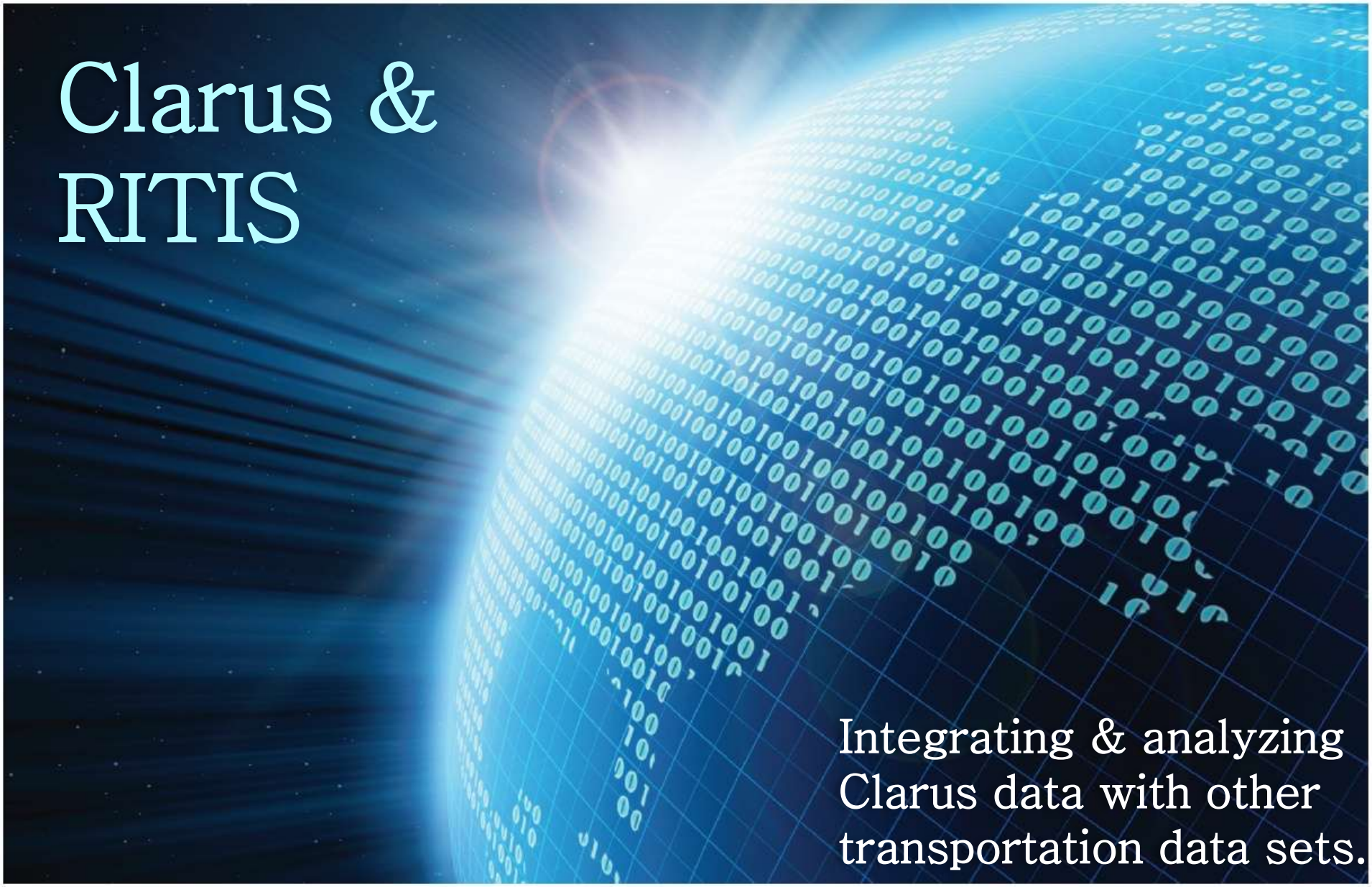
Clarus & RITIS

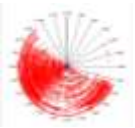


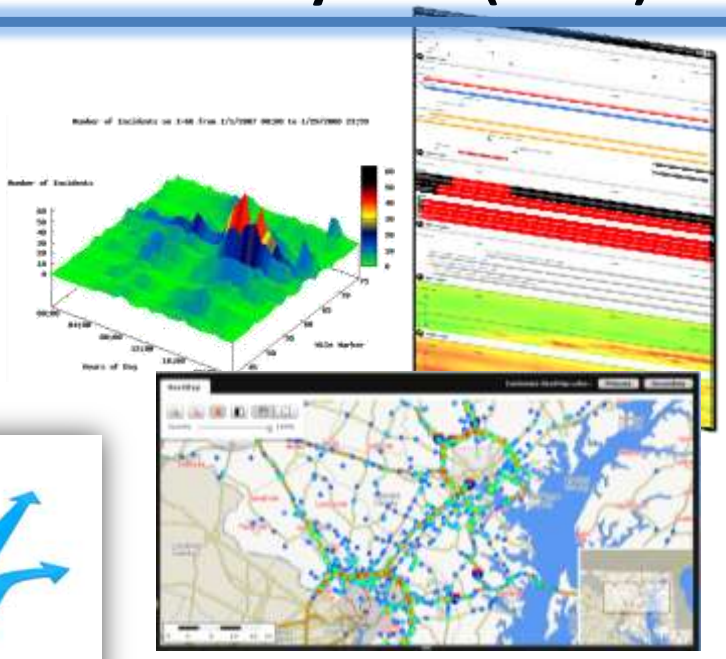
Integrating & analyzing Clarus data with other transportation data sets.

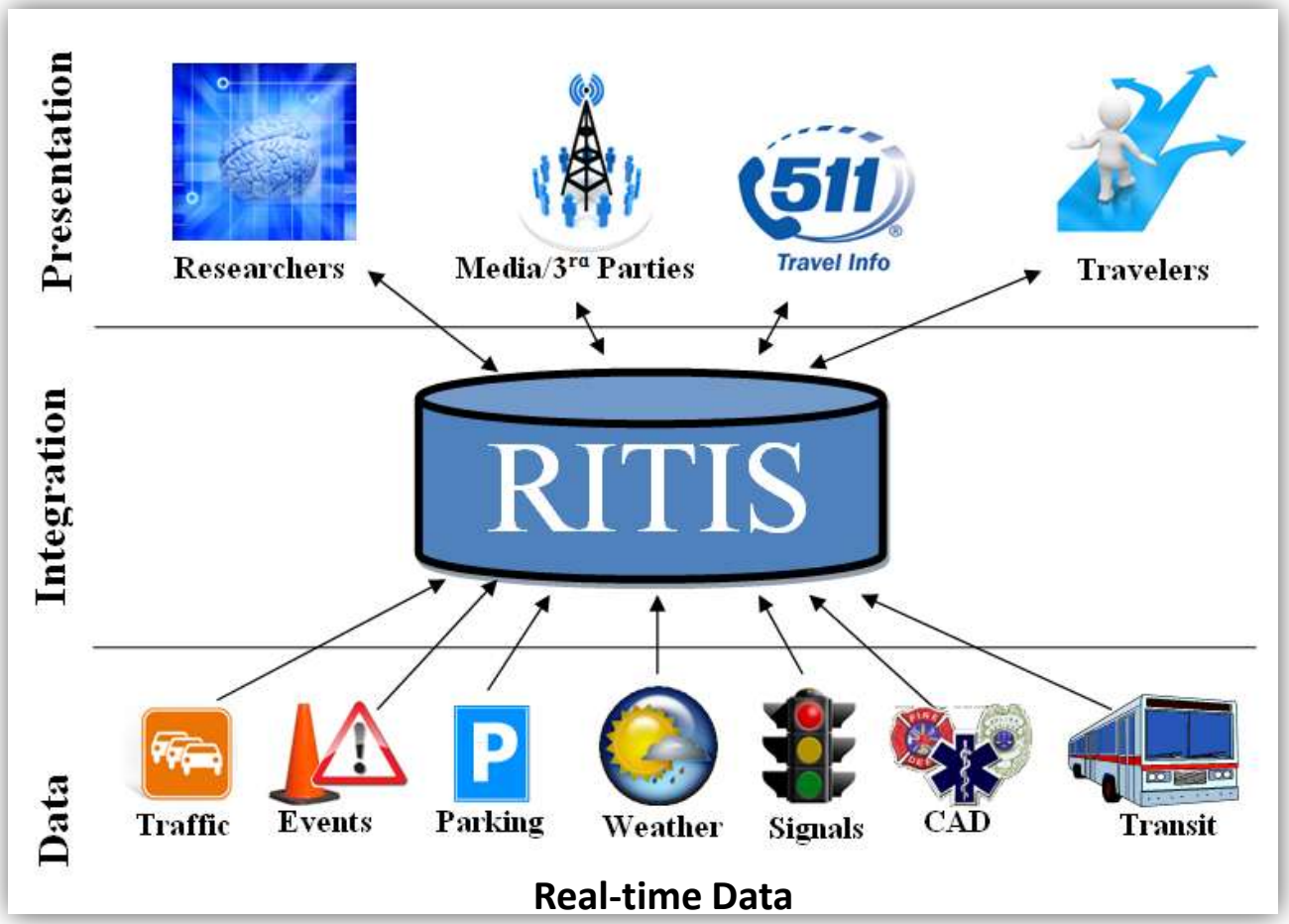
Michael L. Pack, University of Maryland
CATT Laboratory

