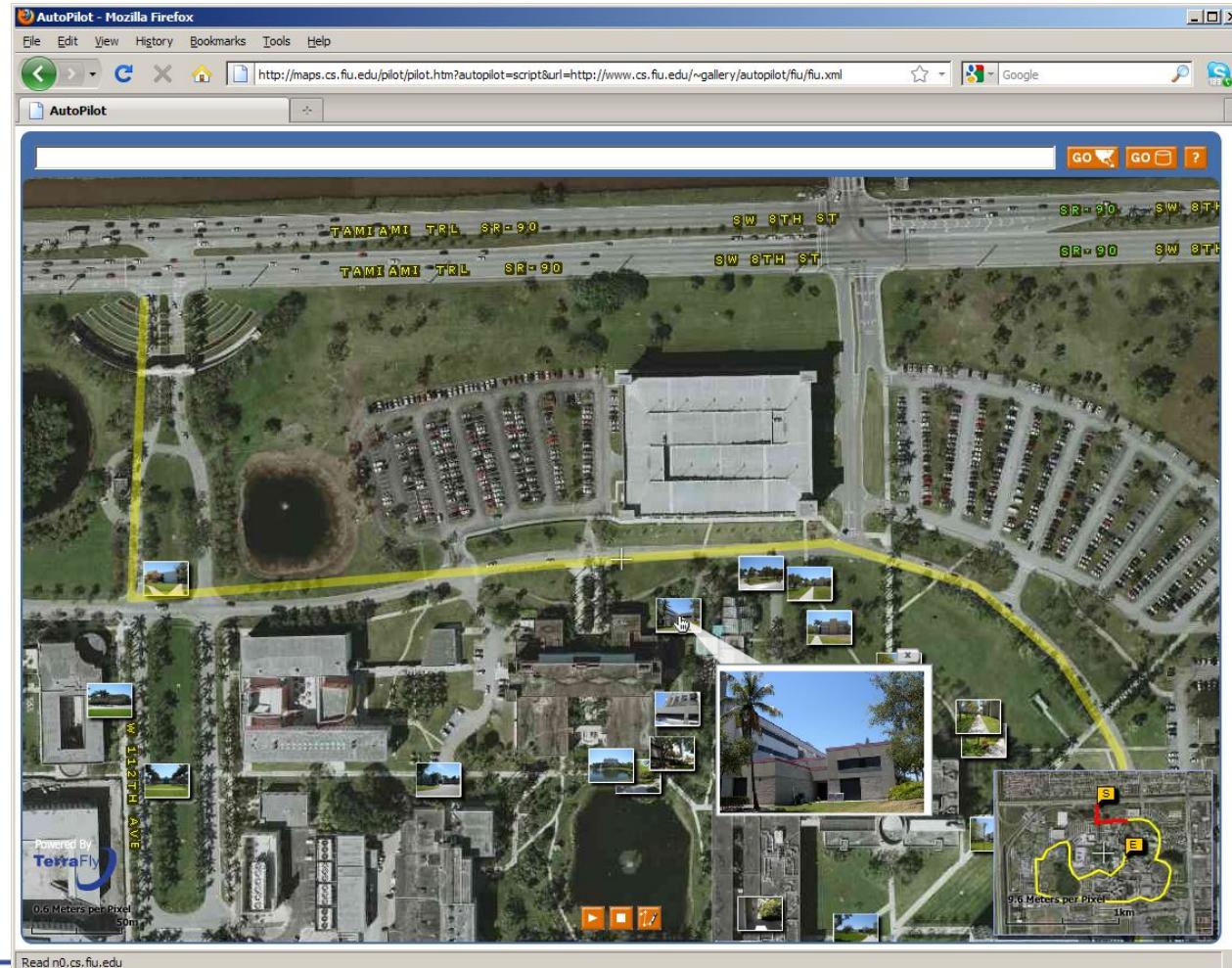


Time Series: Miami Construction





Multimedia Auto Pilot





Auto Pilot Designer

Autopilot Designer - Mozilla Firefox
File Edit View History Bookmarks Tools Help
<http://maps.cs.fiu.edu/pilot/path.aspx>

Autopilot Designer Click on Map to create the pilot path, [more help?](#)

Address: FIU, Miami, FL 33199

Path

Legend: + ZoomIn | - ZoomOut | ⏪ Audio start | S Start | E End

Animation Controls

Publish Save the published address before closing the application.

Speed(Pixel/Sec): 40 Res: 2.4384 m/px

Latitude: 25.770009 Longitude: -80.193662

Audio URL: (Only supports Mp3)

Update

Design **Source**

<ACTIONS>

```
1 <Action Type="Start" Lat="25.772777" Long="-80.200331" Level="16"/>
2 <Action Type="Move" Lat="25.771034" Long="-80.199637" Speed="40"/>
3 <Action Type="Move" Lat="25.769973" Long="-80.198915" Speed="40"/>
4 <Action Type="Move" Lat="25.768876" Long="-80.197852" Speed="40"/>
5 <Action Type="Move" Lat="25.768855" Long="-80.195956" Speed="40"/>
6 <Action Type="Move" Lat="25.769508" Long="-80.194565" Speed="40"/>
7 <Action Type="Move" Lat="25.77005" Long="-80.193102" Speed="40"/>
8 <Action Type="Move" Lat="25.770416" Long="-80.191592" Speed="40"/>
9 <Action Type="Move" Lat="25.770266" Long="-80.18931" Speed="40"/>
</ACTIONS>
```

Action Details



Your System
Your Data

TerraFly *Integration Solution*

TerraFly
system



Solutions



Water Management



Public Health



Disaster Mitigation



Public Gatherings

TerraFly



Route Planning



Education



Change Detection



Insurance



TerraFly

Customers & Partnerships



The Miami Herald H

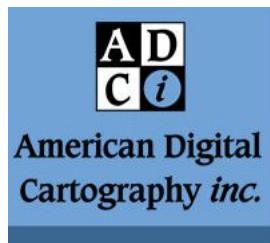


NASA

USGS
science for changing world



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National Science
Foundation - CISE



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FIU FLORIDA
INTERNATIONAL
UNIVERSITY

City of Florida City



The Great City of
OPA-LACKA Florida

VILLAGE OF
EL PORTAL

INFOWeather

Hi-TECH REAL ESTATE
MAKING CLIENTS FOR LIFE
ONLINE REAL ESTATE

VACCINOLOGY
2012

VIII International Symposium for Latin American Experts
September 3-6, Rio de Janeiro, Brazil



Operational and Analytical Health Informatics

Geospatial Analytics System for

- ◆ Targeted Vaccine Distribution
- ◆ Disease Management
- ◆ Disease Surveillance
- ◆ Vaccine Evaluation and Follow-up
- ◆ Economic, Infrastructure, and other Keystones affecting Health



Dengue Fever and Dengue Hemorrhagic Fever

- ◆ A mosquito-borne viral infection (vector disease)
- ◆ 2.5 billion at risk (> 40% of World population)
- ◆ 50–100M infections/year
- ◆ In the Americas:
 - ◆ > 1.6 million cases in 2010, 49,000 severe cases
 - ◆ All four serotypes of DENV: DEN-1, DEN-2, DEN-3, and DEN-4
- ◆ Leading cause of death among children in Asia.
 - There is **No Cure**.

Source: WHO

TerraFly® GeoQuery

Dengue

▼ Help [Download](#) [Print](#) [Email](#) [Feedback](#) 11:42:10 Aug 12 7165° [Map](#) [Satellite](#) [Hybrid](#) [More](#) [SEARCH](#)

▼ Criteria 1999-2010 Total ≥ 29

▲ Move (Change location by browsing and double-clicking the map)

La Ceja, Departamento de Antioquia, Colombia [GO](#) [GO](#) [?](#)

The map displays the following dengue case counts by municipality:

- 4412 BELLO
- 24K MEDELLIN
- 4137 ITAGUI
- 117 CALDAS
- 32 TITIRIB
- 358 AMAGA
- 56 ARMENIA
- 466 LA ESTRELLA
- 330 SABANETA
- RIONEGRO/JOSE MARI
- 34 GRANADA
- 111 SAN CARLOS
- 81 SAN LUIS
- 85 VENECIA
- 39 SANTA BARBARA
- Tarso
- Bernardo Comer

Legend:

- Visible Layers: All Layers
- Regions: NARE
- Roads
- Water
- Utilities
- Landmarks
- Hubs
- Cities
- THIS-QUERY
- Wikipedia

Overview: A smaller map showing the location of the main map within the state.

links to locations & details	Department	Municipality	1999 N	2010 N	1999 Grave	2010 Grave	1999 Total	2000 Total	2001 Total	2002 Total	2003 Total	2004 Total	2005 Total	2006 Total	2007 Total	2008 Total	2009 Total	2010 Total	1999-2010 N	1999-2010 Grave	1999-2010 Total
1: 21.1km g b more	Antioquia	ENVIGADO	13	1448	3	7	16	3	6	12	23	24	17	25	106	39	54	1455	1764	16	1780
2: 23.7km g b more	Antioquia	CALDAS	11	61			11	3		2	8	8	3	3	2	8	8	61	113	4	117

Transferring data from terranode-163.cs.fiu.edu...

GeoQuery: Dengue: Columbia Dengue Cases Statistics near La Ceja, Departamento de Antioquia, Colombia Latitude 6.07303 Longitude -75.42598 - Mozilla Firefox

TerraFly® GeoQuery

Dengue

Help Download 11:43:51 Aug 12 7165° More SEARCH

Criteria 1999-2010 Total ≥ 29 2010 Total ≥ 1300 2010 Total ≤ 1600

Move (Change location by browsing and double-clicking the map)

La Ceja, Departamento de Antioquia, Colombia

152.874 Meters per Pixel
20km

links to locations & details

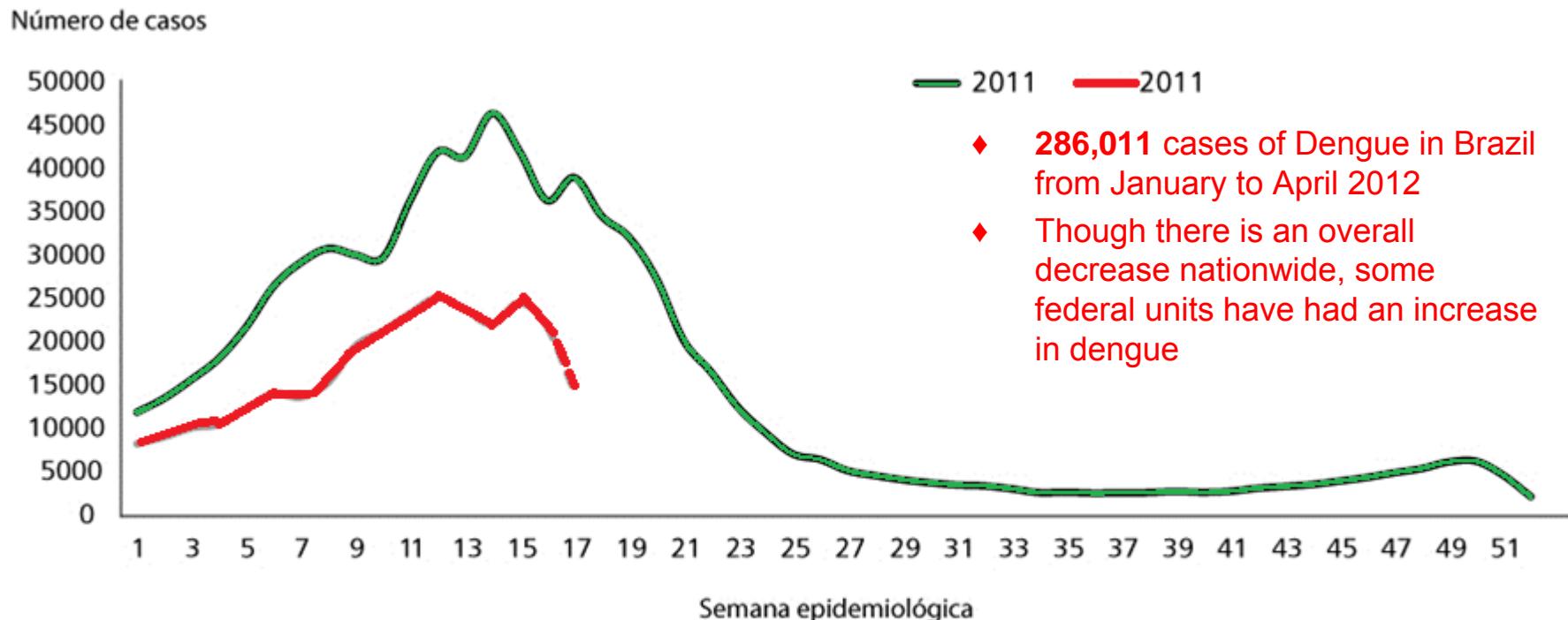
Department	Municipality	1999 N	2010 N	1999 Grave	2010 Grave	1999 Total	2000 Total	2001 Total	2002 Total	2003 Total	2004 Total	2005 Total	2006 Total	2007 Total	2008 Total	2009 Total	2010 Total	1999-2010 N	1999-2010 Grave	1999-2010 Total
Antioquia	ENVIGADO	13	1448	3	7	16	3	6	12	23	24	17	25	106	39	54	1455	1764	16	1780
Antioquia	BELLO	293	1343		19	293	38	30	301	1221	191	126	254	332	154	110	1362	4358	54	4412

Transferring data from terranode-167.cs.fiu.edu...



Dengue in Brazil 2011 and early 2012

(Brazilian Ministry of Health)



Fonte: Secretarias estaduais de saúde. Dados sujeitos a alterações.

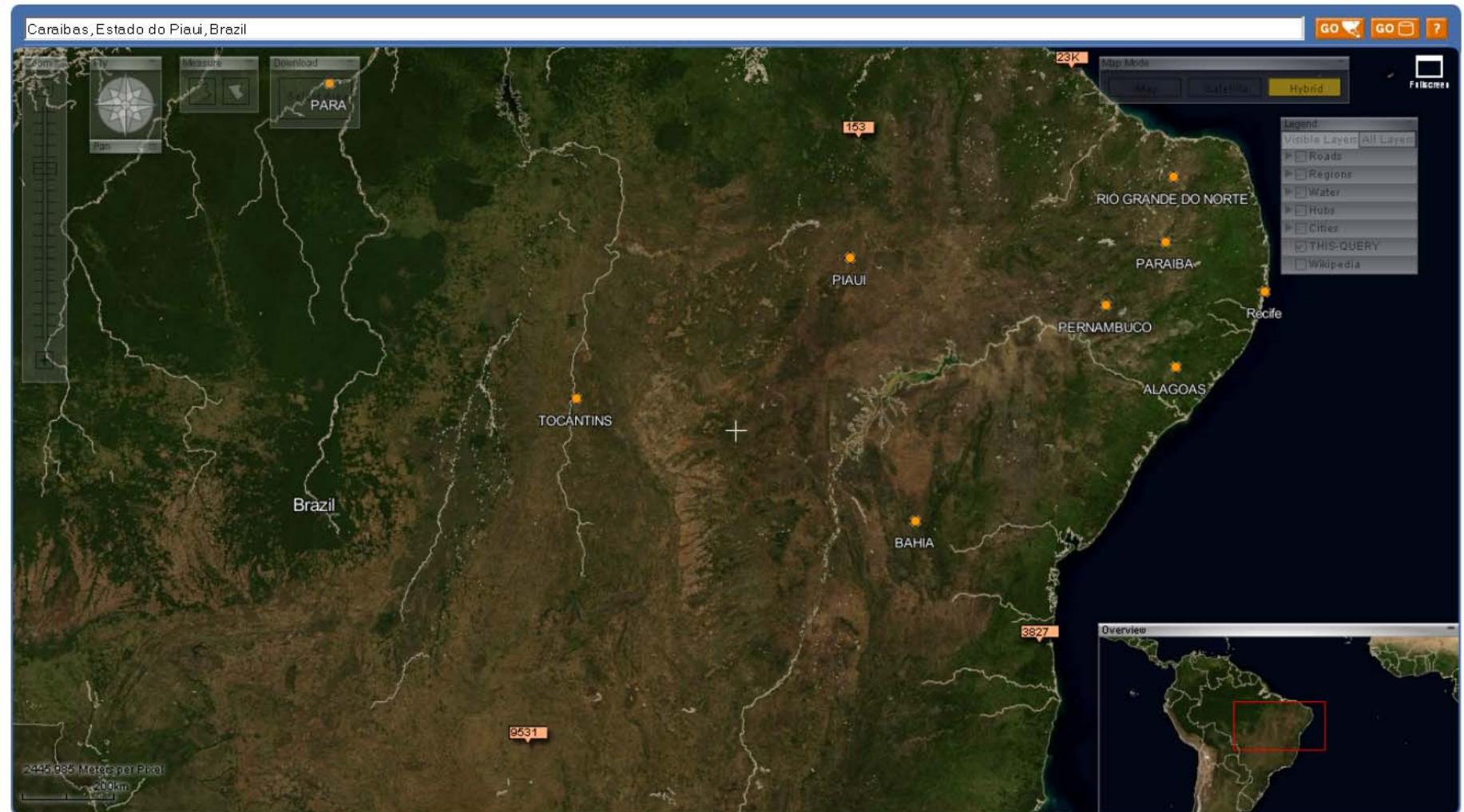
Figura 1 – Casos de dengue por semana epidemiológica. Brasil, 2011* e 2012**