The Regional Integrated Transportation Information System (RITIS)

- Fusing, Disseminating, & Archiving Transportation Data from Six States
- Situational Awareness
- Performance Measures & Visual Analytics Tools







Users Include:

- DOTs
- Transit Providers
- Metropolitan Planning Organizations
- Emergency Management Agencies
- FEMA
- US Army, Air Force, & NorthCom
- U.S. Secret Service
- U.S. Capitol & Park Police
- Fire & Rescue
- Law Enforcement
- NSA
- US Office of Personnel Management
- 3rd Party Trav Info Providers
- University Researchers

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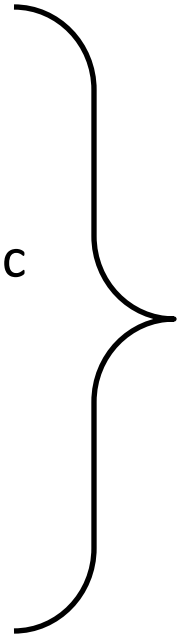
RITIS Components

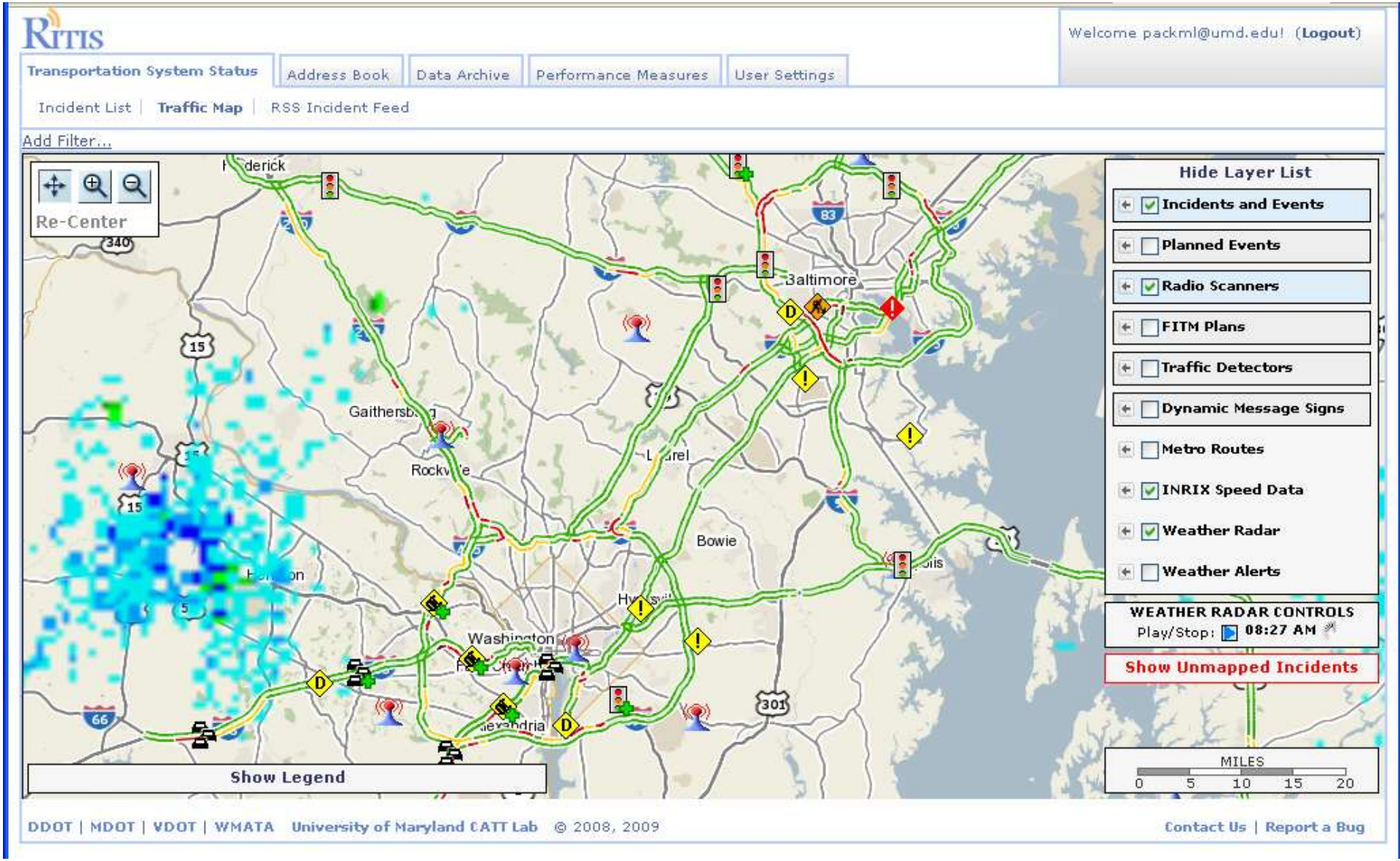
- Three main components
  1. Real-time data feeds
     - For integrating RITIS data into your own system
  2. Real-time web site
     - For those who don't have their own systems
     - For those who don't want to integrate
     - Will be modified for the media and the public
  3. Data Archive
     - Performance Measures
     - Analysis and Studies
     - After Action Reviews



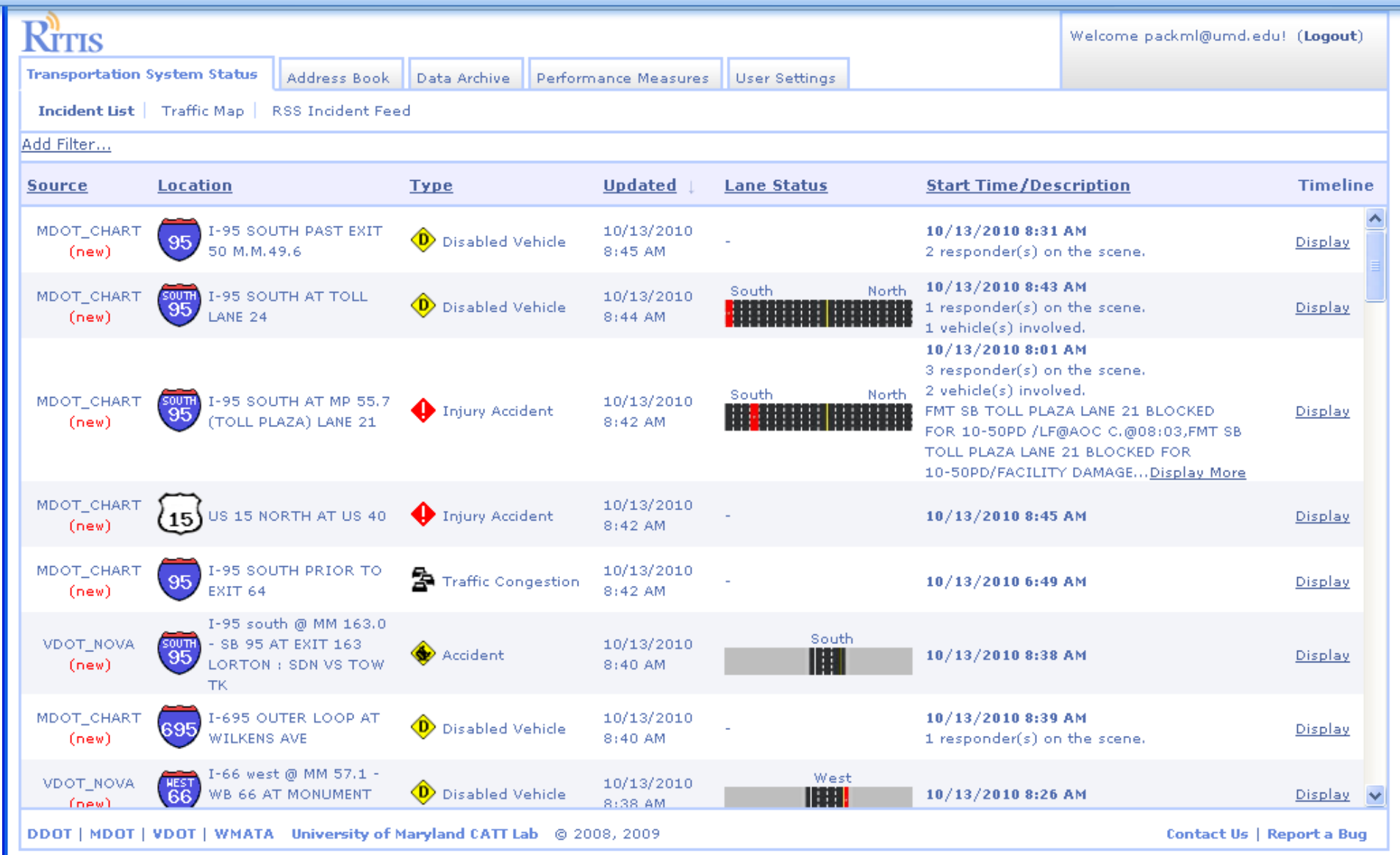
Our REAL Challenge

- Our Challenge: Make ALL of this data easily accessible, usable, and understandable to end users and ITS applications…
- Our “Design Mantra”
  - Towards no user manuals…
  - Visually pleasing…
  - Web accessible…
  - Useful!!!
  - Afford freedom to explore…
  - Overview, Zoom, Details on Demand