Dengue Fever

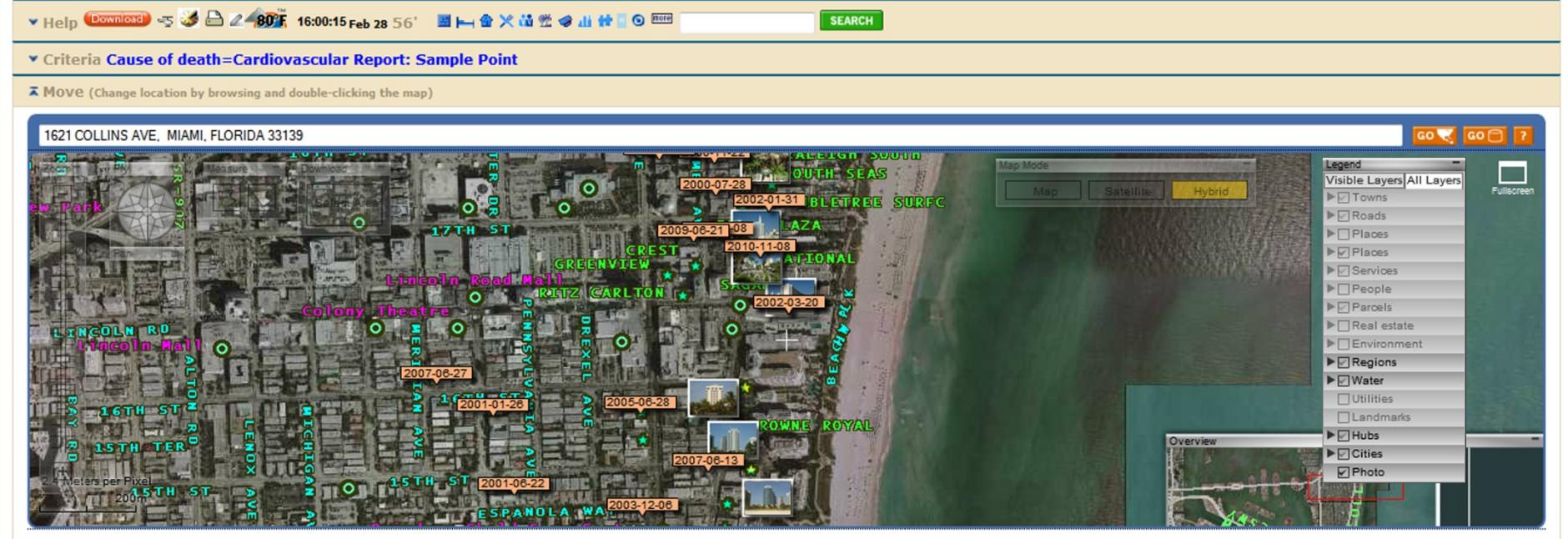
▼ Help [Download](#) 17:46:50 Aug 13 1713 SEARCH

▼ Criteria Year=2005 Incidence≥100

▲ Move (Change location by browsing and double-clicking the map)



Medical Examiner Records



links to locations & details	Case number of the event	Last name	First name	Age	Race	Gender	Birth date	Died	Agency	Officer	Mode of death	Cause of death	Event address	Residence address	Located
1:	#2007-00072#	STEIN	Jack	79	White	Male	#1927-01-08#	#2007-01-06#	City of Miami Beach Police Department	Det. Sam Pedro	Natural	Hypertensive Cardiovascular Disease	100 Lincoln RD, Miami Beach FL	100 Lincoln RD, Miami Beach FL	1
2:	#2002-00721#	HINKLEMAN	EMMET	74	White	Male	#1928-01-07#	#2002-03-20#	Hialeah Police Department	DET. MORGAN	Natural	HYPERTENSIVE CARDIOVASCULAR DISEASECONT: DIABETES MELLITUS	100 LINCOLN ROAD, MIAMI BEACH FL		1
3:	#2010-02745#	MASTERSON	Charles	66	White	Male	#1944-01-10#	#2010-11-08#	City of Miami Beach Police Department	Det. Matthews	Natural	Hypertensive Cardiovascular Disease	1677 Collins Ave, Miami Beach FL	3927 Ingersoll , Des Moines FL	1
4:	#2004-01785#	LORENZO	ROBERT	74	White	Male	#1929-08-14#	#2004-08-08#	Hialeah Police Department	Off. Iadaresta	Natural	Atherosclerotic Cardiovascular Disease	1685 James AVENUE, MIAMI BEACH FL		1
5:	#2002-00292#	STANDELY	PAUL	67	White	Male	#1935-09-20#	#2002-01-31#	Hialeah Police Department	OFC. DENNISTON	Natural	HYPERTENSIVE CARDIOVASCULAR DISEASECONT: DIABETES MELLITUS	1701 Collins AVENUE, MIAMI BEACH FL		1
6:	#2009-01588#	ESPINOZA	ANGELICA	77	White	Female	#1932-03-20#	#2009-06-21#	City of Miami Beach Police Department	Officer Fleischhauer	Natural	Hypertensive Cardiovascular Disease	1676 James AVE, Miami Beach FL	1676 James AVE, Miami Beach FL	1
7:	#2007-01459#	PRIEST	JOHN	80	White	Male	#1927-03-19#	#2007-06-13#	City of Miami	Detective	Natural	Hypertensive cardiovascular disease	1500 Collins		1

Medical Examiner Records

▼ Help [Download](#) 11:57:01 Feb 24 75° [SEARCH](#)

▼ Criteria dengue Case number event=2011-01899

▲ Move (Change location by browsing and double-clicking the map)



links to locations & details	Case number of the event	Last name	First name	Age	Race	Gender	Birth date	Died	Agency	Officer	Mode of death	Cause of death	Event address	Residence address	Located
 	2011-01899	PRATT	Yvonne	45	Black	Female	1965-11-18	2011-07-30	Miami-Dade Police Department	Det. A. Ray	Natural	Myocardial Degeneration Associated with Dengue Virus Infection			5

▲ Map of Results (click to recenter Query)

Jump to: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [11](#)

People

[Life Quality Report for Zip Code 33169](#)

Towns and Incorporated Areas ([all](#), [adult](#), [young](#), [kids](#), [spacious](#), [wealthy](#)):

- » [2010'](#) ⓘ ⓘ [Golden Glades](#) 33K people \$31K [4.92 sq.mi.](#)
- » [1.8mi](#) ⓘ ⓘ [North Miami city](#) 60K people \$30K [8.46 sq.mi.](#)
- « [2.1mi](#) ⓘ ⓘ [Bunche Park](#) 3972 people \$26K [0.76 sq.mi.](#)
- « [2.2mi](#) ⓘ ⓘ [Norland](#) 23K people \$36K [3.61 sq.mi.](#)



Blocks (per U.S. Census) ([all](#), [adult](#), [young](#)):

- ⓘ ⓘ ⓘ [@101 NW 154 St, MIAMI](#) 170 people [0.03 sq.mi.](#)
- » [653'](#) ⓘ ⓘ [@101 NW 152 St, MIAMI](#) 262 people [0.03 sq.mi.](#)
- « [687'](#) ⓘ ⓘ [@101 NW 156 St, MIAMI](#) 184 people [0.03 sq.mi.](#)



Neighborhoods (Census Block Groups) ([all](#), [adult](#), [young](#), [kids](#), [spacious](#), [wealthy](#)):

- ⓘ ⓘ ⓘ [@15400 N MIAMI Ave, MIAMI](#) 1047 people \$28K [0.25 sq.mi.](#)
- » [2373'](#) ⓘ ⓘ [@400 NW 161 St, MIAMI](#) 1480 people \$33K [0.29 sq.mi.](#)
- « [2510'](#) ⓘ ⓘ [@14901 NW 3 Ave, MIAMI](#) 1734 people \$38K [0.32 sq.mi.](#)

Greater Neighborhoods (Census Tracts) ([all](#), [adult](#), [young](#), [kids](#), [spacious](#), [wealthy](#)):

- » [2820'](#) ⓘ ⓘ [@14901 NW 3 Ave, MIAMI](#) 2439 people \$40K [0.43 sq.mi.](#)
- » [3100'](#) ⓘ ⓘ [@16300 N MIAMI Ave, MIAMI](#) 7317 people \$34K [1.17 sq.mi.](#)
- « [4637'](#) ⓘ ⓘ [@14400 NE 4 Ave, MIAMI](#) 7303 people \$29K [0.77 sq.mi.](#)



Zip Codes ([all](#), [adult](#), [young](#), [kids](#), [spacious](#), [wealthy](#)):

- » [1.7mi](#) ⓘ ⓘ [Zip 33162](#) 45K people \$32K [5.38 sq.mi.](#)
- » [1.8mi](#) ⓘ ⓘ [Zip 33168](#) 25K people \$32K [3.52 sq.mi.](#)
- « [1.9mi](#) ⓘ ⓘ [Zip 33169](#) 36K people \$36K [6.96 sq.mi.](#)

Demographic data for Block Group 3.01.3 and Comparison Zones

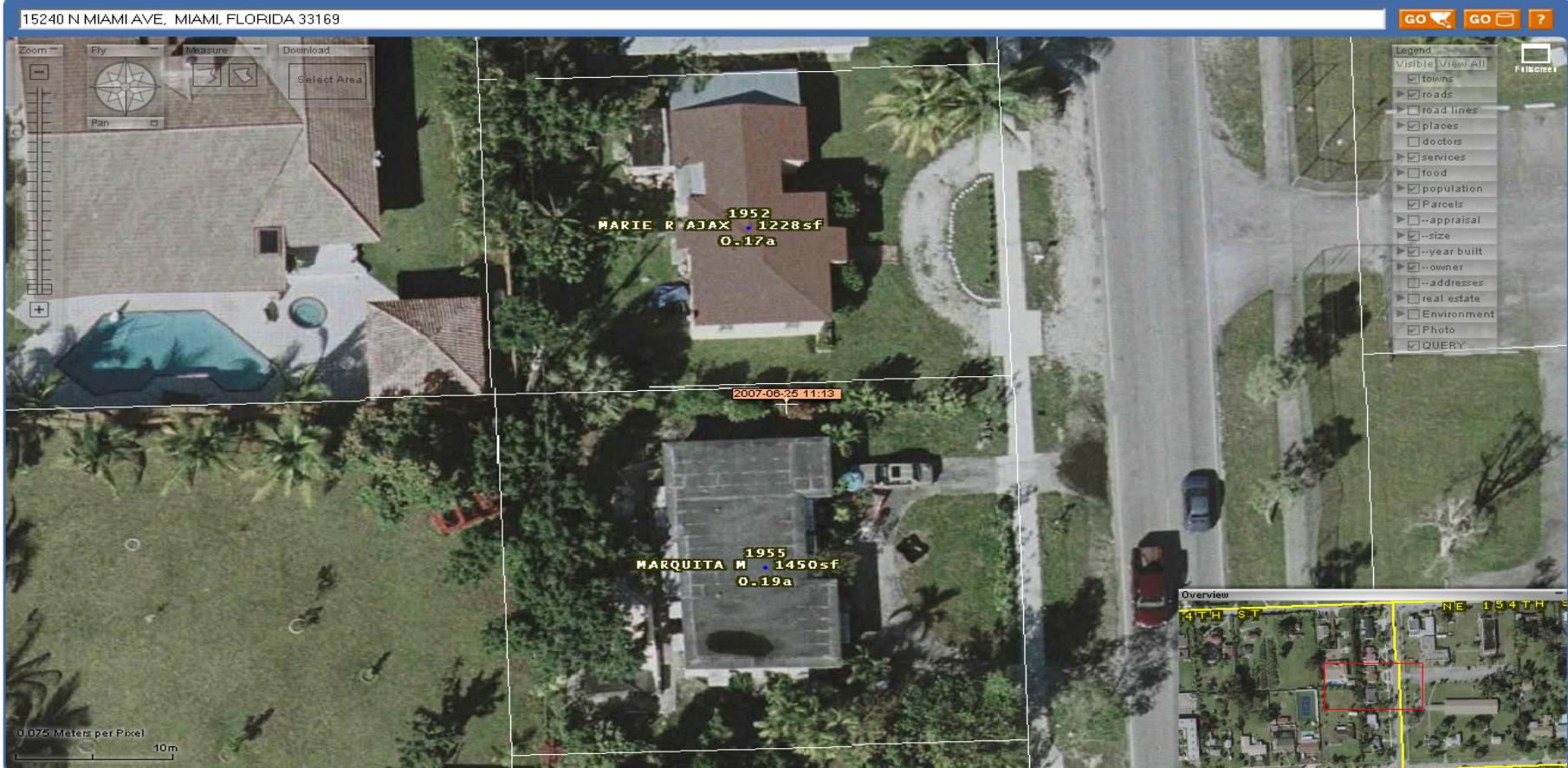
FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN [20]

Universe: Families

	United States		South Region		South Atlantic Division		Florida		Miami-Dade County		Census Tract 3.01 1.2 sq.mi. around 16300 N MIAMI Ave, MIAMI	Block Group 3.01.3 0.3 sq.mi. around 15400 N MIAMI Ave, MIAMI		
Total:	71,787,347	100.0%	26,257,626	100.0%	13,584,023	100.0%	4,210,760	100.0%	548,493	100.0%	1,579	100.0%	243	100.0%
Married-couple family:	54,493,232	75.9%	19,740,328	75.2%	10,197,413	75.1%	3,192,266	75.8%	370,898	67.6%	959	60.7%	137	56.4%
With own children under 18 years:	24,835,505	34.6%	8,764,414	33.4%	4,339,541	31.9%	1,215,197	28.9%	175,547	32.0%	582	36.9%	76	31.3%
Under 6 years only	5,892,433	8.2%	2,108,125	8.0%	1,058,044	7.8%	286,514	6.8%	41,551	7.6%	112	7.1%	20	8.2%
Under 6 years and 6 to 17 years	5,316,384	7.4%	1,809,154	6.9%	871,605	6.4%	249,439	5.9%	37,168	6.8%	157	9.9%	14	5.8%
6 to 17 years only	13,626,688	19.0%	4,847,135	18.5%	2,409,892	17.7%	679,244	16.1%	96,828	17.7%	313	19.8%	42	17.3%
No own children under 18 years	29,657,727	41.3%	10,975,914	41.8%	5,857,872	43.1%	1,977,069	47.0%	195,351	35.6%	377	23.9%	61	25.1%
Other family:	17,294,115	24.1%	6,517,298	24.8%	3,386,610	24.9%	1,018,494	24.2%	177,595	32.4%	620	39.3%	106	43.6%
Male householder, no wife present:	4,394,012	6.1%	1,545,802	5.9%	809,941	6.0%	259,494	6.2%	43,924	8.0%	161	10.2%	37	15.2%
With own children under 18 years:	2,190,989	3.1%	761,619	2.9%	393,867	2.9%	126,709	3.0%	16,889	3.1%	82	5.2%	18	7.4%
Under 6 years only	594,889	0.8%	203,632	0.8%	106,447	0.8%	34,223	0.8%	4,508	0.8%	21	1.3%	7	2.9%
Under 6 years and 6 to 17 years	284,895	0.4%	94,421	0.4%	48,070	0.4%	16,274	0.4%	2,578	0.5%	13	0.8%	2	0.8%
6 to 17 years only	1,311,205	1.8%	463,566	1.8%	239,350	1.8%	76,212	1.8%	9,803	1.8%	48	3.0%	9	3.7%
No own children under 18 years	2,203,023	3.1%	784,183	3.0%	416,074	3.1%	132,785	3.2%	27,035	4.9%	79	5.0%	19	7.8%
Female householder, no husband present:	12,900,103	18.0%	4,971,496	18.9%	2,576,669	19.0%	759,000	18.0%	133,671	24.4%	459	29.1%	69	28.4%
With own children under 18 years:	7,561,874	10.5%	2,910,498	11.1%	1,489,820	11.0%	437,680	10.4%	70,316	12.8%	303	19.2%	50	20.6%
Under 6 years only	1,532,745	2.1%	599,802	2.3%	302,866	2.2%	83,805	2.0%	11,967	2.2%	57	3.6%	14	5.8%
Under 6 years and 6 to 17 years	1,274,233	1.8%	481,241	1.8%	240,766	1.8%	71,183	1.7%	12,050	2.2%	52	3.3%	11	4.5%
6 to 17 years only	4,754,896	6.6%	1,829,455	7.0%	946,188	7.0%	282,692	6.7%	46,299	8.4%	194	12.3%	25	10.3%
No own children under 18 years	5,338,229	7.4%	2,060,998	7.8%	1,086,849	8.0%	321,320	7.6%	63,355	11.6%	156	9.9%	19	7.8%

Crimes and Incidents Reported by Miami-Dade County and Municipal Police Departments

▼ Criteria Haitian church+arson Report: Church arson location



links to locations & details	Case number	Description of offense	Date and time the incident occurred	Reported	Address where the incident occurred	Police district	Clearance code description as reported by Officer	Business name involved in incident	Signal code description	Victim type description	Victim name(s)	Suspect name(s)	Arrestee name
 	PD070625337701	ARSON	2007-06-25 11:13	Y	15300 N MIAMI AVE	INTRACOASTAL	CLEAR BY EXCEPTION	FIRST HAITIAN CHURCH	49C - FIRE COMMERCIAL	BUSINESS	FIRST HAITIAN CHURCH,	REDACTED	

Business Directory 2009 with Radius Demographics from US Census 2000

[all](#), [physicians](#), [dentists](#), [restaurants](#), [malls](#), [grocery](#), [stores](#), [condo](#), [lucrative](#), [large](#)

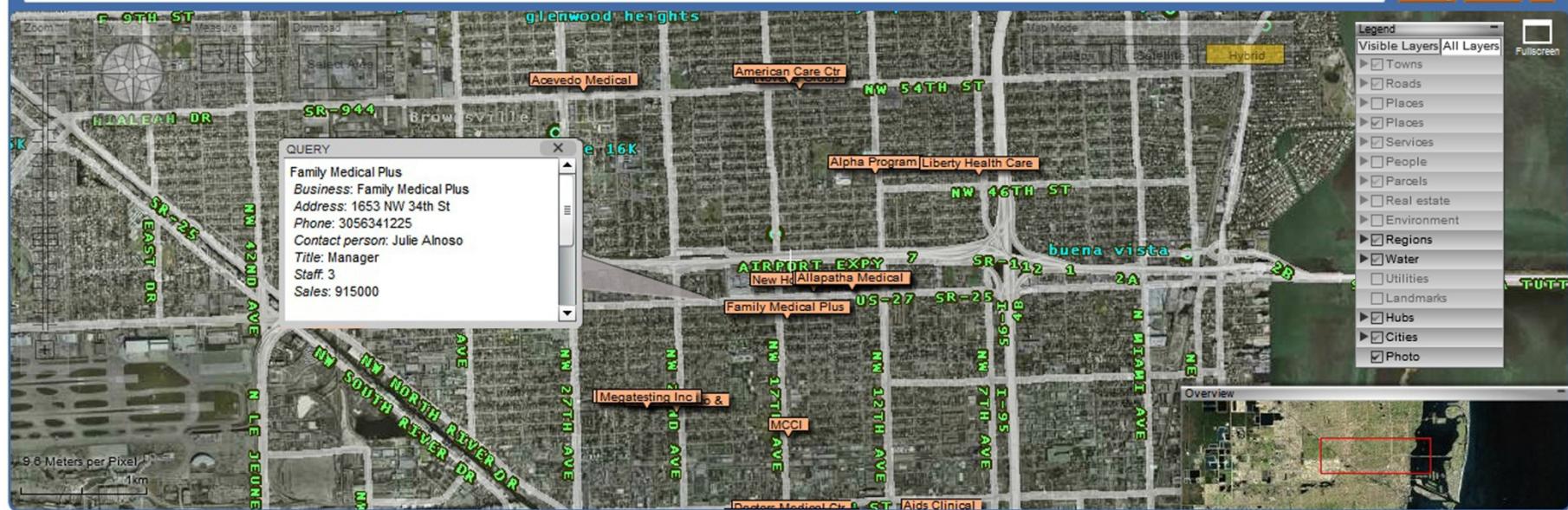
▼ Help [Download](#) 78°F 10:57:00 Feb 23 43' SEARCH

▼ Criteria SIC=Clincs

▲ Move (Change location by browsing and double-clicking the map)

1600 NW 39 ST, MIAMI, FLORIDA 33142

[GO](#) [GO](#)



links to locations & details	Business	Address, street	Phone	Contact person	Title	Staff	Sales (US\$)	SIC	5-mile mean income (US\$)	People in 5mi	10-mi mean income (US\$)	People in 10mi
1: 1060'	New Horizons Comm Mental Hlth	1469 NW 36th St	305-635-7444	Tonya Barnes	Manager	20	\$6.1M	801104 - Clinics	\$15923	288K	\$22K	809K
2: 1580'	Family Medical Plus	1653 NW 34th St	305-634-1225	Julie Alnoso	Manager	3	\$915K	801104 - Clinics	\$16105	299K	\$22K	809K
3: 1823'	Better Life Medical Institute	1313 NW 36th St	305-637-9036	Rick Carrasco	Manager	4	\$1.22M	801104 - Clinics	\$16364	290K	\$21K	789K
	Allapatha Medical	1313 NW	305-636-9604			8	\$2.44M	801104 -	\$16364	290K	\$21K	789K



Business-clustering

[all](#), [physicians](#), [dentists](#), [restaurants](#), [malls](#), [grocery](#), [stores](#), [condo](#), [lucrative](#), [large](#)

Help [Download](#) 16:32:46 Jun 24 20¹

Criteria SIC=clinic+health 0.25mi SIC=1 5-mile mean income≥10000 5-mile mean income≤40000 People in 10mi≥500000 Report: Clinics without backup clinics nearby and located in mid income area within densely populated sprawl

<p>Selection Criteria:</p> <p>SIC, Industry Category detail</p> <p>0.25mi SIC: Competition/clustering quarter-mile: Count of businesses in the same SIC within the .25-Mile the radius</p> <p>5-mile mean income: Average of income per adult person within the 5-mile radius (Computed as the total gross income of all households in census block groups centered within the 5-mile radius and divided by the total number of adult persons therein. This this number is substantially smaller than the mean household income.) (US\$)</p> <p>People in 10mi: 10-Mile Radius Total Population</p> <p>Keywords in any fields</p>	<p>Try also:</p> <table border="0"> <tr> <td>= clinic</td> <td>any null non-null</td> <td>Or fill in & resubmit</td> </tr> <tr> <td>= 1</td> <td>any null non-null ≤0-1≥ ≤0-2≥ ≤1-2≥ ≤1-3≥ ≤2-3≥</td> <td> = 1</td> </tr> <tr> <td>≥10000</td> <td>any null non-null ≤\$0-2500≥ ≤\$2500-5000≥ ≤\$5000-7500≥ ≤\$7500-10K≥ ≤\$10K-13K≥ ≤\$13K-15K≥ ≤\$15K-18K≥ ≤\$18K-20K≥ ≤\$20K-23K≥ ≤\$23K-25K≥</td> <td> ≥ 10000</td> </tr> <tr> <td>≤40000</td> <td>any null non-null ≥40000</td> <td> ≤ 40000</td> </tr> <tr> <td>≥500000</td> <td>any null non-null ≤0-130K≥ ≤130K-250K≥ ≤250K-380K≥ ≤380K-500K≥ ≤500K-630K≥ ≤630K-750K≥ ≤750K-880K≥ ≤880K-1000K≥ ≤1000K-1.1M≥ ≤1.1M-1.3M≥</td> <td> ≥ 500000</td> </tr> <tr> <td>=</td> <td>any</td> <td></td> </tr> </table>	= clinic	any null non-null	Or fill in & resubmit	= 1	any null non-null ≤0-1≥ ≤0-2≥ ≤1-2≥ ≤1-3≥ ≤2-3≥	= 1	≥10000	any null non-null ≤\$0-2500≥ ≤\$2500-5000≥ ≤\$5000-7500≥ ≤\$7500-10K≥ ≤\$10K-13K≥ ≤\$13K-15K≥ ≤\$15K-18K≥ ≤\$18K-20K≥ ≤\$20K-23K≥ ≤\$23K-25K≥	≥ 10000	≤40000	any null non-null ≥40000	≤ 40000	≥500000	any null non-null ≤0-130K≥ ≤130K-250K≥ ≤250K-380K≥ ≤380K-500K≥ ≤500K-630K≥ ≤630K-750K≥ ≤750K-880K≥ ≤880K-1000K≥ ≤1000K-1.1M≥ ≤1.1M-1.3M≥	≥ 500000	=	any	
= clinic	any null non-null	Or fill in & resubmit																	
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≥10000	any null non-null ≤\$0-2500≥ ≤\$2500-5000≥ ≤\$5000-7500≥ ≤\$7500-10K≥ ≤\$10K-13K≥ ≤\$13K-15K≥ ≤\$15K-18K≥ ≤\$18K-20K≥ ≤\$20K-23K≥ ≤\$23K-25K≥	≥ 10000																	
≤40000	any null non-null ≥40000	≤ 40000																	
≥500000	any null non-null ≤0-130K≥ ≤130K-250K≥ ≤250K-380K≥ ≤380K-500K≥ ≤500K-630K≥ ≤630K-750K≥ ≤750K-880K≥ ≤880K-1000K≥ ≤1000K-1.1M≥ ≤1.1M-1.3M≥	≥ 500000																	
=	any																		

You can modify the results shown below by clicking on any [blue word](#) in the result records; or choose more fields to search [here](#).

Dataset: Business-clustering: Join of USA&Canada Business Directory 2009 with US Census 2000 cumulative data on population and mean income with 5 and 10-mile radius from each business and with competition count within 0.25mi and 1mile radii /ipages, mean(pbg), count(ipages)

Current Format: Table, try also: [Detailed Simple Count only Printer-friendly .CSV .XML](#)



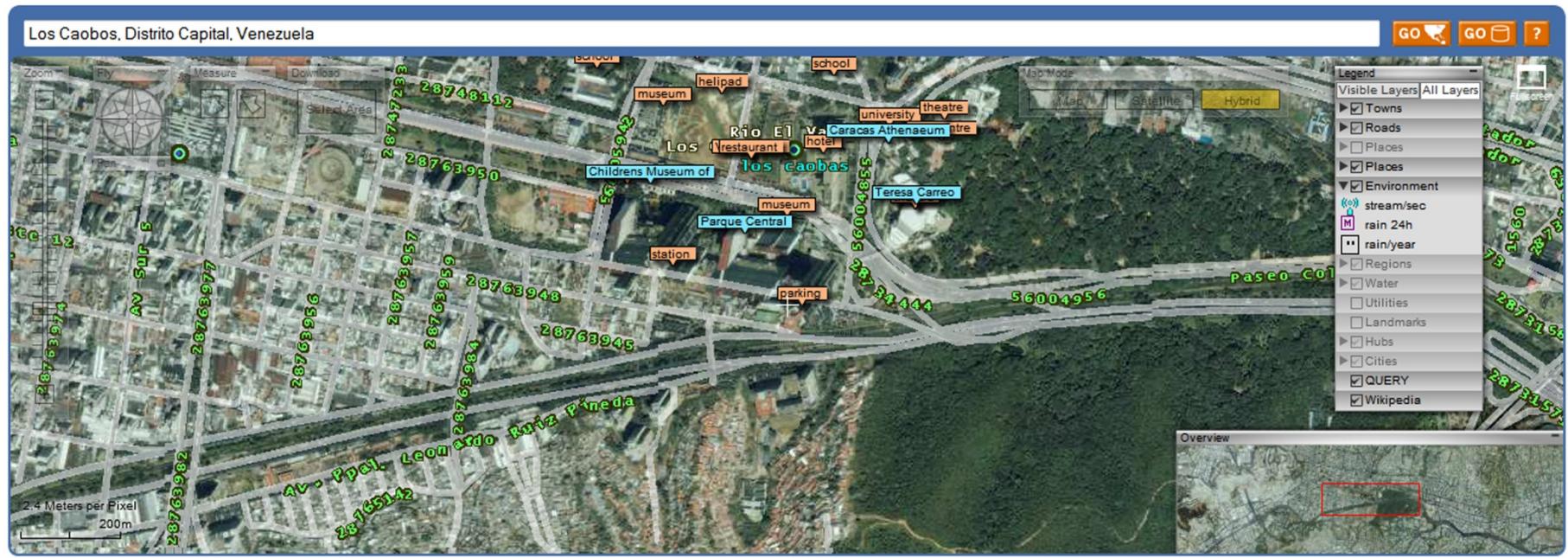
Change location by browsing and double-clicking the map or browse local [towns](#) or [zipcodes](#) or [FL](#) or [World](#)

links to locations & details	Business	Address, street	Phone	Contact person	Title	Staff	Sales (US\$)	SIC	5-mile mean income (US\$)	People in 5mi	10-mi mean income (US\$)	People in 10mi	0.25mi SIC	1mi SIC
1: 1.4mi	St John Clinic Medical Center	161 NW 29th St	305-576-0231	Miguel Peraza	President			801102 - Health Clinic	\$17724	247K	\$22K	705K	1	1
2: 3.9mi	Miami Behavioral Health Center	11031 NE 6th Ave	305-398-6101	Olivia Martinez	Executive Director			809399 - Mental Health Clinic Outpatient And Residential Clinic A	\$20K	219K	\$21K	765K	1	1

Places/OSM

▼ Help [Download](#) 15:05:26 Mar 01 2910* more SEARCH

▲ Move (Change location by browsing and double-clicking the map)

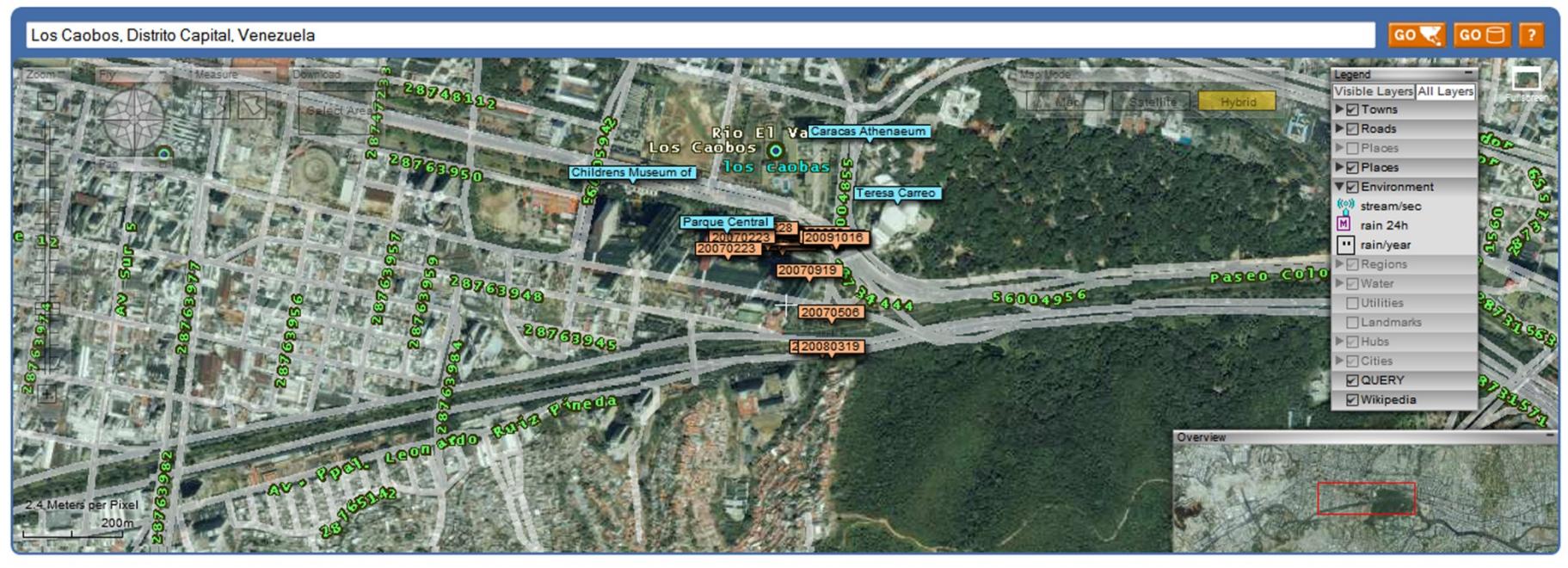


links to locations & details	Identification Number	Type	Subtype	Name	near
1: 253'	569645366	amenity	school	Escuela Venezuela	Los Caobos, Distrito Capital, Venezuela
2: 367'	558651259	tourism	hotel	Alba Caracas	Los Caobos, Distrito Capital, Venezuela
3: 517'	871481541	cuisine	Venezolana	Arepera Socialista	Los Caobos, Distrito Capital, Venezuela
4: 517'	871481541	amenity	restaurant	Arepera Socialista	Los Caobos, Distrito Capital, Venezuela
5: 527'	1335112590	tourism	hotel	Hotel Renovacin	Los Caobos, Distrito Capital, Venezuela
6: 547'	1042142179	aeroway	helipad	Parque Central Heliport	Los Caobos, Distrito Capital, Venezuela
7: 580'	871481543	amenity	university	UNEARTE	Los Caobos, Distrito Capital, Venezuela

Flickr

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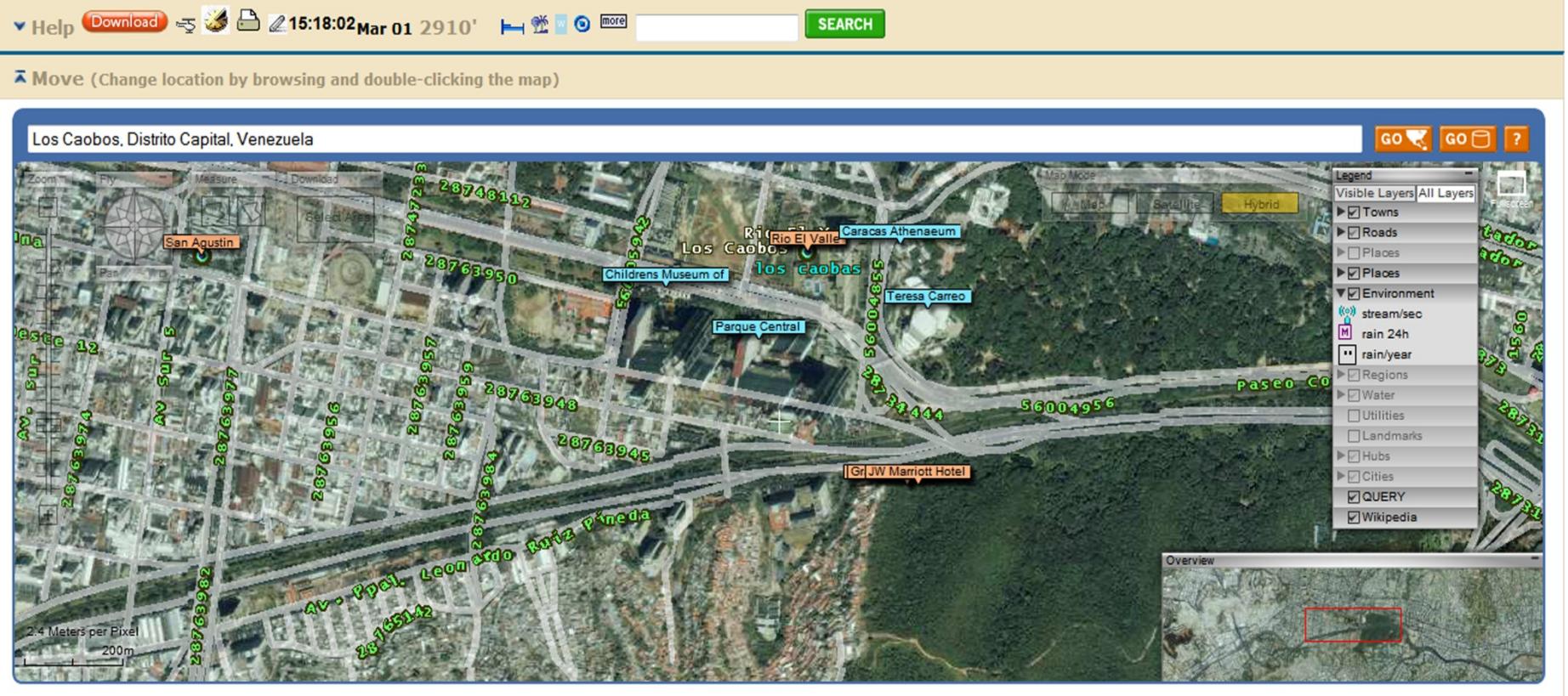
▲ Move (Change location by browsing and double-clicking the map)



links to locations & details	Title	Photo	Views	License	Tags	Taken	Uploaded	Accuracy	near
1: 73' more ?	Saman, Caracas; Venezuela		451		downtown venezuela centro ciudad caracas centreville parquecentral	2009-05-23	2009-05-23	16-Street	Los Caobos, Distrito Capital, Venezuela
2: 207' more	a que no adivinas qu? soy?		179		art ucv reloj	2010-07-09	2010-07-10	9	Los Caobos, Distrito Capital, Venezuela
3: 207' more	Hazy morning		29	Non-commercial-ShareAlike	fiji venezuela caracas favcol	2007-08-06	2007-08-10	15	Los Caobos, Distrito Capital, Venezuela

Places/NGA

all, community, water, height, undersea, administrative, airport, area, bay, bridge, building, camp, canal, church, dam, forest, hill, hospital, hotel, island, junction, lake, locality, mall, mine, mountain, park, reservoir, school, shrine, spring, station, stream, swamp, trail, valley



links to locations & details	Name, Ascii	Name	Type of feature	Feature description	Country code	First-order administrative division name	Population of city	Elevation (meters)	Average elevation (meters)	Modification date (YYYY-MM-DD)	Name of nearest Hub City	~Hub City Distance to (meters)	~Hub City Compass direction to	Name	~Town Distance to (meters)	~Town Compas directio to
1: 323' g more ?	Rio El Valle	Ro El Valle Rio El Valle stream	water	stream	VE	Distrito Capital		905	905	≤1993-12-23≥	CARACAS	3642	W	Los Caobos		W
2: K	Los Caobos	Los Caobas,	community		VE	Distrito Capital		905	905	≤2011-04-19≥	CARACAS	3642	W	Los Caobos		W

GeoEye Satellite Images

[all](#), [clear](#)