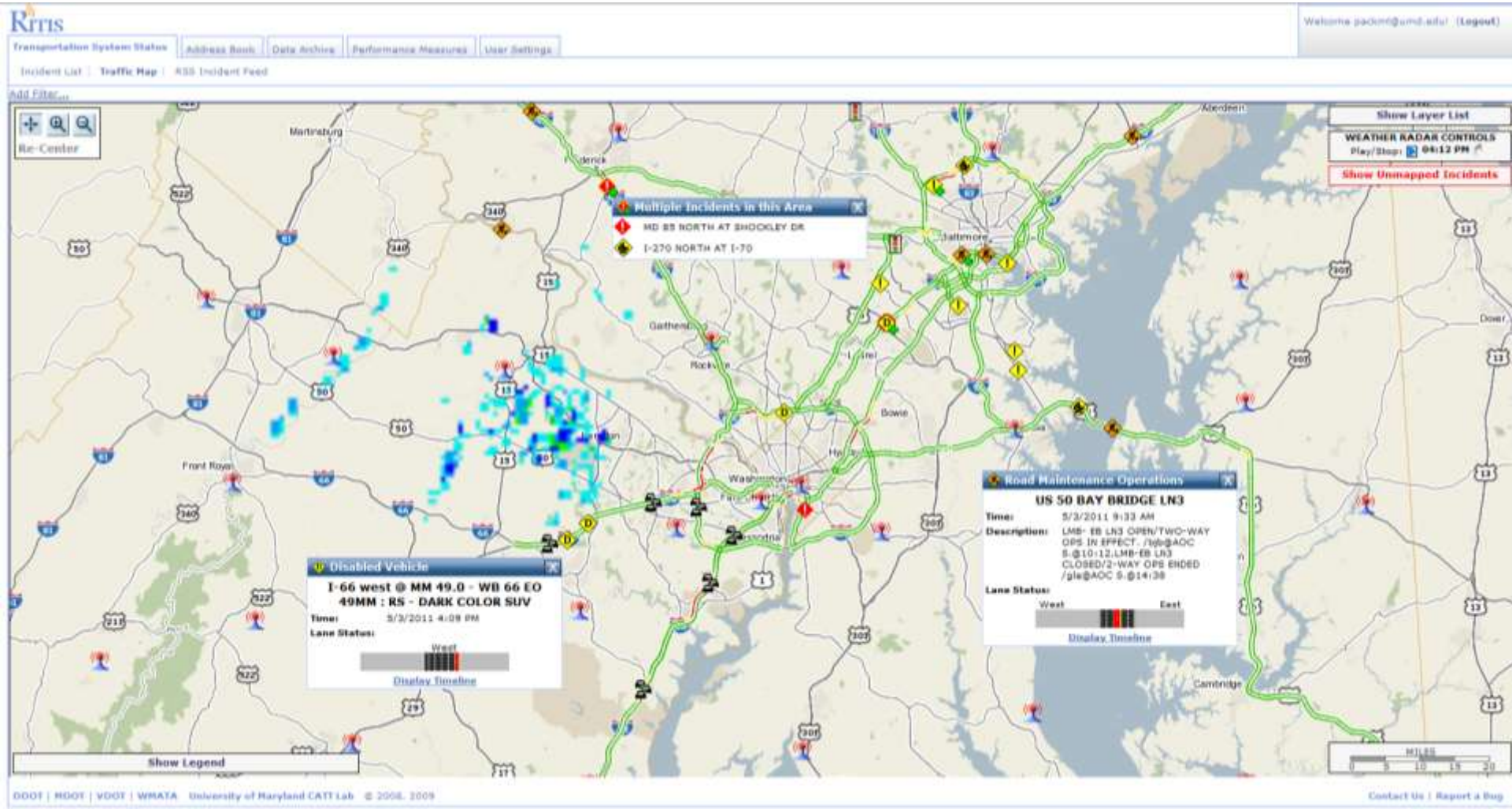
RITIS Website



Interactive RITIS Website



Interactive RITIS Website



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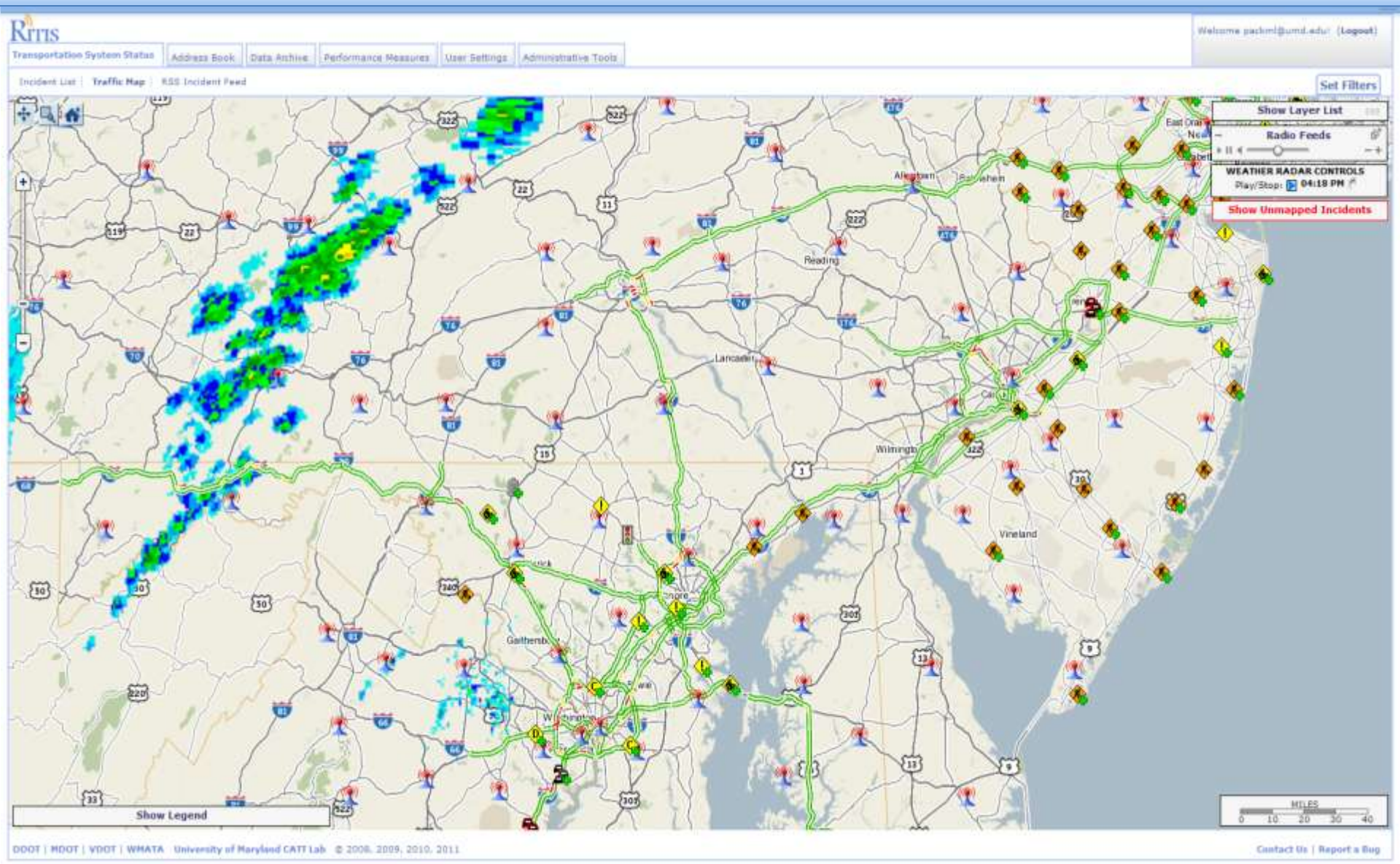
Weather Radar & NWS Alerts