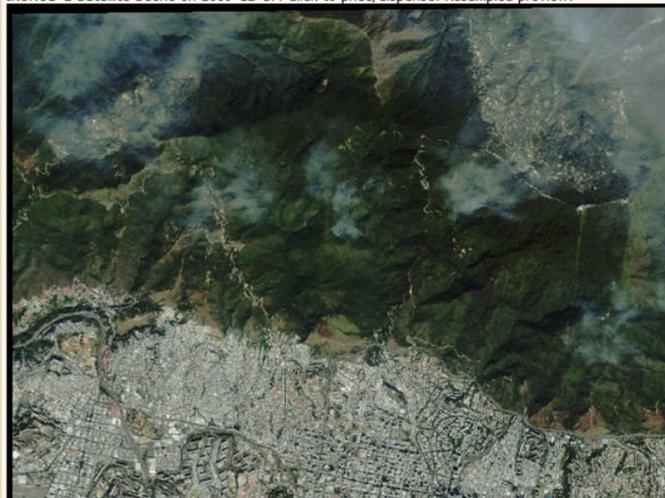
▼ Help [Download](#) 15:23:47 Mar 01 2841' [SEARCH](#)

▲ Move (Change location by browsing and double-clicking the map)

Los Caobos, Distrito Capital, Venezuela

IKONOS-2 Satellite Scene on 2009-12-17. Click to price/dispense. Resampled preview:

links to locations & details	Date	Clouds %	Area total (sq.k)
1: 1597' 2005-07-28	2005-07-28	64	150.8
2: 1717' 2009-12-17	2009-12-17	9	165.6



Sun Elevation Angle (degrees)	Sensor Azimuth Angle (degrees)	Sensor Elevation Angle (degrees)	Native Resolution (meters)	Resolution (meters)	near
67.418	116.731	84.6462	0.8234	1	Los Caobos, Distrito Capital, Venezuela
50.2473	82.8584	74.5103	0.87045	1	Los Caobos, Distrito Capital, Venezuela



TerraFly and LocationWorld Partnership





TerraFly/LocationWorld Mobile Data Collection





TerraFly/LocationWorld Personal Location/Human Logistics





TerraFly/LocationWorld Mobile Data Collection

- ◆ An executive **creates a survey or form App**
- ◆ **Automatically sync** the App with mobile phones
- ◆ **Gather field data**
- ◆ **Easy data entry** on site
- ◆ **Automatic geo-referencing** using cellphone GPS and/or triangulation (in LatAm)
- ◆ **Photograph** entry
- ◆ **Voice/transcription** text
- ◆ Generate **reports**, analysis tools
- ◆ **Rapid solutions and health interventions**



STEM: a Framework for Spatiotemporal Modeling

The Spatiotemporal Epidemiological Modeler: A Framework for Predictive Modeling

STEM Website: <http://www.eclipse.org/stem/>

STEM Wiki (Documentation): <http://wiki.eclipse.org/index.php/STEM>

STEM on Wikipedia: http://en.wikipedia.org/wiki/Spatiotemporal_Epidemiological_Modeler

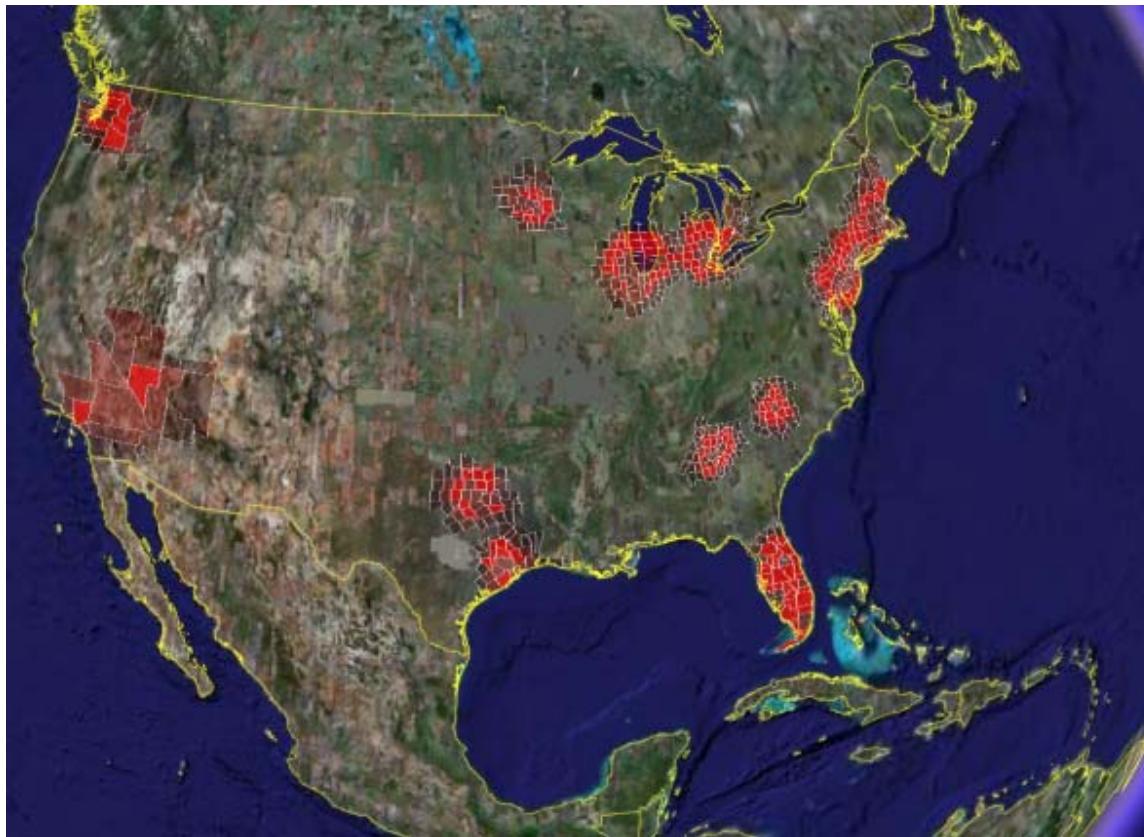
YouTube: <http://www.youtube.com/watch?v=LfiibQX4IFE>

This IBM technology and support are being made available to the NSF Industry/University Cooperative Research Center for Advanced Knowledge Enablement (I/UCRC-CAKE) at FIU for the purpose of collaborative work with IBM on analysis and mitigation of epidemics and other diseases in USAid-assisted countries



STEM: The Spatiotemporal Epidemiological Modeler

A Framework for Predictive Modeling



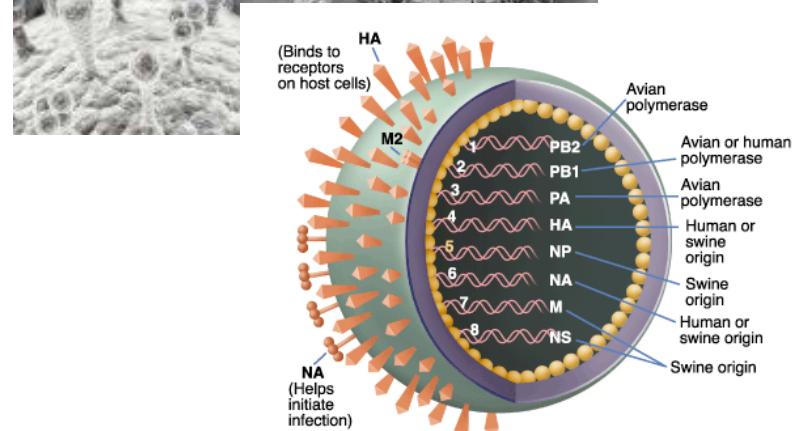
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Why do we need a framework?

Modeling disease, food production, etc. requires information about humans, infectious diseases, livestock, wild animal and insect vectors, and food.



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STEM uses an *Industry Standard Framework* for “Component Software” (OSGi)

- Eclipse Equinox is a Reference Implementation of OSGi in Java
- All STEM components can be dynamically loaded as separate bundles or plug-ins

- Viewers are Plug-ins
 - Map view
 - Google Earth
 - Google Maps
 - NASA World Wind
 - TerraFly



- Disease Models are Plug-ins
- Population Models are Plug-ins
- Datasets are Plug-ins

- Each plug-in can be independently developed, deployed, and used with declarative software extension points

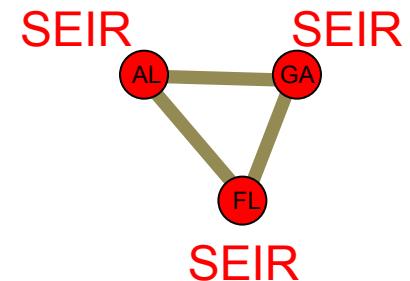
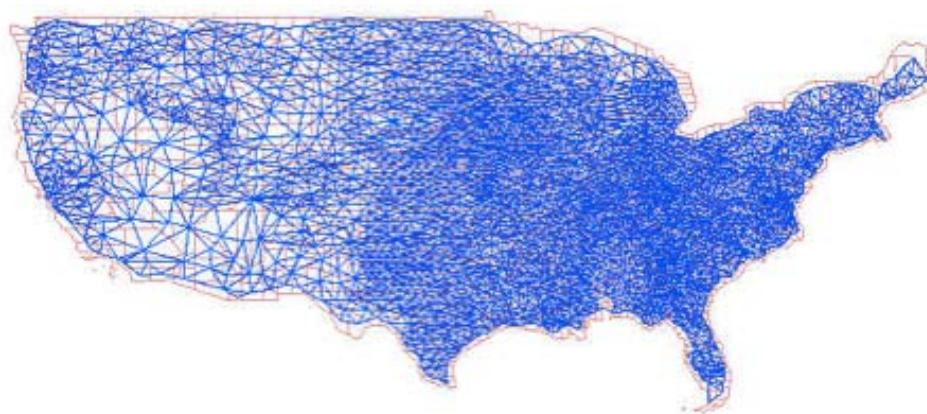
- Users can

- create their own scenarios for a country or region
- Collaborate, exchange, models and scenarios
- Easily combine, manage, and partition plug-ins across security domains
- Build on existing models and create new ones, making STEM extensible, flexible, and re-usable



STEM treats the World as a “Graph”

Any problem that can be described as a graph can be studied with STEM



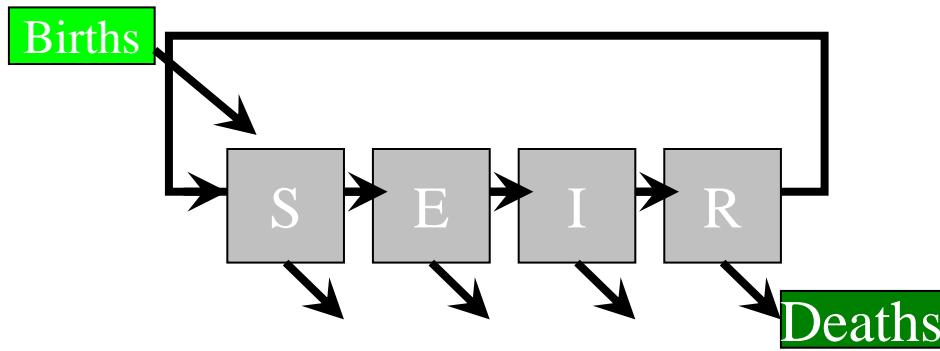
- Graph Framework makes it easy to *build one model on top of another*
- Existing plugins define **geography, transportation systems, populations, land area**, etc., for the planet (244 countries and dependent areas)



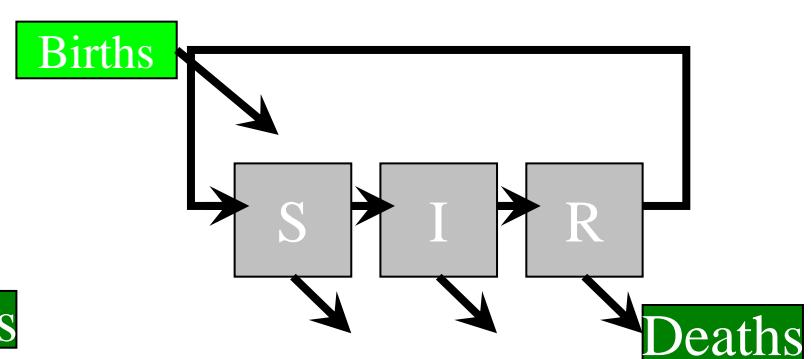
STEM is a *Framework*

Epidemiological Compartment Models

Standard SEIR model



Standard SIR model



S: susceptible

E: exposed but not yet infectious

I: infectious

R: recovered



STEM supports global simulation

Global population data by admin region validated against *LandScan 2007™*

High Resolution Global Population Data Set

© UT-Battelle, LLC, operator of Oak Ridge National Laboratory

Map



Modeling partners

Aerospace and defense

Energy

Health

Science

IBM a partner of

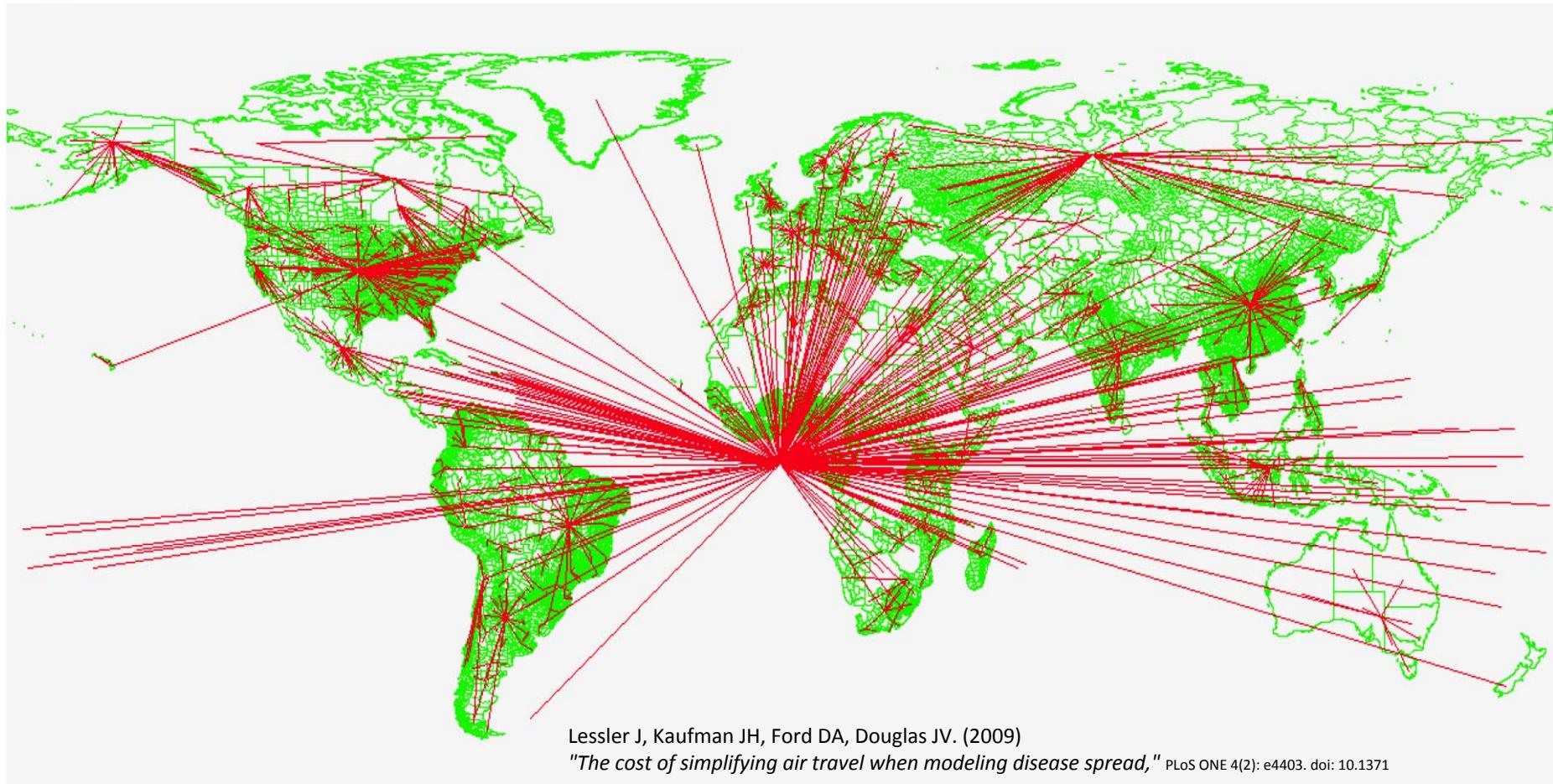
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Global Air Travel Model

- Calibrated with data from FAA
- 100% U.S Commercial Airports
- ~80% WW airports



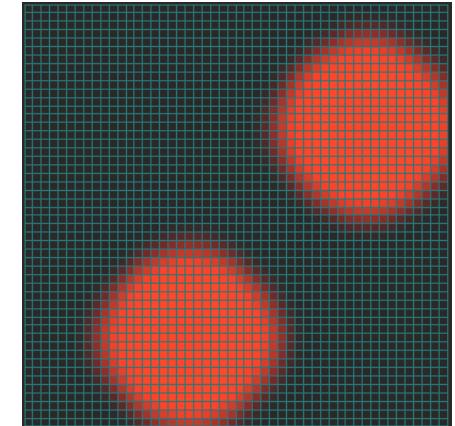
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Custom Graphs

- Ability to Run Lattice Graphs
- Ability to Import Custom Graphs (Pajek)
- Support for Zoonotic Disease (Multiple Populations)
 - ◆ Malaria – Yellow Fever
 - ◆ Dengue – etc.



New Population Model

Create a new population model
Define a new population model in a project:

Project: Multipopulation project

Name: AgeStructuredPopulation

Population Model: DemographicPopulationModelImpl

Population: human

Model name: HumanPopulationModel

Background Birth Rate: 0.0 PM/TP

Background Mortality Rate (μ): 0.0 PM/TP

Time Period (TP): 86400000 ms

*PM/TP = Population Member/Time Period

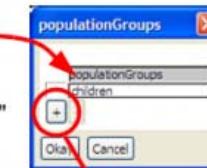
Identifier: children Fraction: 0.2

Location ISO Key: Pick Location

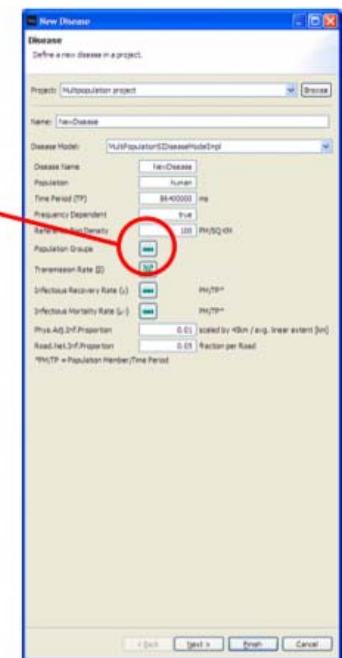
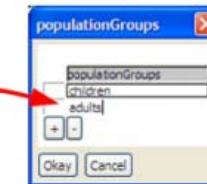
< Back Next > Finish Cancel

Enter the name of the first subpopulation

Click “+”



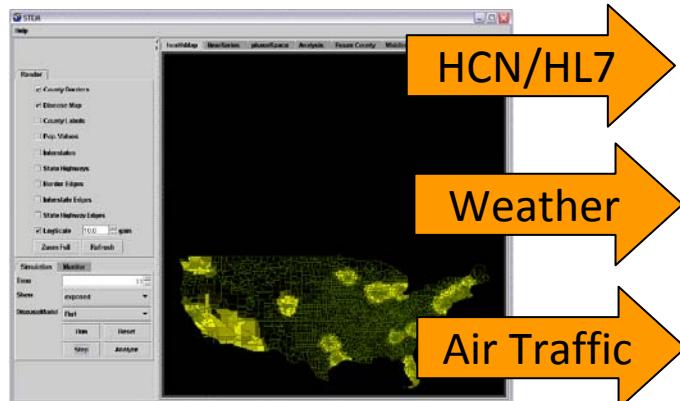
Enter the name of the second subpopulation





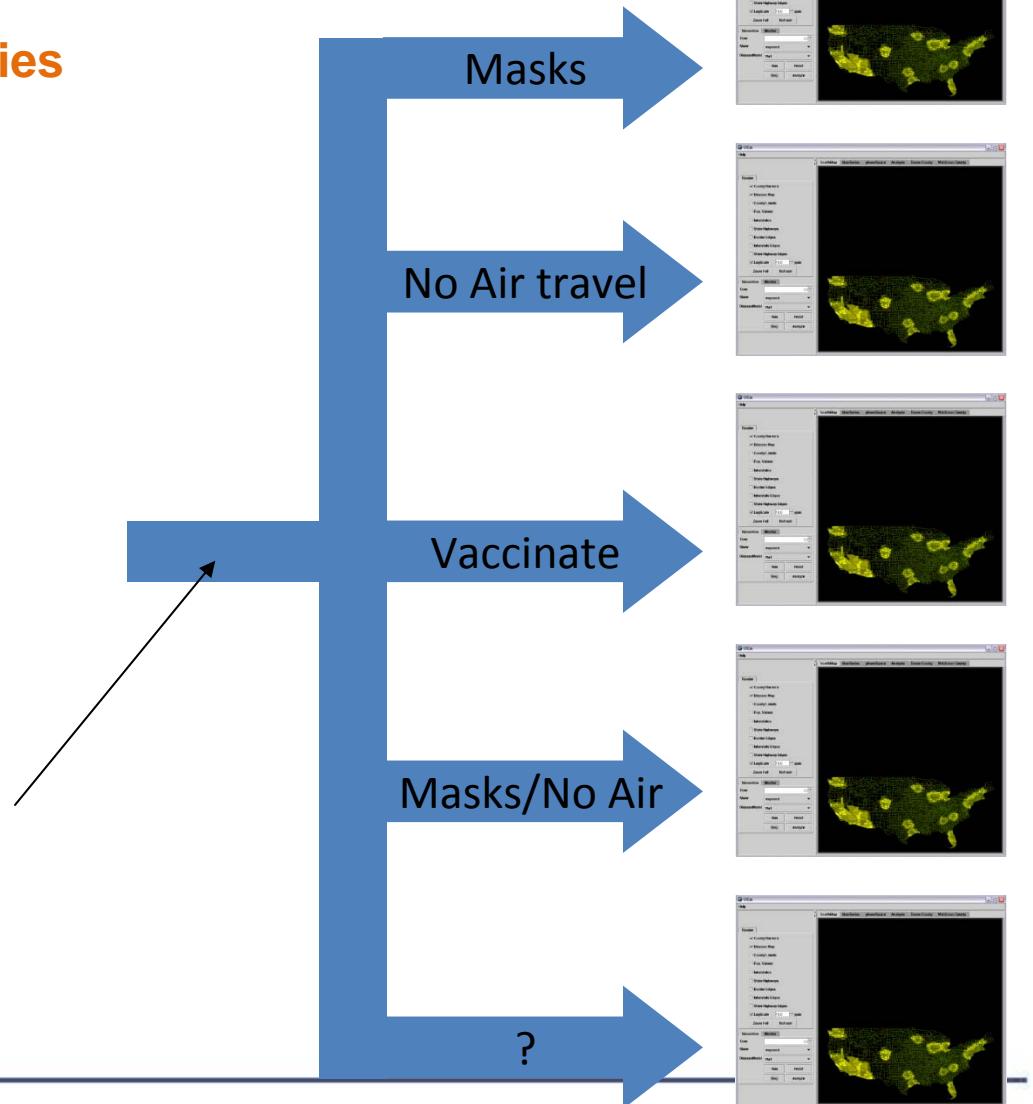
Modeling Interventions:

& Evaluation of Public Health Policies



STEM includes a framework of

- Predicates
- Modifiers
- Triggers



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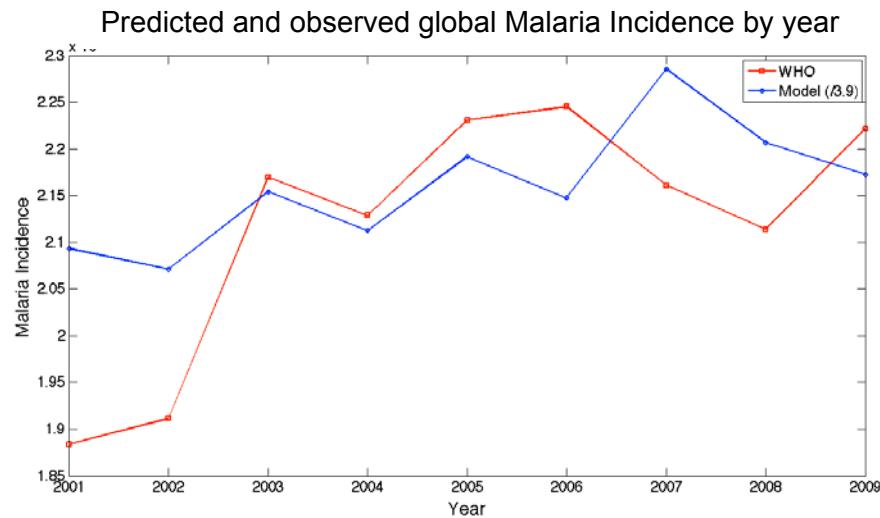
Vector Disease Models

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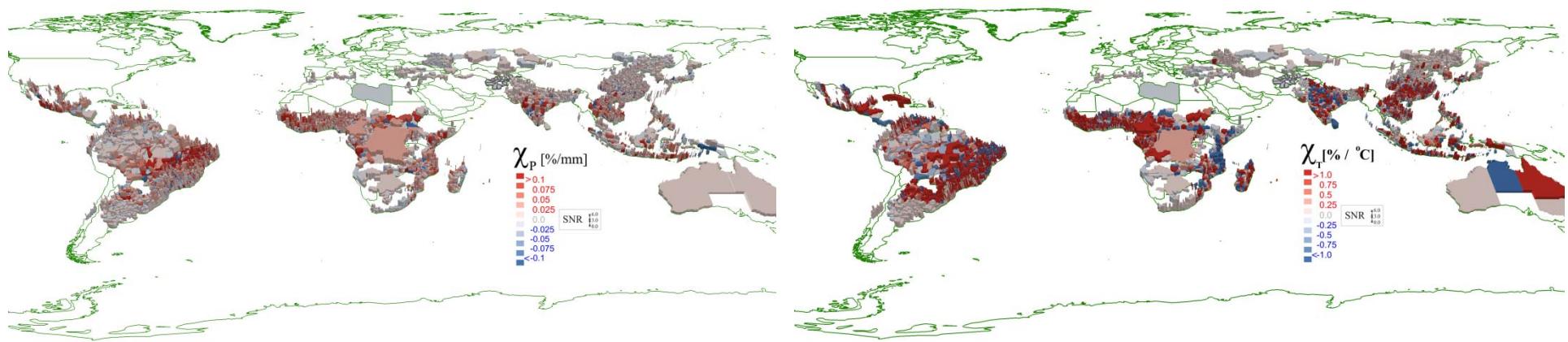
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MacDonald-Ross Malaria Model integrated on a Global Anopheles VCAP model Sensitivity of Malaria to Fluctuations in climate variables (Epidemics 2011)



Malaria Response to Precipitation and Temperature



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Dengue Fever and Dengue Hemorrhagic Fever

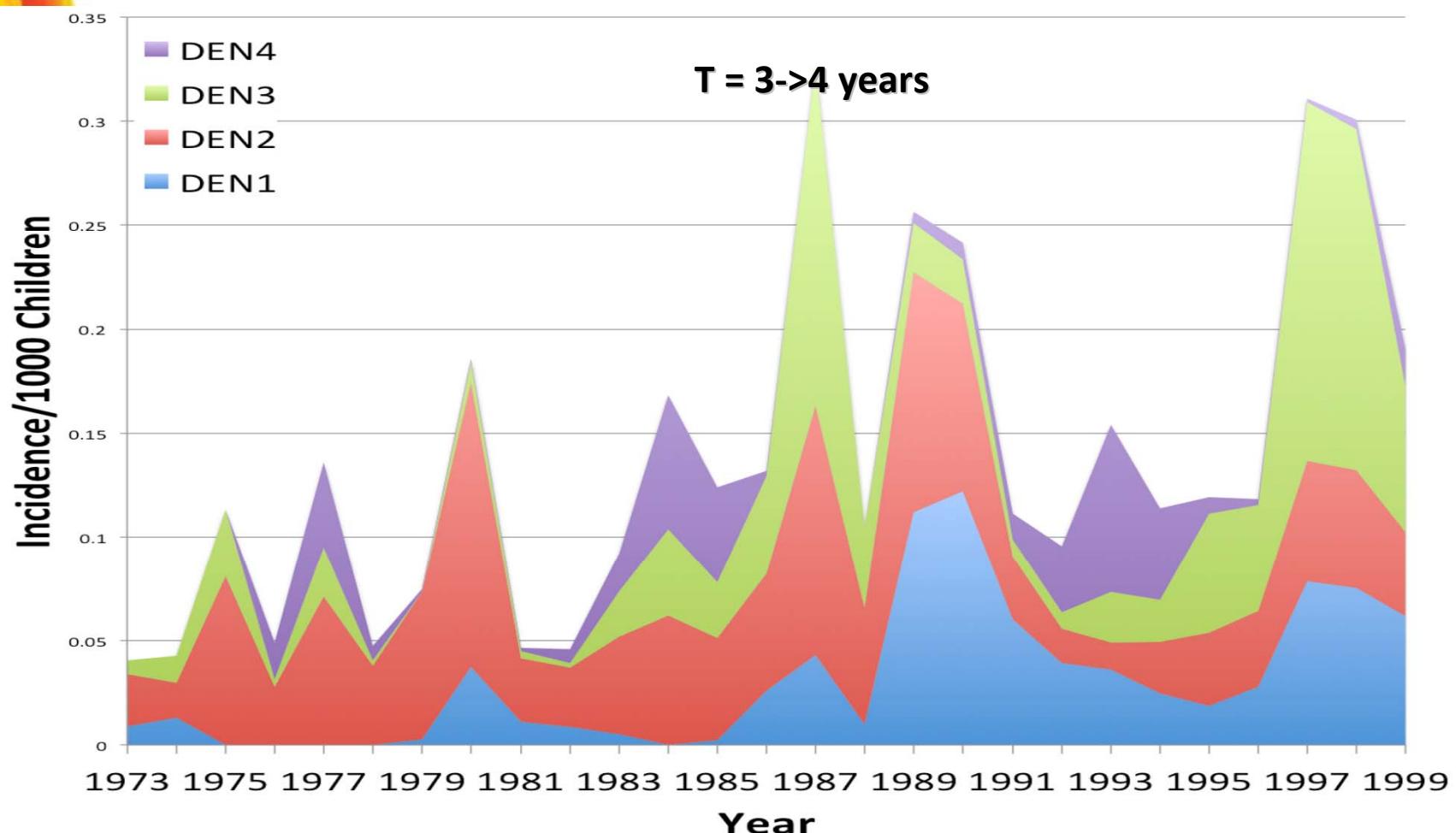
- ◆ A mosquito-borne viral infection (vector disease)
- ◆ 2.5 billion at risk (> 40% of World population)
- ◆ 50–100M infections/year
- ◆ In the Americas:
 - ◆ > 1.6 million cases in 2010, 49,000 severe cases
 - ◆ All four serotypes of DENV: DEN-1, DEN-2, DEN-3, and DEN-4
- ◆ Leading cause of death among children in Asia.
 - There is **No Cure**.

Source: WHO





Quasi-periodic Dengue Outbreaks in Thailand



derived from: Nisalak, A., et al., 2003. Serotype-specific dengue virus circulation and dengue disease in Bangkok, Thailand from 1973 to 1999. American Journal of Tropical Medicine and Hygiene 68, 191-202.

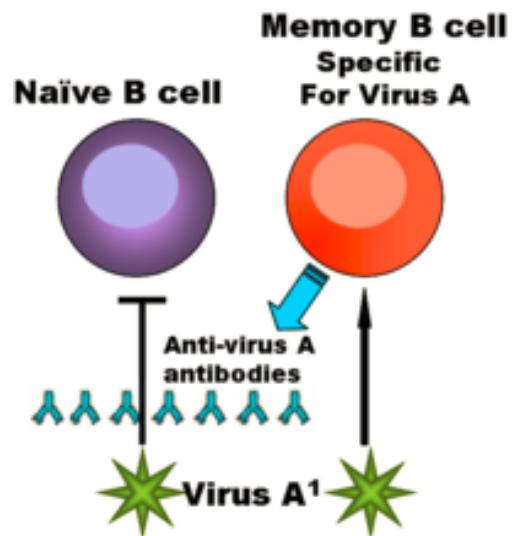
Population growth rate ~ 2.6%/year





Antibody Dependent Enhancement (ADE)

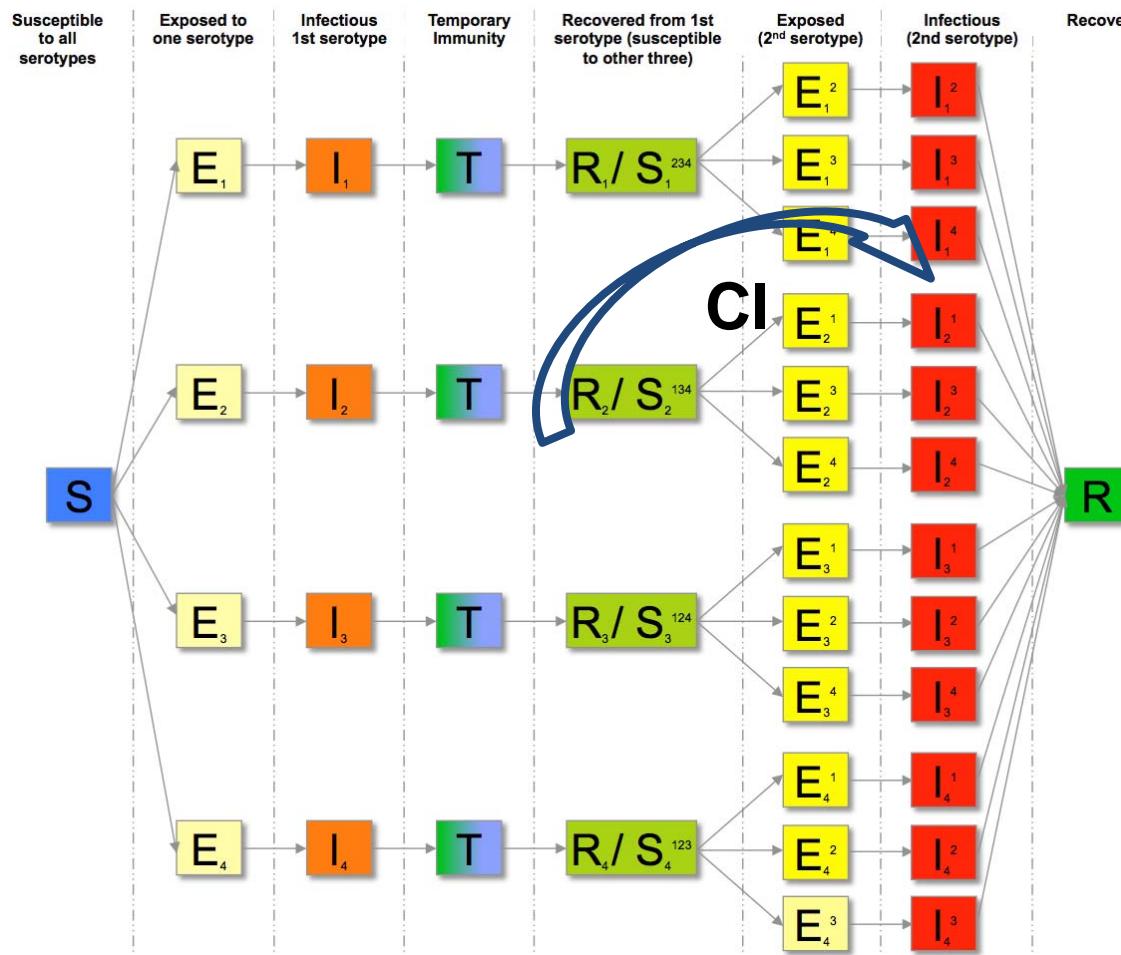
- ◆ Antibodies are *usually* a good thing.
- ◆ ADE => non-neutralizing antiviral antibodies lead to
 - ◆ enhanced viremia
 - ◆ enhanced entry into host cells
 - ◆ increased infectivity in the host cells.
- ◆ Increases risk of
 - ◆ Dengue shock syndrome
 - ◆ Dengue hemorrhagic fever
 - ◆ Death
- ◆ Has reached Florida
- ◆ ADE is important in determining the dynamics of Dengue, Ebola, and AIDS