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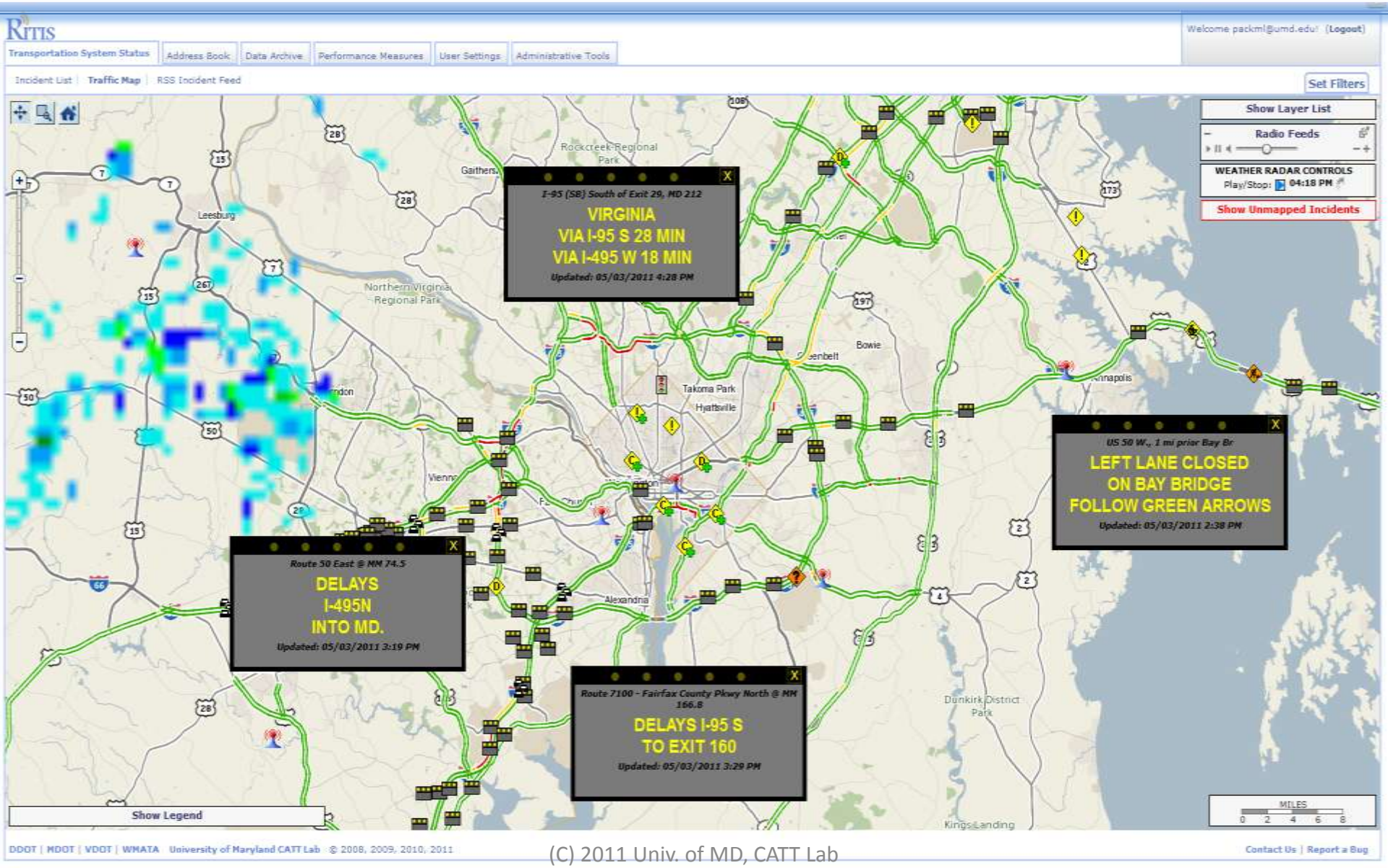
Dynamic Message Signs & other Devices



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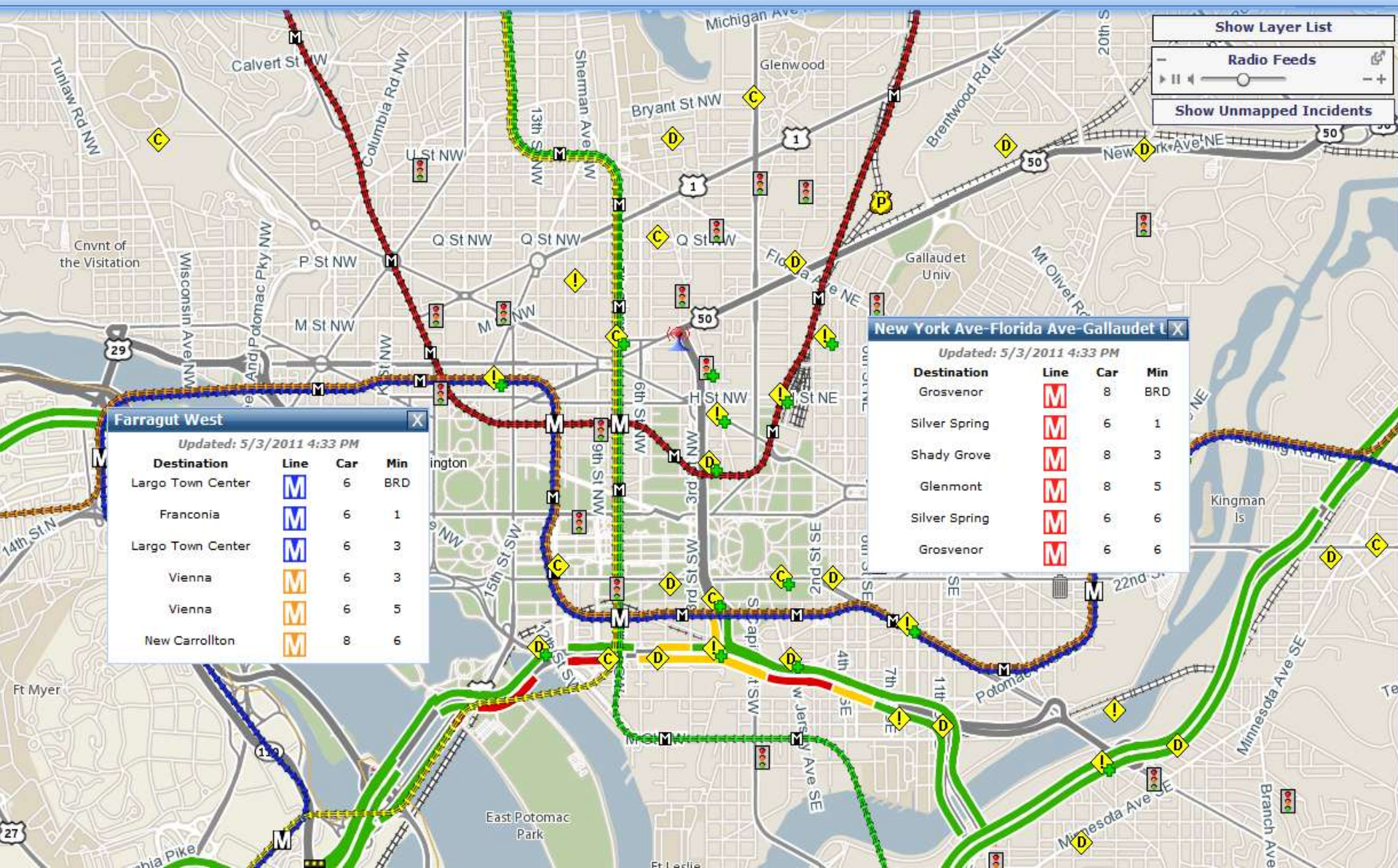
Transit (Bus & Rail)