Full Dengue Host/Vector Model requires 51 Compartments

Human
Host

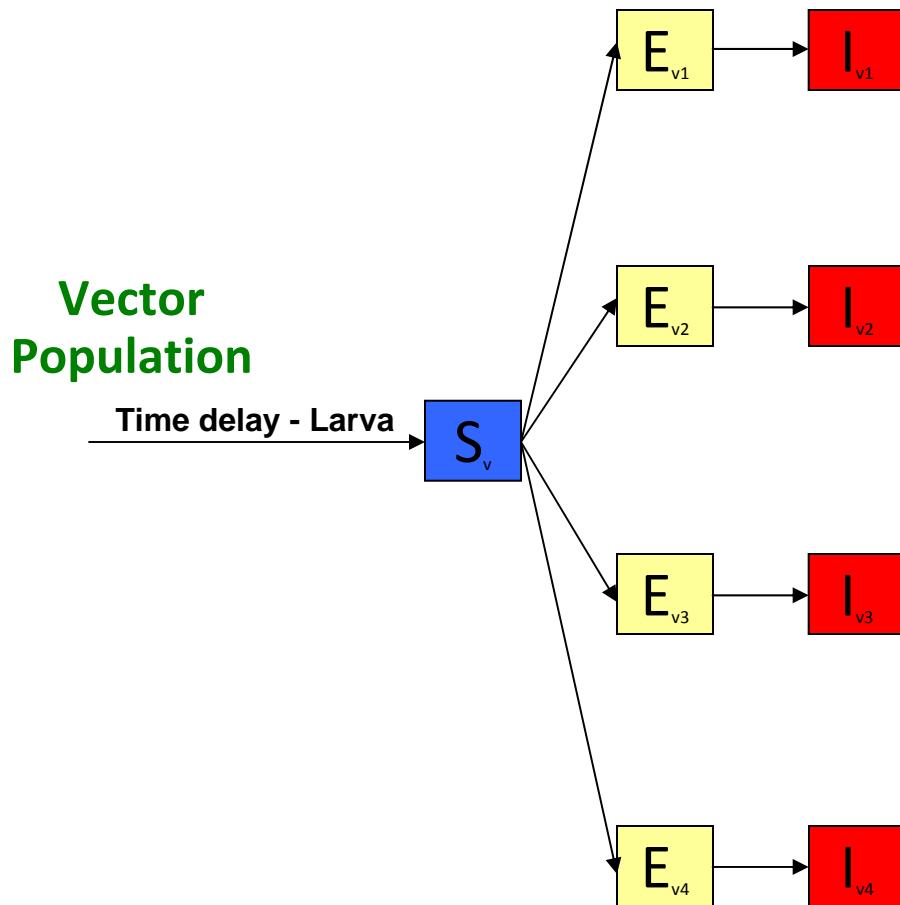


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Vector Population Compartment Model



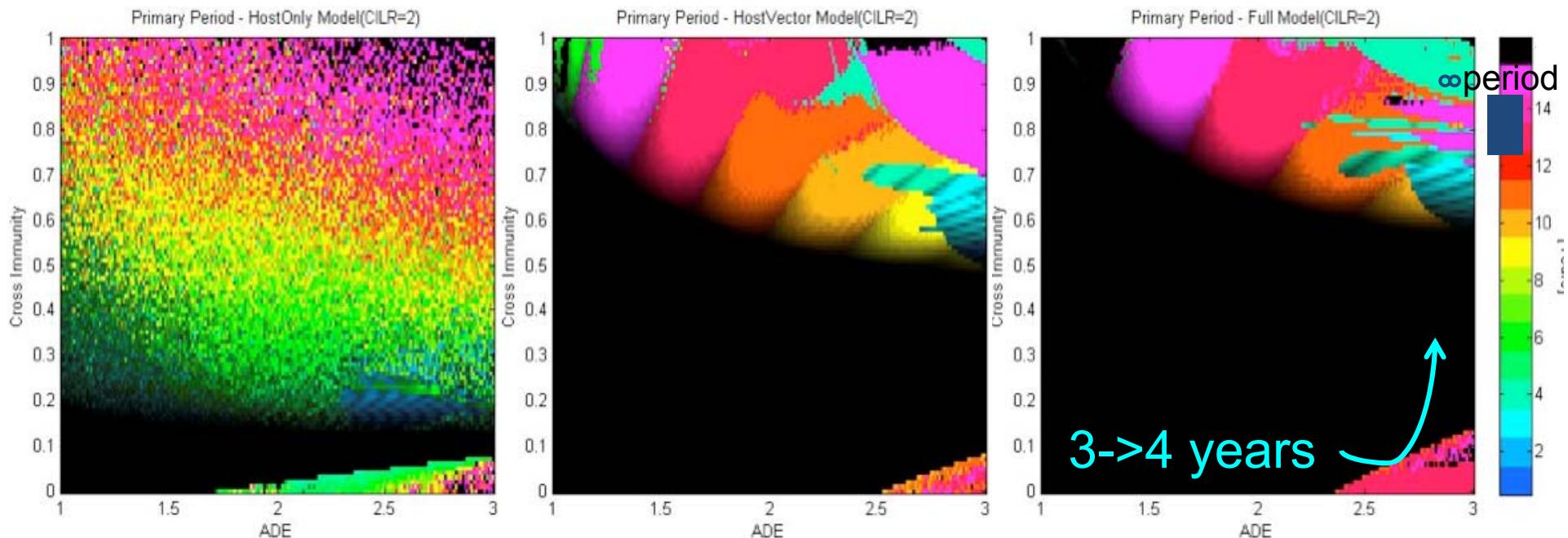
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Explaining the observed 3-4 year quasi-periodic outbreaks in Thailand

Hopf Bifurcation



Each image (map of phase space) required 10,000 simulations of 9000 years each
Antibody Dependent Enhancement (ADE) vs Cross Immunity



- A realistic period for dengue outbreaks (3-4 years) occurs only at high levels of ADE (>2)
- The observed Dengue Fever Dynamics requires a combination of:
Antibody Dependent Enhancement (ADE)
and
Cross Immunity (CI)





STEM on Server Massive and Global Scale Simulation



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GEOSPATIAL DATA Application Examples





Embedded TerraFly Maps

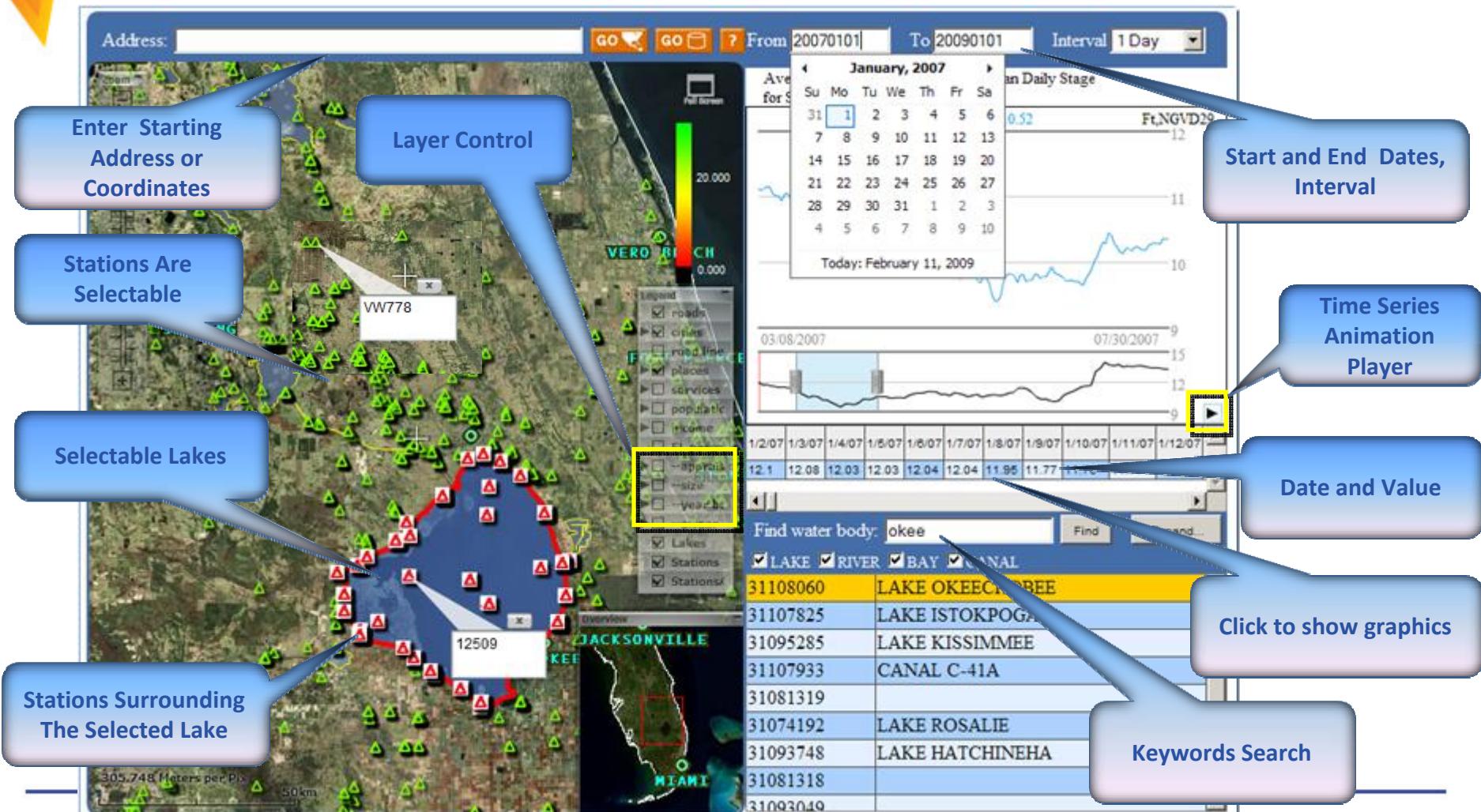
The image displays three separate browser windows side-by-side, each showing a different city's website with an embedded TerraFly map.

- Left Browser:** Shows the City of Miami Gardens website (<http://miamigardens.fl.gov/planning&zoning/viewmaps.html>). The TerraFly map shows a residential area with streets like NW 167TH TER and NW 168TH TER.
- Middle Browser:** Shows the City of Coral Gables website (<http://www.coralgables.com/CGweb/terrafly.aspx>). The TerraFly map shows a satellite view of a neighborhood with streets labeled PLACE MICHEL, PLACE RICARDO, HYATT, CORAL WAY, DAVID WILDEMAN, VALLENCE AVE, ALMIRIA AVE, SEVILLA AVE, PALENO AVE, and CATALORIA AVE.
- Right Browser:** Shows the City of North Miami Beach website (http://www.citynmb.com/Index.asp?Type=B_BASIC&SEC=3AE4). The TerraFly map shows a map of North Miami Beach neighborhoods, with a red outline highlighting a specific area.



Hydrology Application

Average of Surrounding Stations' Mean Daily Level for Selected Water Body



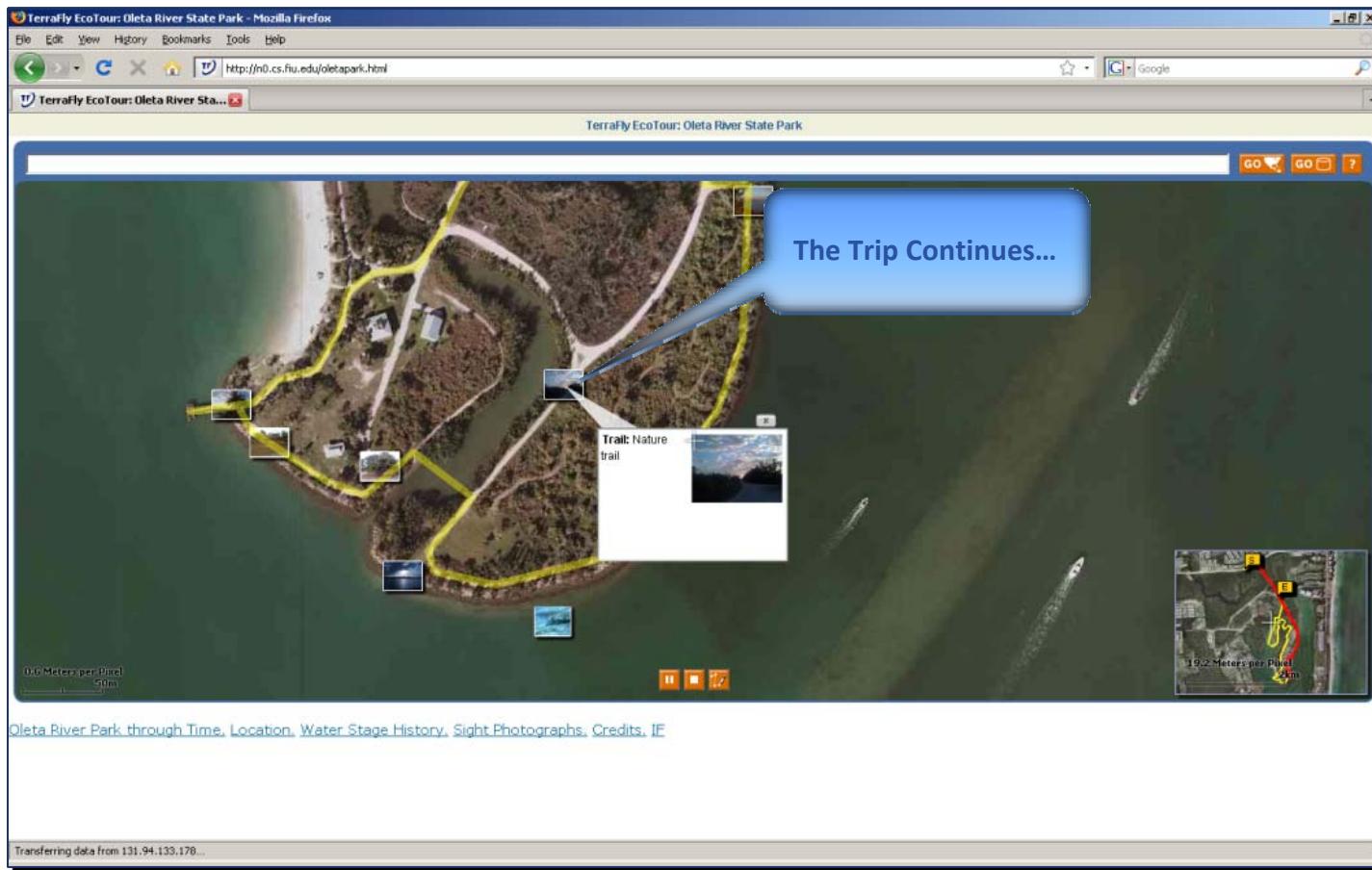


Geo-spatial-temporal Plots





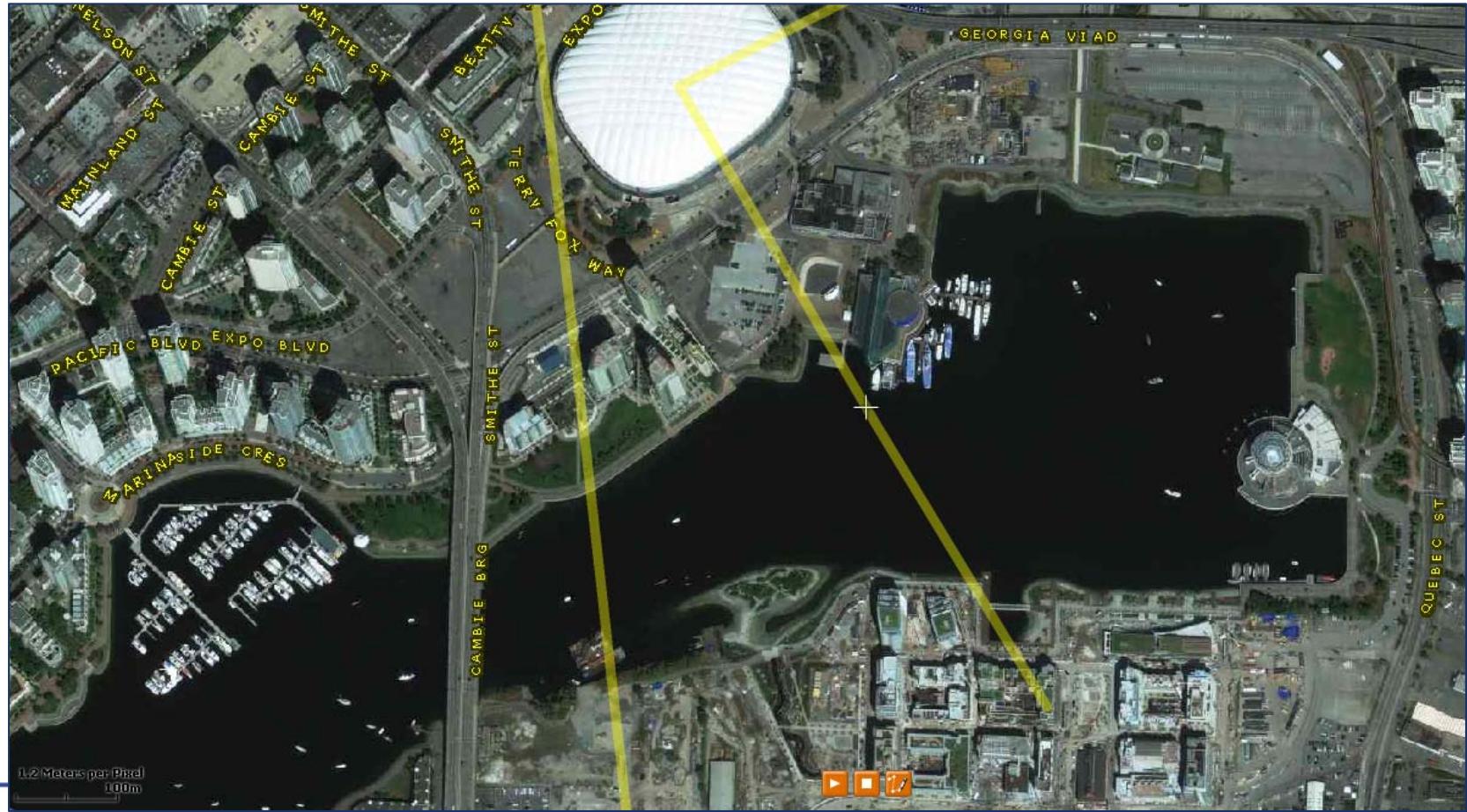
Ecology





Public Gatherings

Vancouver Olympic Venues





Education

Geographic Query by Example

GeoQuery: Public Schools near 739 BLUE RD, MIAMI, FLORIDA 33146 Latitude 25.72797 Longitude -80.26834 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://vn4.cs.fiu.edu/cgi-bin/arquery.cgi?category=public_schools&x1=-80.268343&y1=25.727904&action=dispense&vid=8place_name=

ms expression stuck using hand tool

GeoQuery: Public Schools near 739...

739 BLUE RD, MIAMI, FLORIDA 33146

Zoom Download Measure Select Area

Cimarrone Golf Club Early Childhood Coral Gables Ian Day Fair Root

Westbrook Day Care Saint Albans Preschool Miami Fire College Vanguard School Coconut Grove Granada Christian

2.4 Meters per Pixel 200m Overview

Load: roads, cities, road lines, places, services, food, population, income, parcels, appraisal, size, year built, owner, real estate, environment

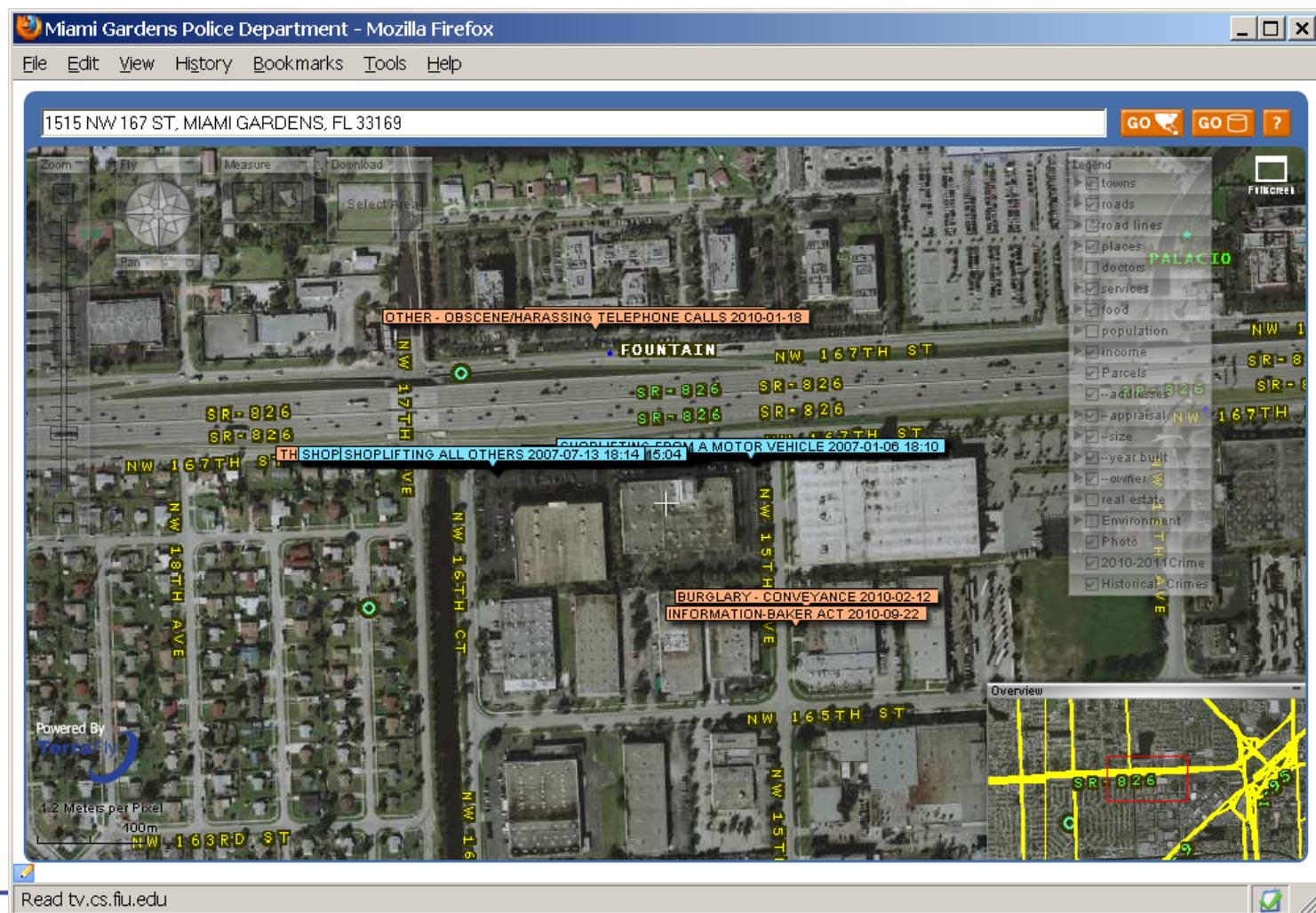
Change location by browsing and double-clicking the map or browse local [towns](#) or [zips](#) or [FL](#) or [World](#)

links to locations & details	School Name F	Phone Number	Location Address	Location City	School Type	Total Students	Pupil / Teacher Ratio	Low Grade	High Grade	Mathematics	Reading	Science	Writing
1: 2937	GEORGE W. CARVER ELEMENTARY SCHOOL	305-443-5286	238 GRAND AVENUE	CORAL GABLES	Regular School	583	17.7	PK	5	338	315	286	3.9
2: 2990	CORAL GABLES SENIOR HIGH SCHOOL	305-443-4871	450 BIRD ROAD	CORAL GABLES	Regular School	3607	22.4	8	12	299	301	267	3.8
3: 3073	G. W. CARVER MIDDLE SCHOOL	305-444-7388	4901 LINCOLN DRIVE	MIAMI	Regular School	1004	17.3	6	8	367	353	348	4.6
4: 3350	WEST LABORATORY ELEMENTARY SCHOOL	305-661-7661	5300 CARILLO STREET	CORAL GABLES	Regular School	320	13.9	K	6	337	328	309	3.8
5: 4390	PONCE DE LEON MIDDLE SCHOOL	305-661-1611	5801 AUGUSTO STREET	CORAL GABLES	Regular School	1501	19.5	6	8	303	286	274	3.7
6: 4933	FRANCES S. TUCKER ELEMENTARY SCHOOL	305-567-3533	3500 DOUGLAS ROAD	MIAMI	Regular School	453	13.3	PK	5	296	279	256	3

Transferring data from 131.94.133.178...



Crime and Incidents



Read tv.cs.fiu.edu



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Cadastre



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Properties & details	Folio	Use	Just Value (US\$)	County assessed value (US\$)	Land Value (US\$)	Land area (sq.ft.)	Year improved	Sq.ft (sq.ft.)	Owner	Legal	Parcel address	Parcel city	USD / sqft (US\$)	Sale history
	232220170050	Government--Municipal (89)	\$6.39M	\$6.39M	\$6.27M	66K	1972	2035	CITY OF MIAMI BEACH	NURSERY SUB PB 23-66	4300 CHASE AVE	Miami Beach	\$3141.46	
	232220170070	Residential--Single-family (1)	\$706K	\$265K	\$412K	9622	1969	3150	DEBRA GOODSTONE	NURSERY SUB PB 23-66	4274 CHASE AVE	Miami Beach	\$224.148	year-mo price 1977-12 70000
	232220170080	Residential--Single-family (1)	\$751K	\$264K	\$415K	9700	1946	2917	JOSE GALDO &W NANCY	NURSERY SUB PB 23-66	4266 CHASE AVE	Miami Beach	\$257.462	year-mo price 1993-02 218000 1991-04 1

Transferring data from terranode-246.cs.fiu.edu...



White Pages

GeoQuery: White Pages near 4300 CHASE AVE, MIAMI, FLORIDA 33140 Latitude 25.8174 Longitude -80.13084 - Mozilla Firefox

Edit View History Bookmarks Tools Help

4300 CHASE AVE, MIAMI, FLORIDA 33140

GO ↗ GO ↘ ?

Legend: towns roads places doctors services food population income Parcels addresses appraisal size year built owner real estate Environment QUERY

0.3 Meters per Pixel

Wilberto Martinez Aron Lampert Yitzhak Goldstein Roberta Miller Eleanor Botach Anonymity names Groups info Ilene Damashki Randal Baird

W 44TH ST

Change location by browsing and double-clicking the map or browse local [towns](#) or [zipcodes](#) or [FL](#) or [World](#)

Address & Details	Name	Street Address	City State Zip	Phone	Name 2	Name 3	Name 4	Income Estimated	Owned or Rented home	Residence Length	Mortgage Age	Mortgage Loan to Value Ratio
	Roberta H Miller	4410 Prairie Ave	Miami Beach, FL 33140-3003	305-674-9844	Joshua Miller	Jonathan Miller	Roberto Miller	\$200-500K ..	Home Owner	21 to 25 years	21 to 25 years	0.10 to 0.19
	Jay L Enis	4430 Prairie Ave	Miami Beach, FL 33140-3003	305-534-6101	Susan Enis	Dara R Enis	Sean P Enis	\$200-500K ..	Home Owner	5 to 6 years	2 years or less	0.70 to 0.79
	Yitzhak Goldstein	4430 Prairie Ave	Miami Beach, FL 33140-3003					\$60-100K ..	Renter	2 years or less		

Transferring data from 131.94.133.178...



Rooftop Geocoding

Nationwide cadastre database is hashed

- Step 1: Geocoding by street segment **interpolation**
- Step 2: Find the **actual parcel** nearby via hash lookup in the zip code



Spatial Keyword Search

- ◆ Textual, Structured, and Spatial attributes

id	type	description	loc.
1	house	pool, building	(1,2)
2	condo	beach, view, collins	(3,4)
3	house	water, fountain	(5,6)
...			

- Optimization of spatial queries with constraints on text and numeric attributes
- Example: “find the closest houses to my current location with pool or beach access”.
- Leveraging R-trees and Inverted Files. SSDBM 2010: “Efficient and Scalable Method for Processing Top-k Spatial Boolean Queries”.



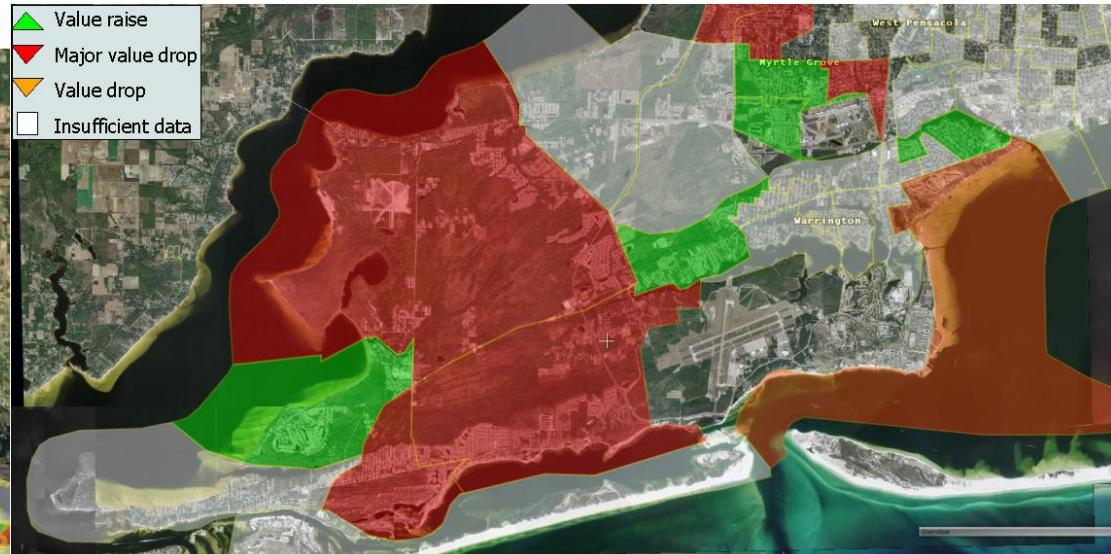
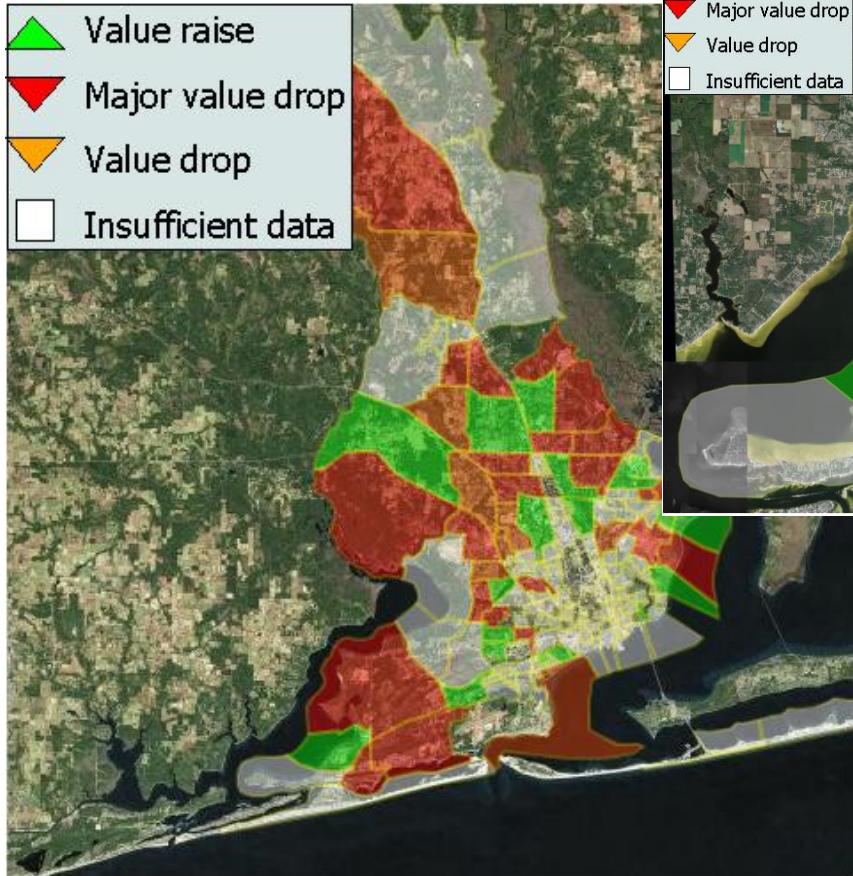
Parallel Spatial-Similarity Joins

- ◆ Combination of **Spatial and Non-spatial** attributes
- ◆ **Applications:**
 - data cleansing
 - record linkage
 - duplication detection
 - improved geocoding



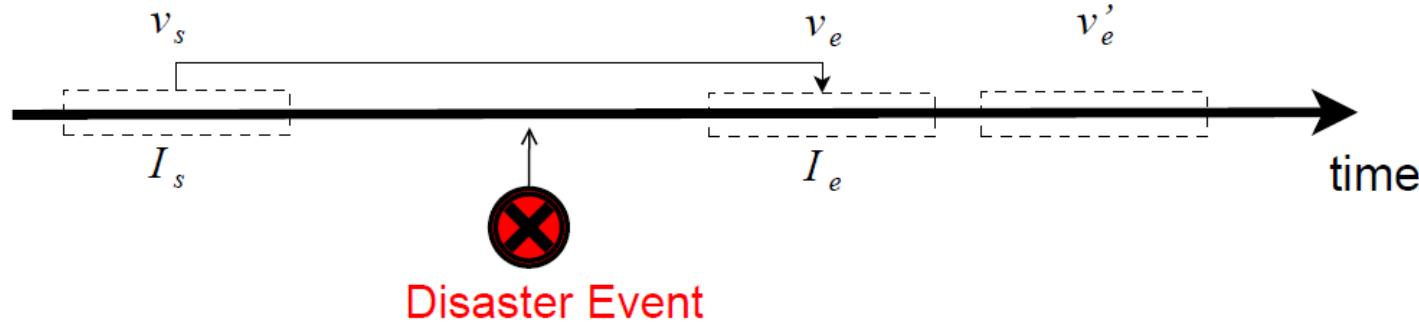
Quantifying Disaster Impact on Property Values

Example: Deep Water Horizon oil spill





Virtual Community (VC) Value Change Rate



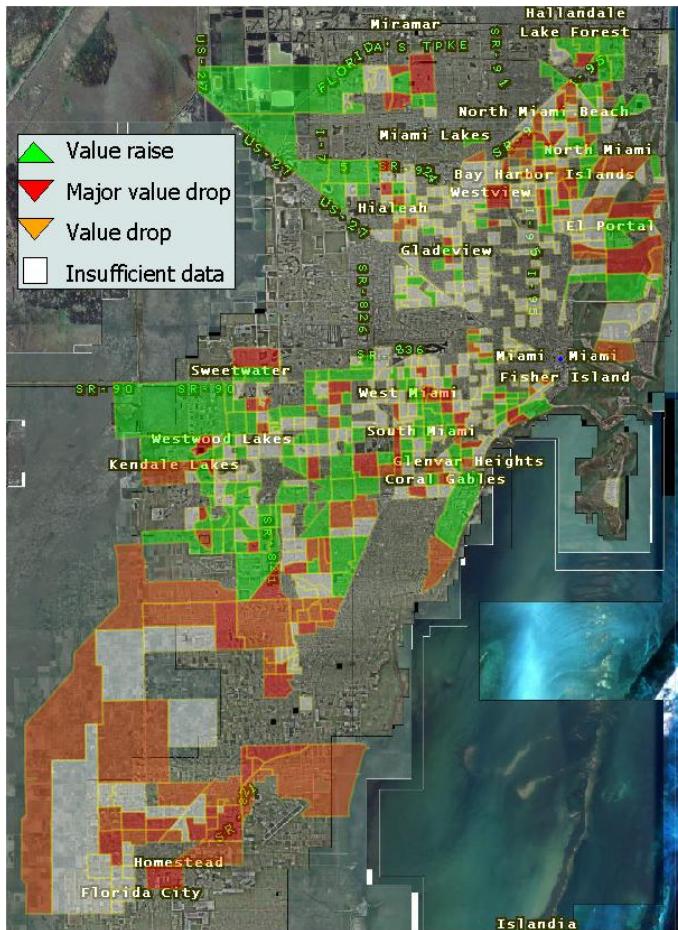
- ◆ Analyze VC value change rates between intervals of time around the disaster occurrence: $\alpha^{(s,e)} = \frac{v_e - v_s}{v_s}$
- ◆ Fix start interval I_s , compute change rates over the next p intervals (columns) for a set of c virtual communities (rows).

$$A = \begin{pmatrix} \alpha_1^{(s,e_1)} & \alpha_1^{(s,e_2)} & \dots & \alpha_1^{(s,e_p)} \\ \alpha_2^{(s,e_1)} & \alpha_2^{(s,e_2)} & \dots & \alpha_2^{(s,e_p)} \\ \dots & & & \\ \alpha_c^{(s,e_1)} & \alpha_c^{(s,e_2)} & \dots & \alpha_c^{(s,e_p)} \end{pmatrix}$$

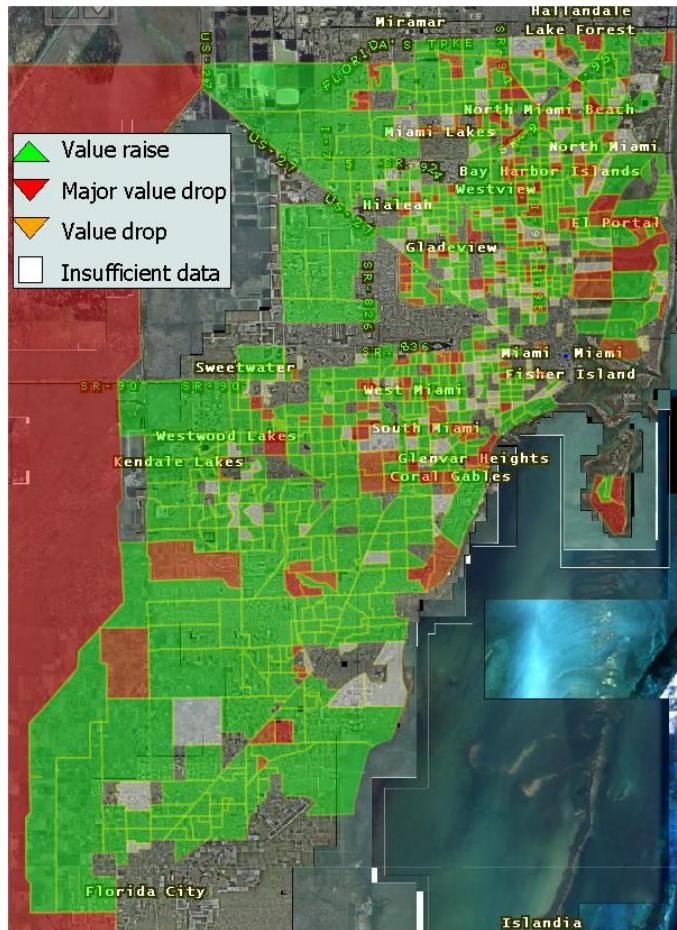
- Apply Singular Value Decomposition (SVD) on A to find a clustering of VCs.
- A cluster contains VCs with similar temporal change rates.