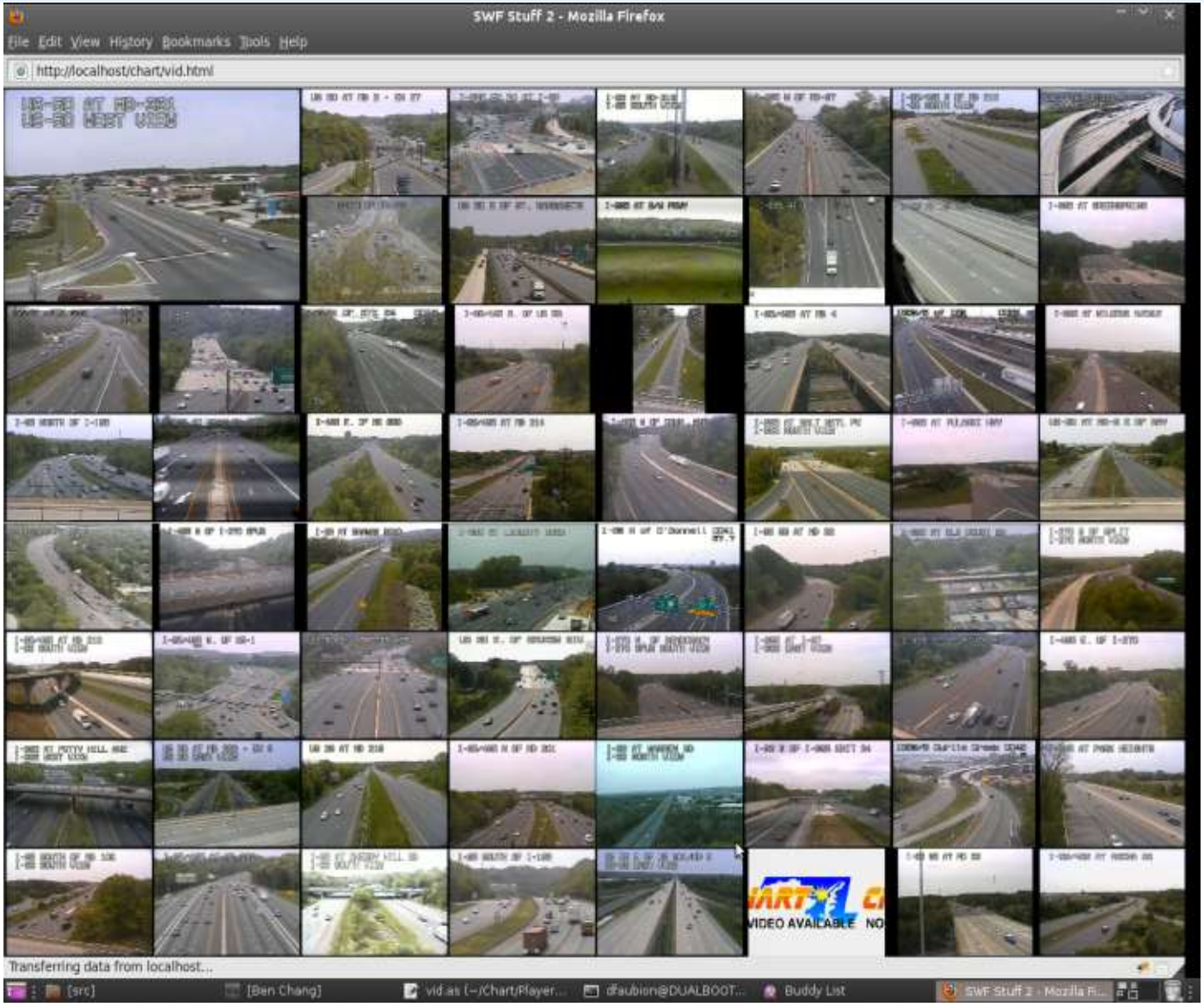


CCTV Personal Video Wall

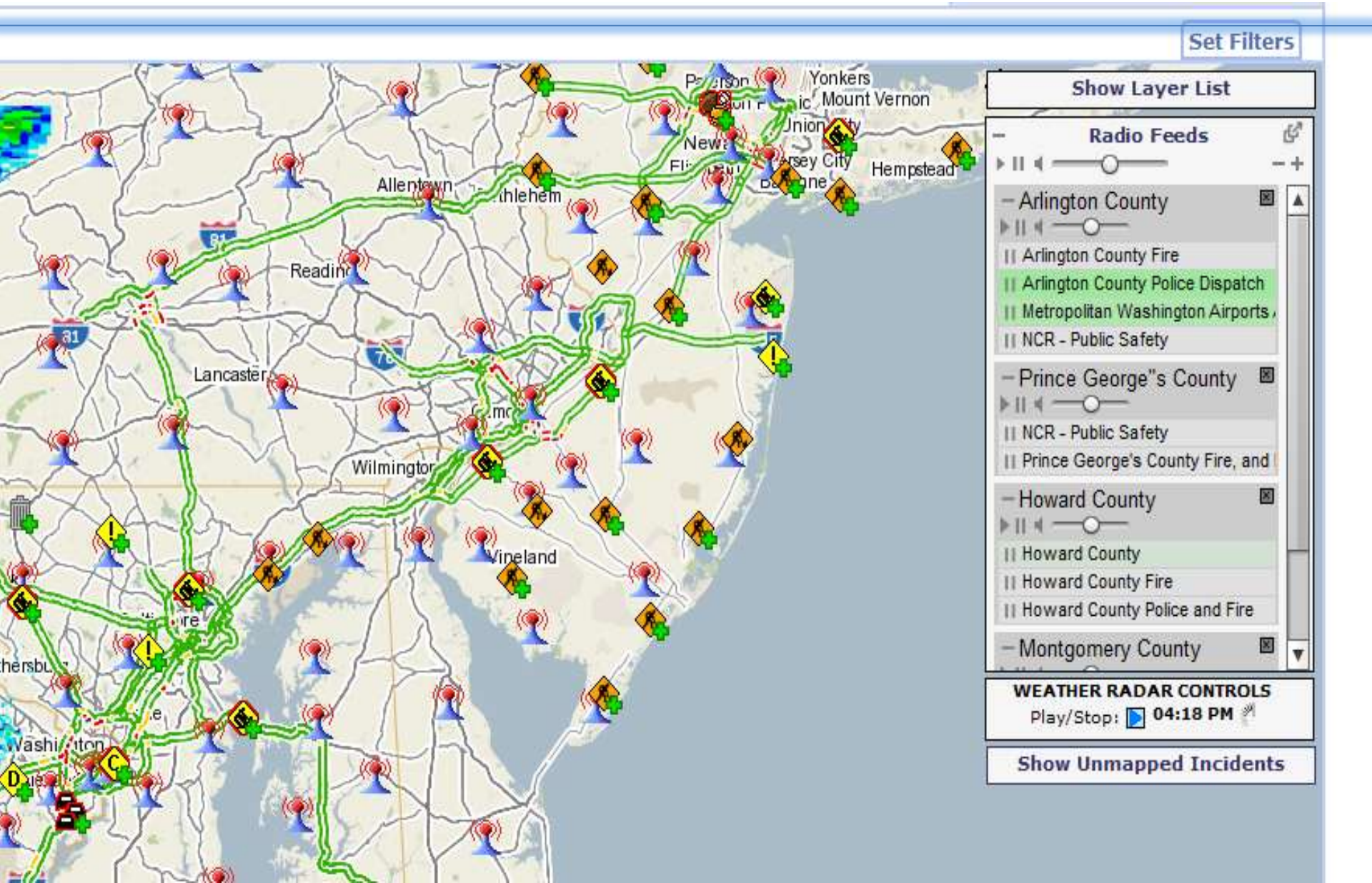
CCTV Personal Video Wall

CCTV Personal Video Wall

CCTV Personal Video Wall

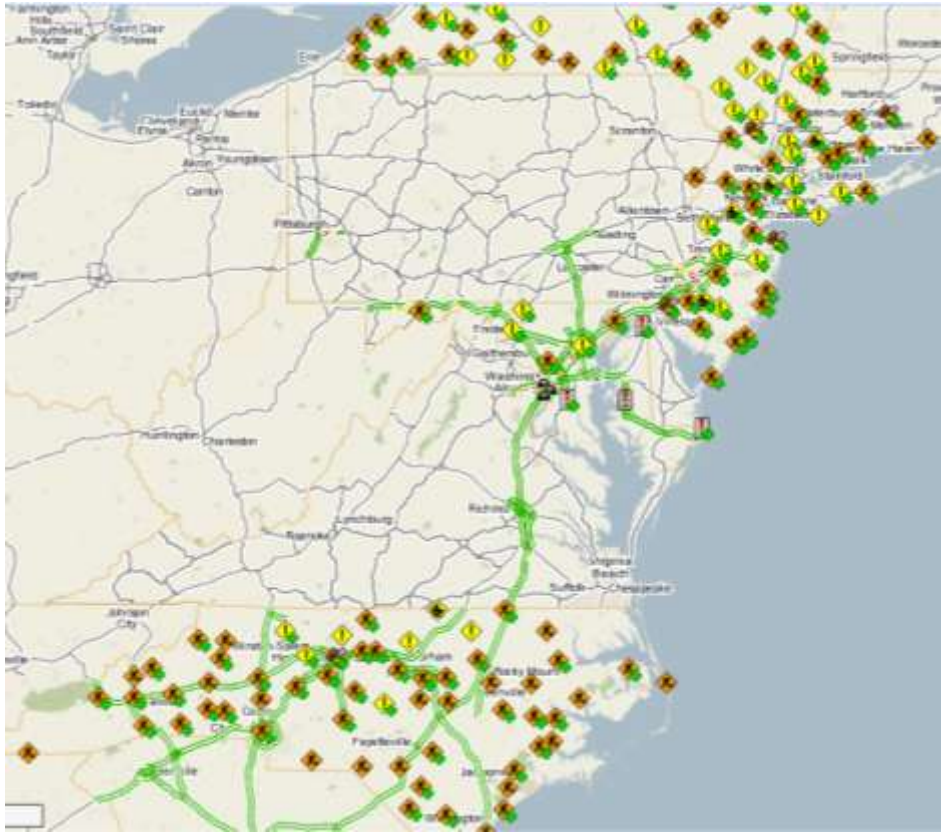


Police, Fire, EMS, & Other Radio Feeds



Other Features

- Agency Emergency Contacts
- FITM Plans
- Evacuation Routes
- Detector Data Trends
- Comparative Speeds
- Queues



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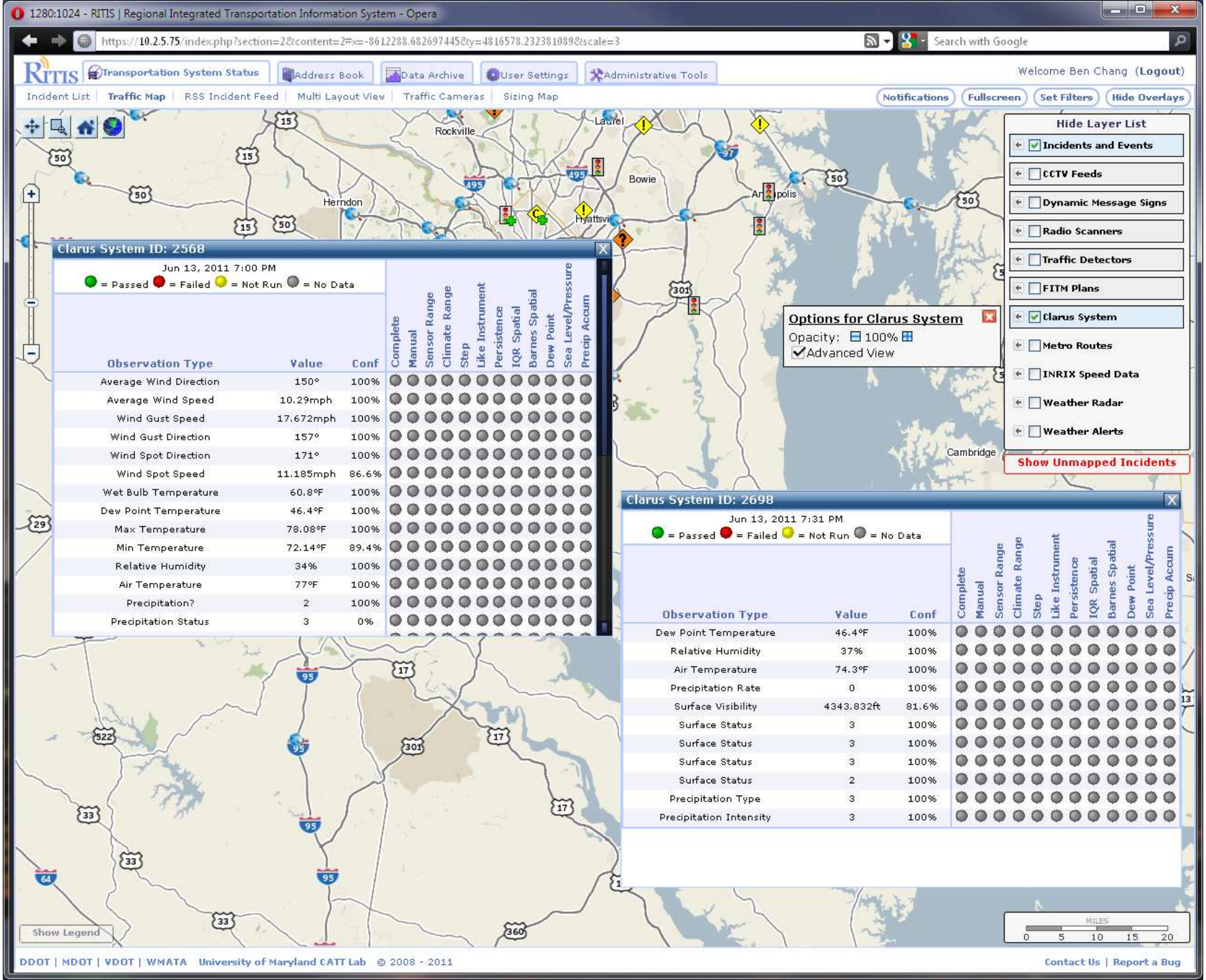
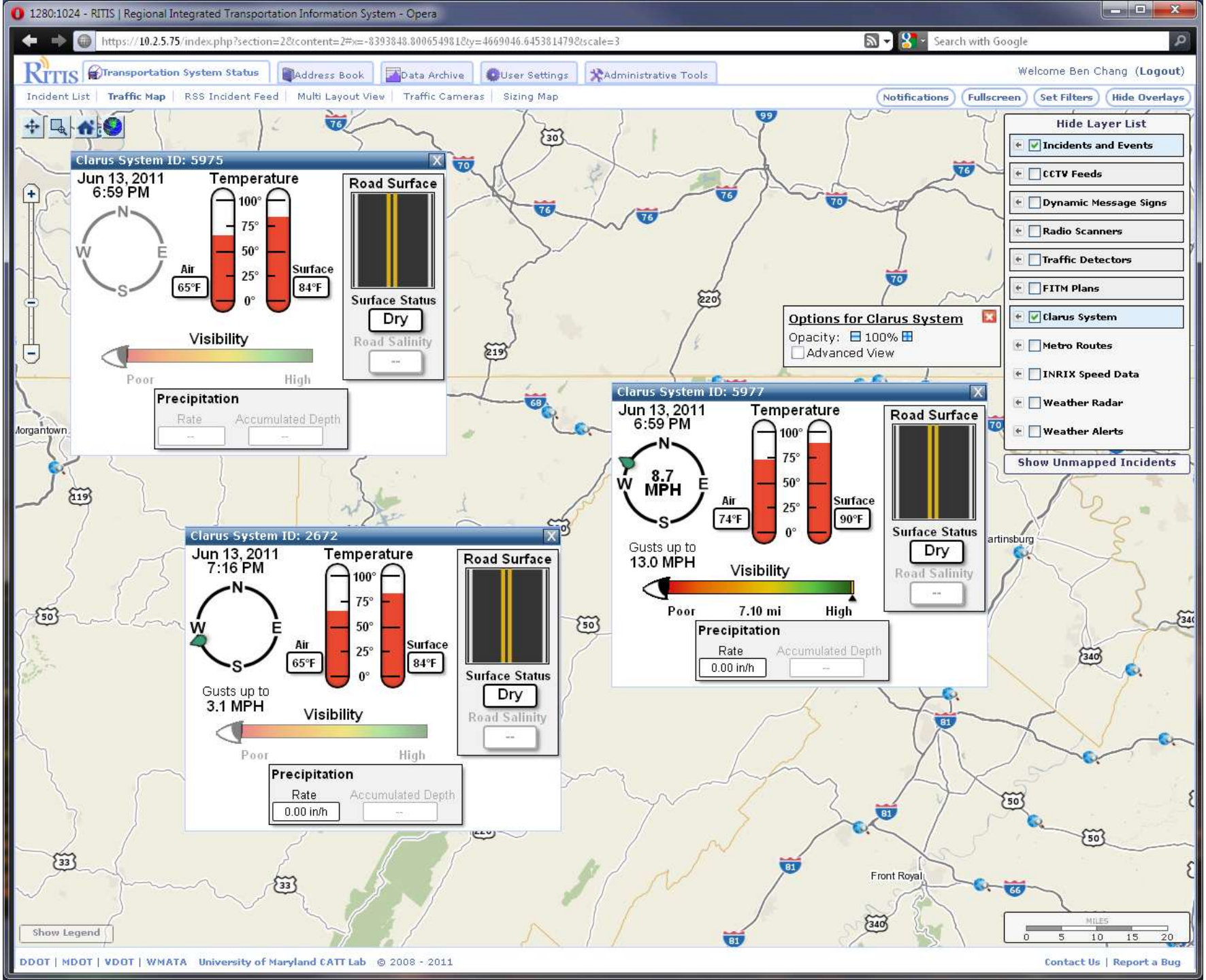
Adding the Clarus Data

Latest Progress

- ALL Clarus data integrated into RITIS
- Building applications for various user groups:
  - Real-time
    - Ops
    - Power Users
    - Travelers
  - Archive
    - Researchers
    - Planners
    - Etc.