Study: Hurricanes in Miami-Dade County



Hurricane Andrew (August 1992)
Interval: May'92 – Dec'93



Hurricane Wilma (October 2005)
Interval: May'05 – Dec'06



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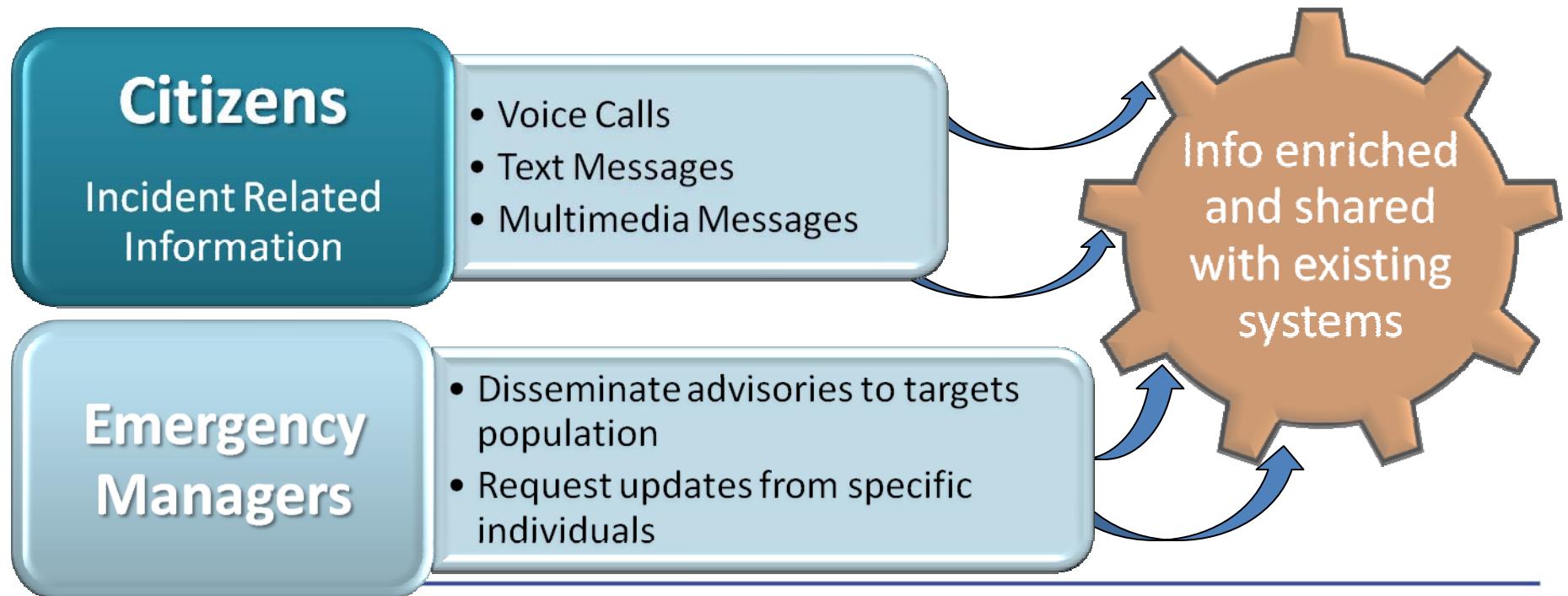
311 Emergency Event Assessment by Merging Hotline messages with Data Streams



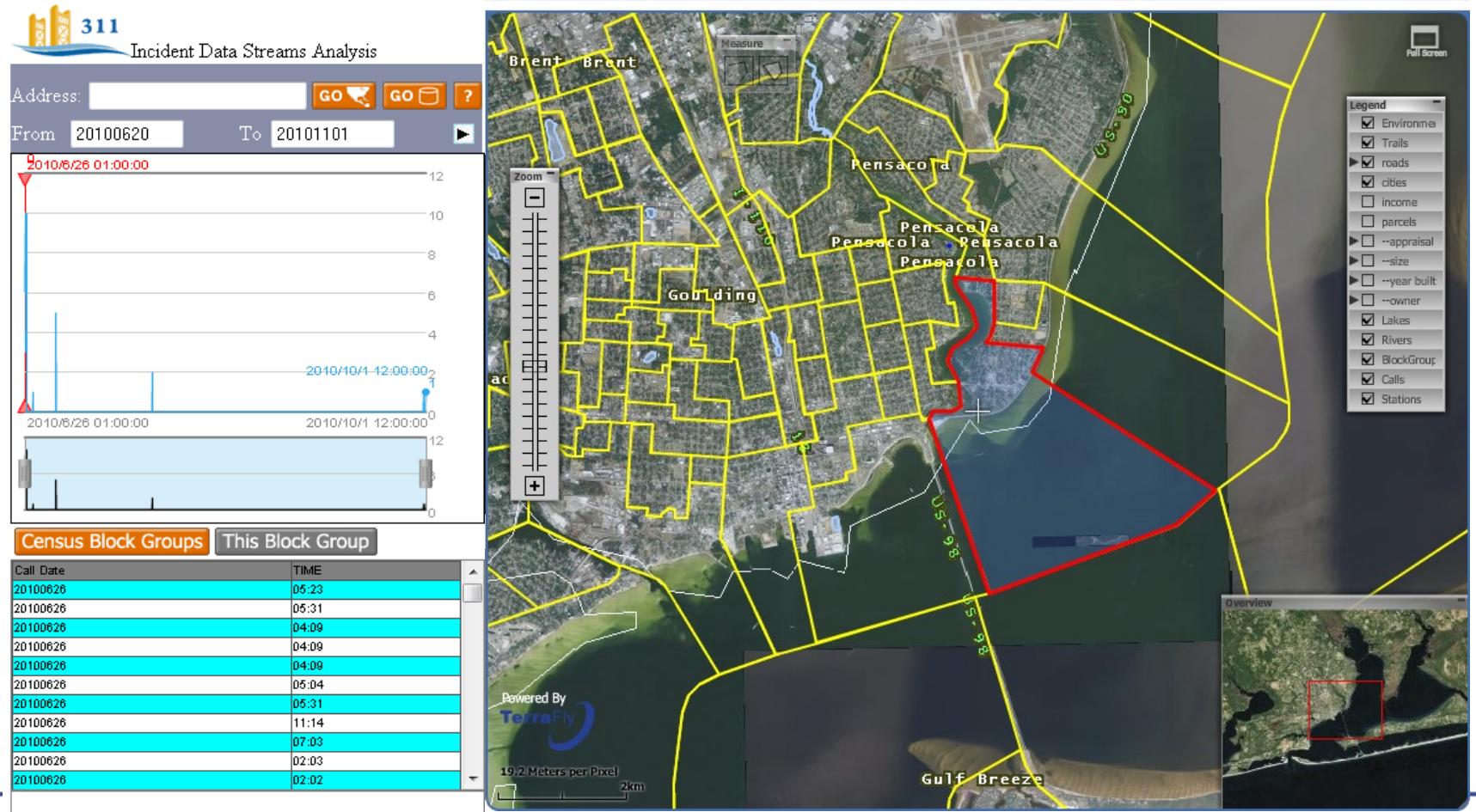


Objective

Towards a Nation-wide 311 System



311 Incident Analytics: Heterogeneous Spatial-temporal/Real-time Data Stream Mashup





311 Prototype: Record drilldown

GeoQuery: Emergency Calls Test near 7700 SW 122 ST, MIAMI, FLORIDA 33156 Latitude 25.6571 Longitude -80.31863 - Mozilla Firefox

GeoQuery: White Pages near 7700 SW 122 ST, MIAMI, FLORIDA 33156 Latitude 25.6571 Longitude -80.31863 - Mozilla Firefox

Philip G Perry • Street Address: 7700 SW 122nd St • City: State Zip: Miami, FL 33156-5225 • Phone: 305-233-5684 • Area Code of the Phone: 305 • Phone Number without Area Code: 233-5684 • City: Miami • State: FL • ZIP: 33156 • ZIP + 4: s33156-5225z • ZIP + 4 + DPBC: s33156-5225z • Carrier Route: C026 • County: Miami-Dade • First Name: Philip • Last Name: Perry • Gender: M • Age: 45 to 54 • Name 2: Patty Perry • First-2: Patty • Last-2: Perry • Gender: 2: F • Name 3: Jacqueline I Perry • Age 3: 18 to 24 • Name 4: Matthew P 54 • Residence Type: Single family dwelling • Home Age: 45 to 50 years • Home Value Estimated: \$200,000 to \$249,999 • Income Estimated: \$100-200K+ • Owned or Rented home: Home Owner • Residence • Mortgage Loan Type: New Conventional • Personal Details 1:

Done

USGS Real-Time Water Data for USGS 022907085 BLACK CREEK CANAL WEST OF U.S. 1 NR GOULDS, FL

Most recent instantaneous value: -0.27 06-07-2011 11:11

USGS 022907085 BLACK CREEK CANAL WEST OF U.S. 1 NR GOULDS, FL

Date	Gage height, feet
May 31, 2011	-0.10
Jun 01, 2011	-0.10
Jun 02, 2011	-0.10
Jun 03, 2011	-0.10
Jun 04, 2011	-0.27
Jun 05, 2011	-0.10
Jun 06, 2011	-0.10

Done

00:00 00:00

0016e6454a34198da00490f1eb77 • Date-time of the call GMT: 201106071149 • Date of the call: 2011-06-07 • Time of the call GMT: 19:03z • Phone-caller-id of the call: (305) 233-5684 • Incident Type: flood

- Name per caller-id: Jennifer Perry
- Transcript of the voice message or text of the SMS: My name is Matthew. I live at 7700 Southwest 120 Second Street and its pouring rain. My house is flooding in. There is water coming in through the roof. Please send help Voice or Photo: google.com/voice/fm/10975671240650808313/AHwOX_Clo... • Name-mined: Jennifer Perry
- Address: 7700 SW 122nd St Miami FL 33156-5225
- Related: WEB INFO: Jennifer L Perry, Kelly C Perry, Mary S Perry, Mathew P Perry, Phillip G Perry,

Neighborhood: sq.miles: 0.5743; water-sq.miles: 0.0000; population: 1170; homes: 386; median-age: 39.2; adults: 813; family-size: 3.06; rooms: 6.9; aggregate-income-\$: 34600300; median-income-\$: 80263; home-value-\$: 289900; year-built: 1962; rent-\$: 1086; %-owner-occupied: 79.189; %-vacant: 2.632;

Gage: BLACK CREEK CANAL WEST OF U.S. 1 NR GOULD, FL; alert-level: -1056; FLOW-cf/s: 0.00; STAGE-ft: -0.26; TIME: 2011-06-06 16:15:00;

Rain: mm/24h: 3.8100;

Block: sq.miles: .0323; water-sq.miles: .0000; population: 79; homes: 23; median-age: 40.4; adults: 53; family-size: 3.43; • Mode of call: voice land • Test type: human test • Community called from: 80K • Block-group per US Census: 1208600000 • Precision of Location: precise.

Done

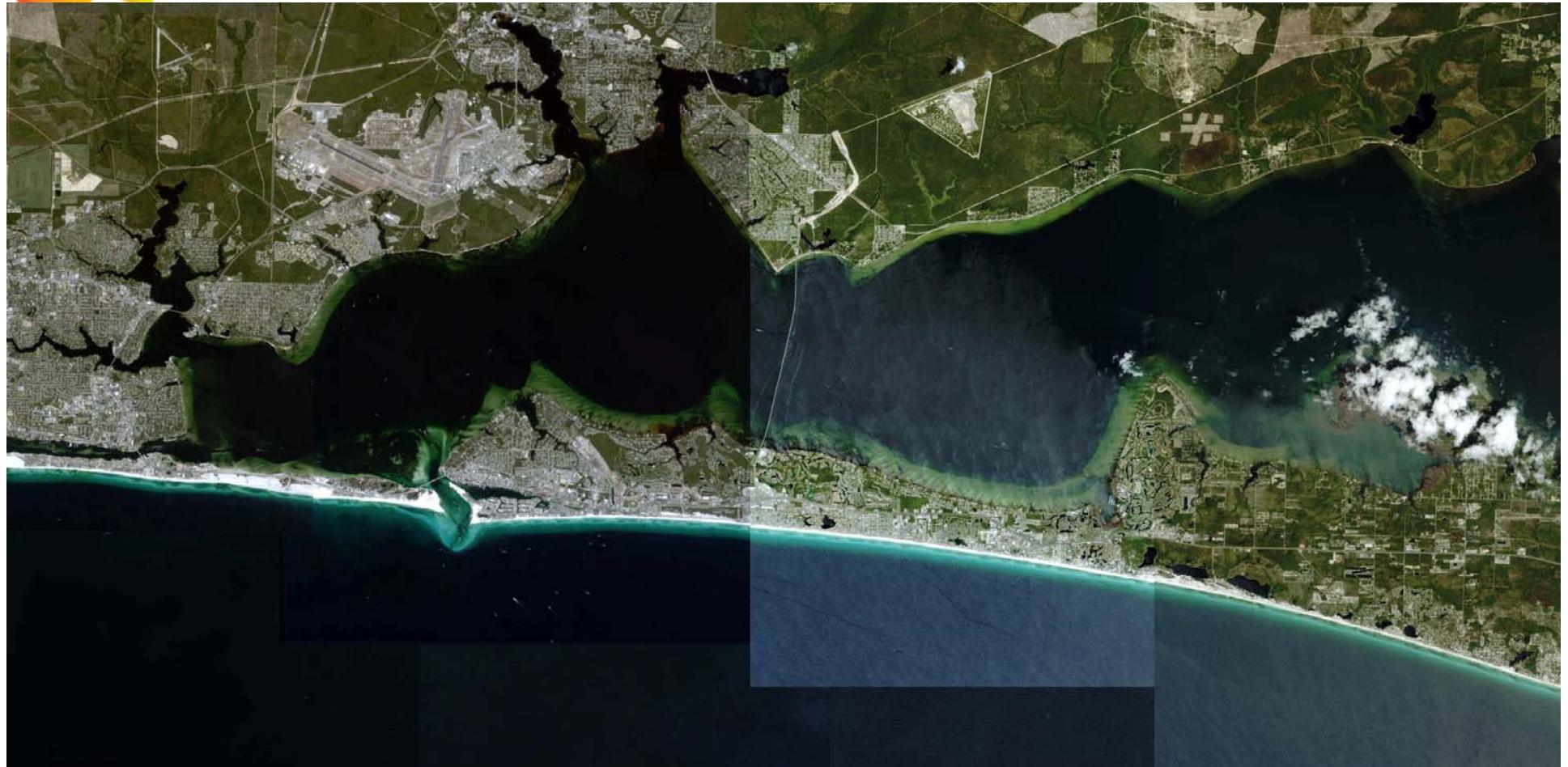


Emergency Detection and Localization Using Spatial-Similarity Joins

- ◆ **Input:** social media, text messages, transcripts of emergency calls
- ◆ **Data extraction:** words that may describe location
- ◆ **Spatial Similarity Fuzzy Join** with geolocated datasets: Nationwide cadastre, Geonames, Yellow pages, White pages →possible/probable locations
- ◆ **Clustering of results:** if many communications probably refer to the same location, there may be a situation developed there



FL Gulf Coast Time Series



2004-03-01

2010-05-17

2010-06-08



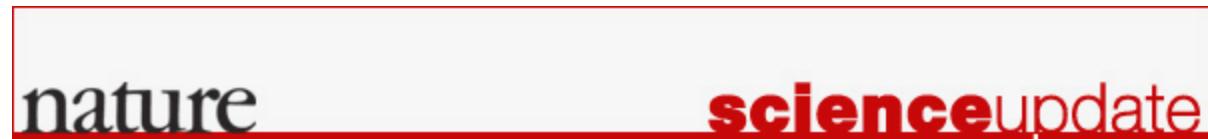


The 2011 Tsunami





Profiled



The Miami Herald

YAHOO!® Picks



Science magazine



npr



USA TODAY Tech

The New York Times ON THE WEB



VACCINOLOGY
2012

VIII International Symposium for Latin American Experts
September 3-6, Rio de Janeiro, Brazil



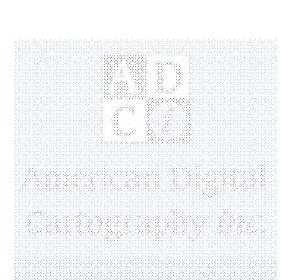
Intelligent Management of Diseases

- ◆ Integrated Vector Management
- ◆ Vaccine Distribution & Management
- ◆ Cross-analysis
 - ◆ Patient Location
 - ◆ Health Providers
 - ◆ Demographics
 - ◆ Infrastructure and Keystones
 - ◆ Economic Factors
 - ◆ Outbreak modeling (STEM)
 - ◆ Field surveys, campaigns (LW)
 - ◆ Health Promotion and Training (ACISTED)
 - ◆ High-throughput R&D



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Thank You!



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Environmental Science
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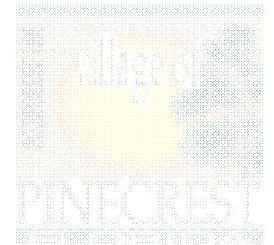
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2012
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