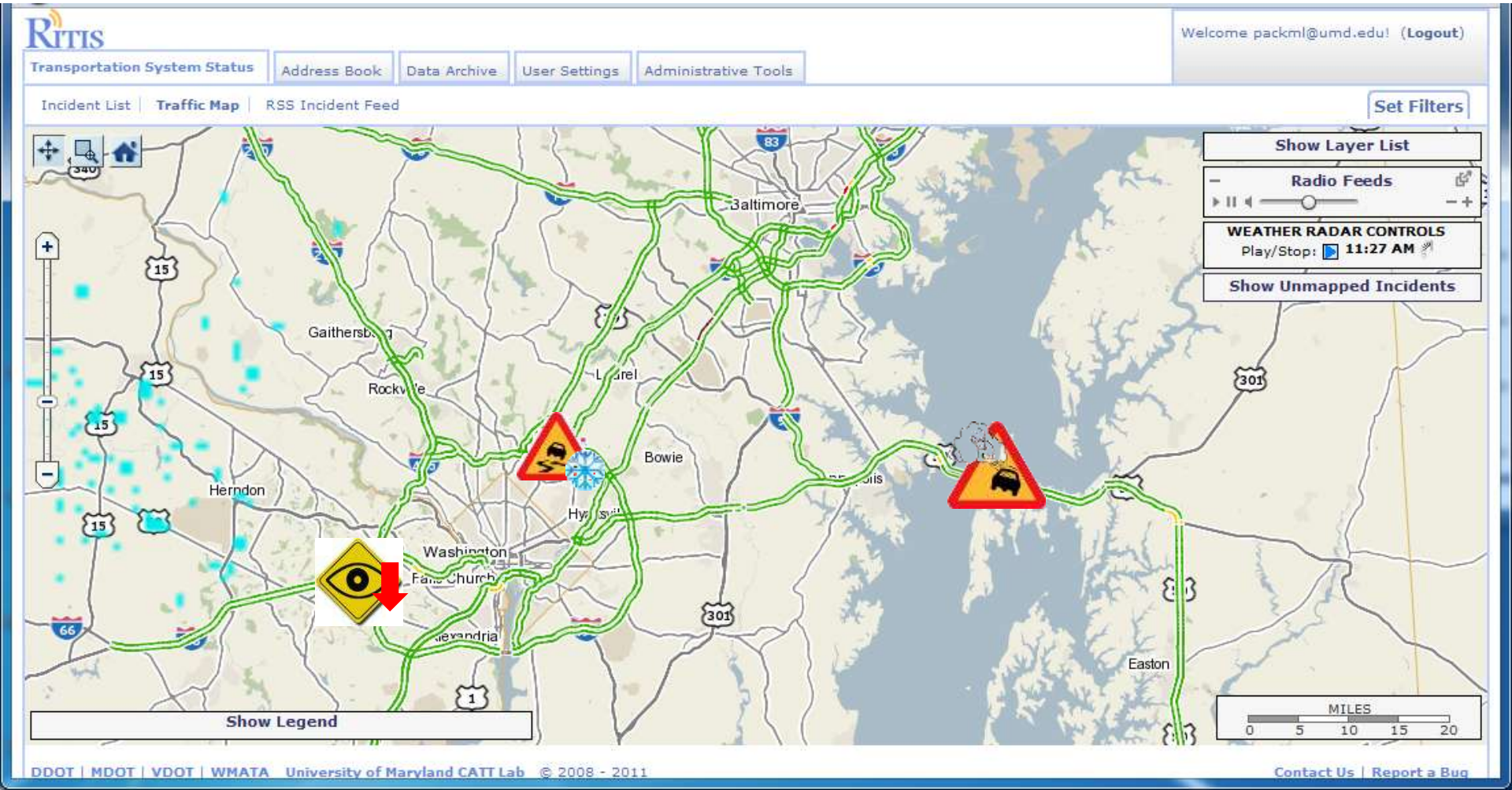

1280:1024 - RITIS | Regional Integrated Transportation Information System - Opera
https://10.2.5.75/index.php?section=2&content=2#x=-8612288.6826974458y=4816578.232381089&scale=3
Search with Google
RITIS
Transportation System Status
Address Book
Data Archive
User Settings
Administrative Tools
Welcome Ben Chang (Logout)
Incident List | Traffic Map | RSS Incident Feed | Multi Layout View | Traffic Cameras | Sizing Map
Notifications
Fullscreen
Set Filters
Hide Overlays
Hide Layer List
Incidents and Events
CCTV Feeds
Dynamic Message Signs
Radio Scanners
Traffic Detectors
FITM Plans
Clarus System
Metro Routes
INRIX Speed Data
Weather Radar
Weather Alerts
Show Unmapped Incidents
Options for Clarus System
Opacity: 100%
Advanced View
Clarus System ID: 2568
Jun 13, 2011 7:00 PM
= Passed = Failed = Not Run = No Data
Observation Type | Value | Conf
Average Wind Direction | 150° | 100%
Average Wind Speed | 10.29mph | 100%
Wind Gust Speed | 17.672mph | 100%
Wind Gust Direction | 157° | 100%
Wind Spot Direction | 171° | 100%
Wind Spot Speed | 11.185mph | 86.6%
Wet Bulb Temperature | 60.8°F | 100%
Dew Point Temperature | 46.4°F | 100%
Max Temperature | 78.08°F | 100%
Min Temperature | 72.14°F | 89.4%
Relative Humidity | 34% | 100%
Air Temperature | 77°F | 100%
Precipitation? | 2 | 100%
Precipitation Status | 3 | 0%
Complete
Manual
Sensor Range
Climate Range
Step
Like Instrument
Persistence
IQR Spatial
Barnes Spatial
Dew Point
Sea Level/Pressure
Precip Accum
Clarus System ID: 2698
Jun 13, 2011 7:31 PM
= Passed = Failed = Not Run = No Data
Observation Type | Value | Conf
Dew Point Temperature | 46.4°F | 100%
Relative Humidity | 37% | 100%
Air Temperature | 74.3°F | 100%
Precipitation Rate | 0 | 100%
Surface Visibility | 4343.832ft | 81.6%
Surface Status | 3 | 100%
Surface Status | 3 | 100%
Surface Status | 3 | 100%
Surface Status | 2 | 100%
Precipitation Type | 3 | 100%
Precipitation Intensity | 3 | 100%
Rockville
Laurel
Bowie
Herndon
Hyattsvi
Cambridge
Show Legend
MILES
0 5 10 15 20
DDOT | MDOT | VDOT | WMATA University of Maryland CATT Lab © 2008 - 2011
Contact Us | Report a Bug


1280:1024 - RITIS | Regional Integrated Transportation Information System - Opera
https://10.2.5.75/index.php?section=2&content=2#x=-8393848.800654981&y=4669046.645381479&scale=3
Search with Google
RITIS
Transportation System Status
Address Book
Data Archive
User Settings
Administrative Tools
Welcome Ben Chang (Logout)
Incident List | Traffic Map | RSS Incident Feed | Multi Layout View | Traffic Cameras | Sizing Map
Notifications
Fullscreen
Set Filters
Hide Overlays
Clarus System ID: 5975
Jun 13, 2011
6:59 PM
Temperature
100°
75°
50°
25°
0°
Air
65°F
Surface
84°F
Road Surface
Surface Status
Dry
Road Salinity
Visibility
Poor
High
Precipitation
Rate
Accumulated Depth
Clarus System ID: 5977
Jun 13, 2011
6:59 PM
8.7
MPH
Air
74°F
Surface
90°F
Gusts up to
13.0 MPH
Visibility
Poor
7.10 mi
High
Precipitation
Rate
0.00 in/h
Accumulated Depth
Clarus System ID: 2672
Jun 13, 2011
7:16 PM
Air
65°F
Surface
84°F
Gusts up to
3.1 MPH
Visibility
Poor
High
Precipitation
Rate
0.00 in/h
Accumulated Depth
Hide Layer List
Incidents and Events
CCTV Feeds
Dynamic Message Signs
Radio Scanners
Traffic Detectors
FITM Plans
Clarus System
Metro Routes
INRIX Speed Data
Weather Radar
Weather Alerts
Show Unmapped Incidents
Options for Clarus System
Opacity: 100%
Advanced View
Morgantown
Martinsburg
Front Royal
Show Legend
MILES
0 5 10 15 20
DDOT | MDOT | VDOT | WMATA University of Maryland CATT Lab © 2008 - 2011
Contact Us | Report a Bug

= Low Visibility

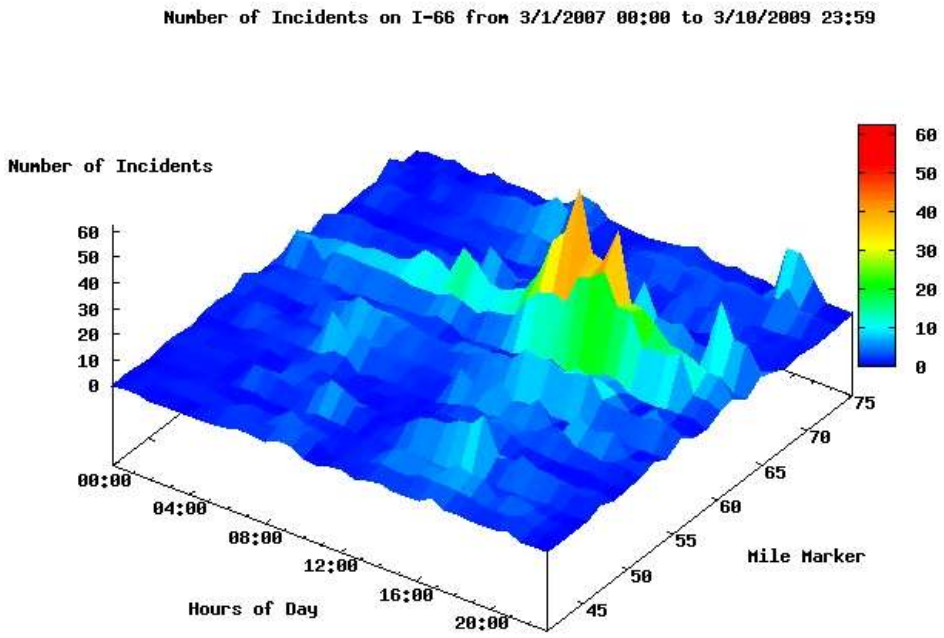
= Slippery/Icy

= High Winds



Historical Data

- Performance Measures
- After Action Reviews
- Planning & Operations Research
- Safety Analysis
- Cost/Benefit Analysis



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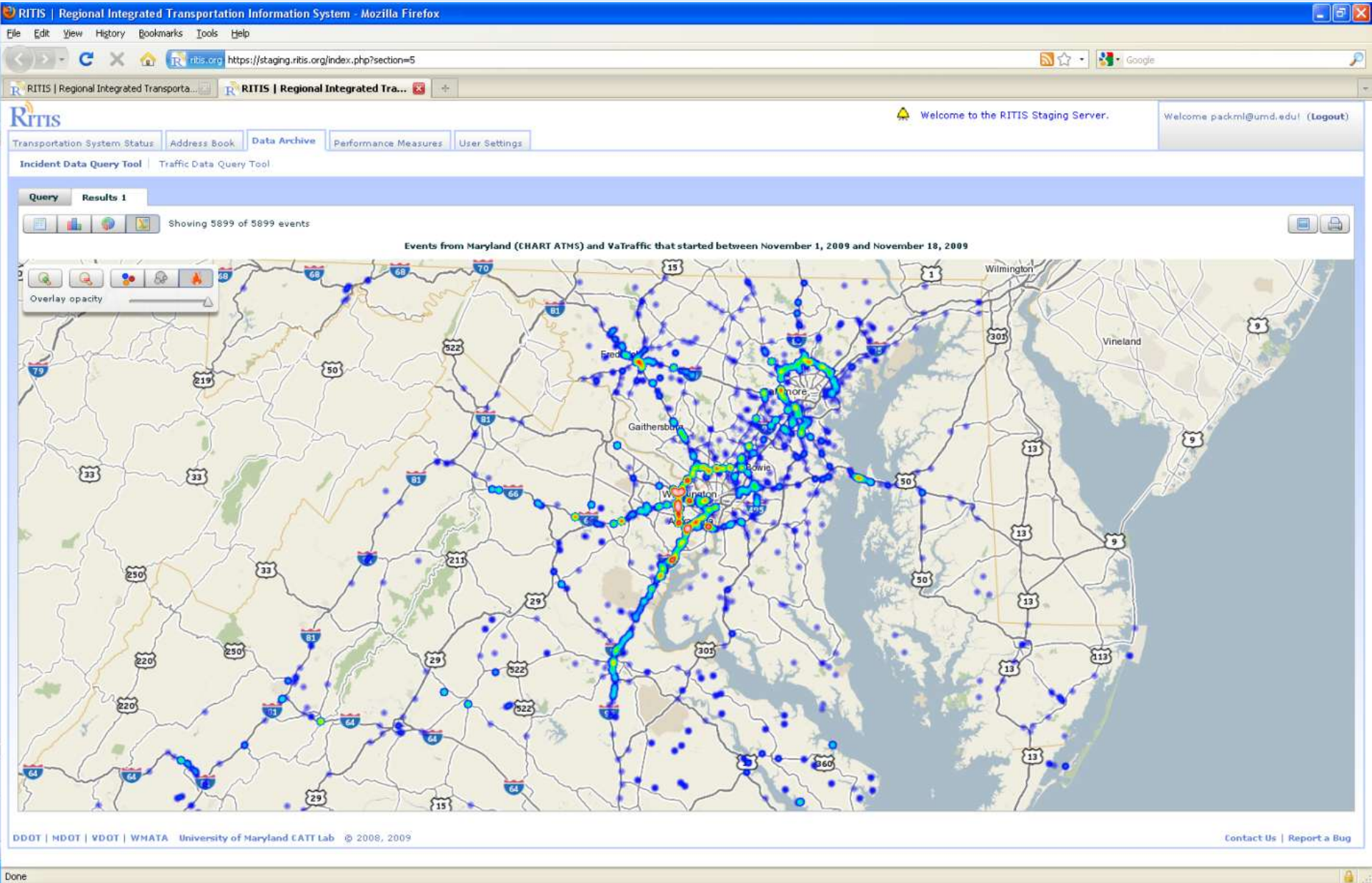
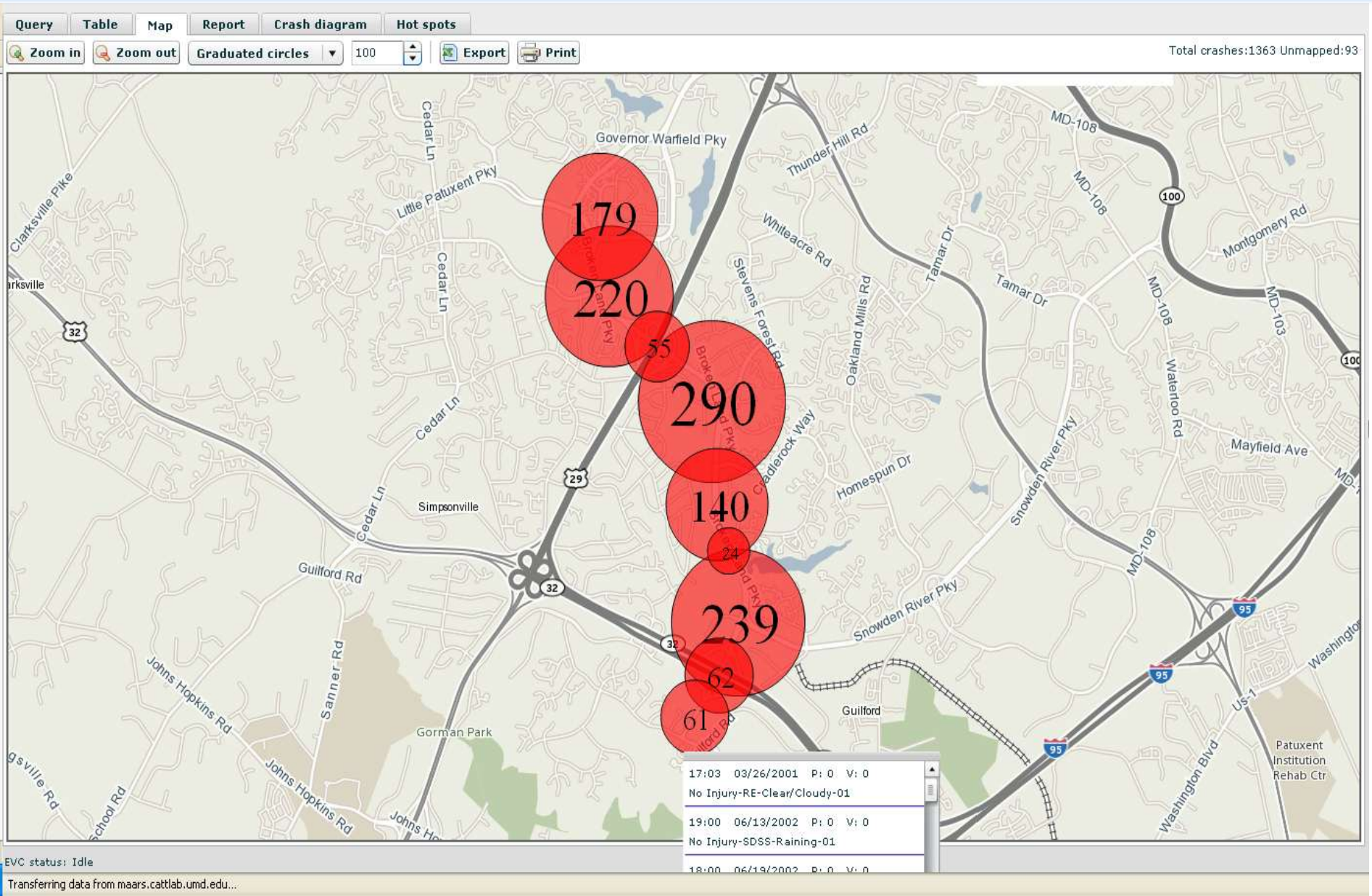
Detector Data Analysis

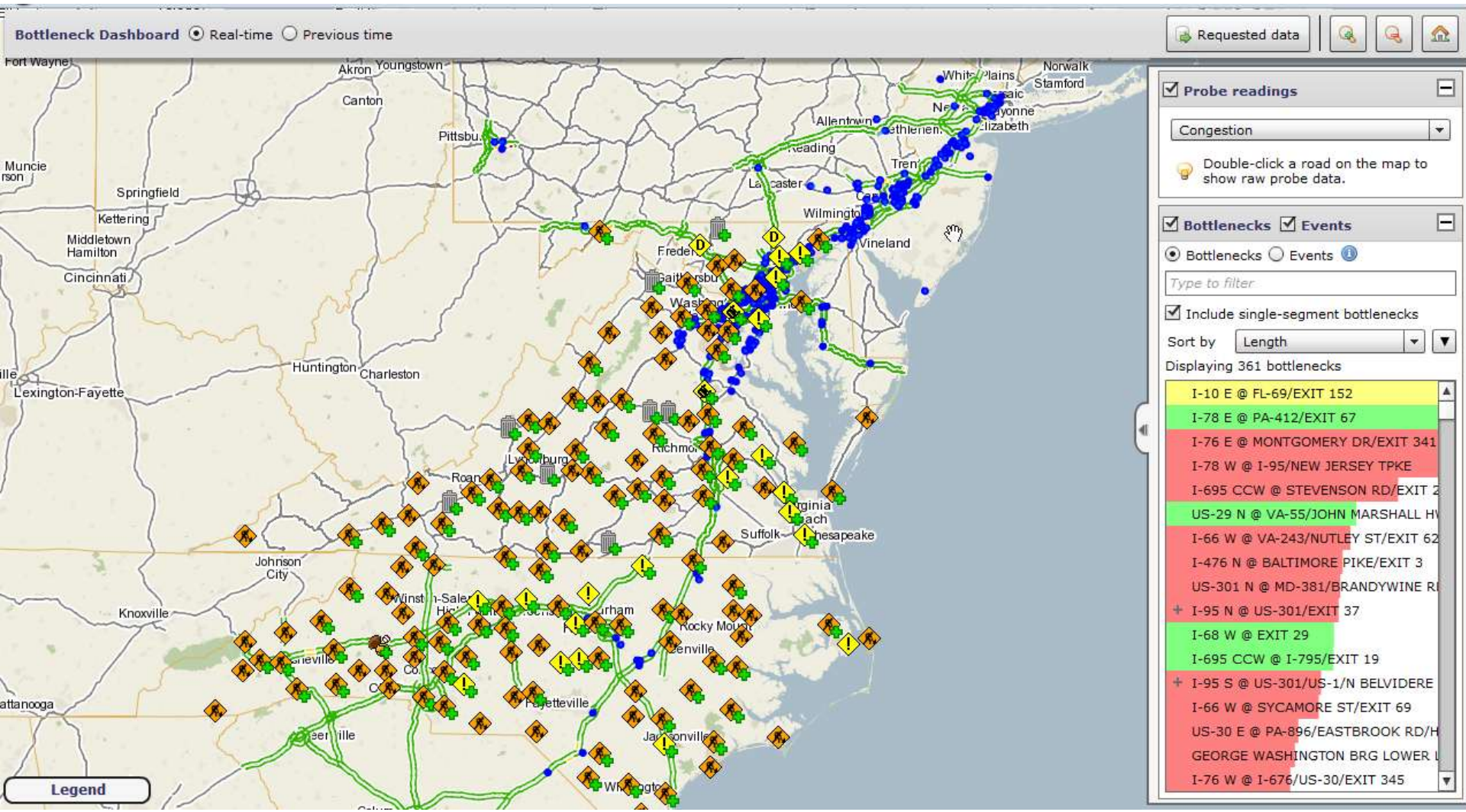
Incident Heat Maps



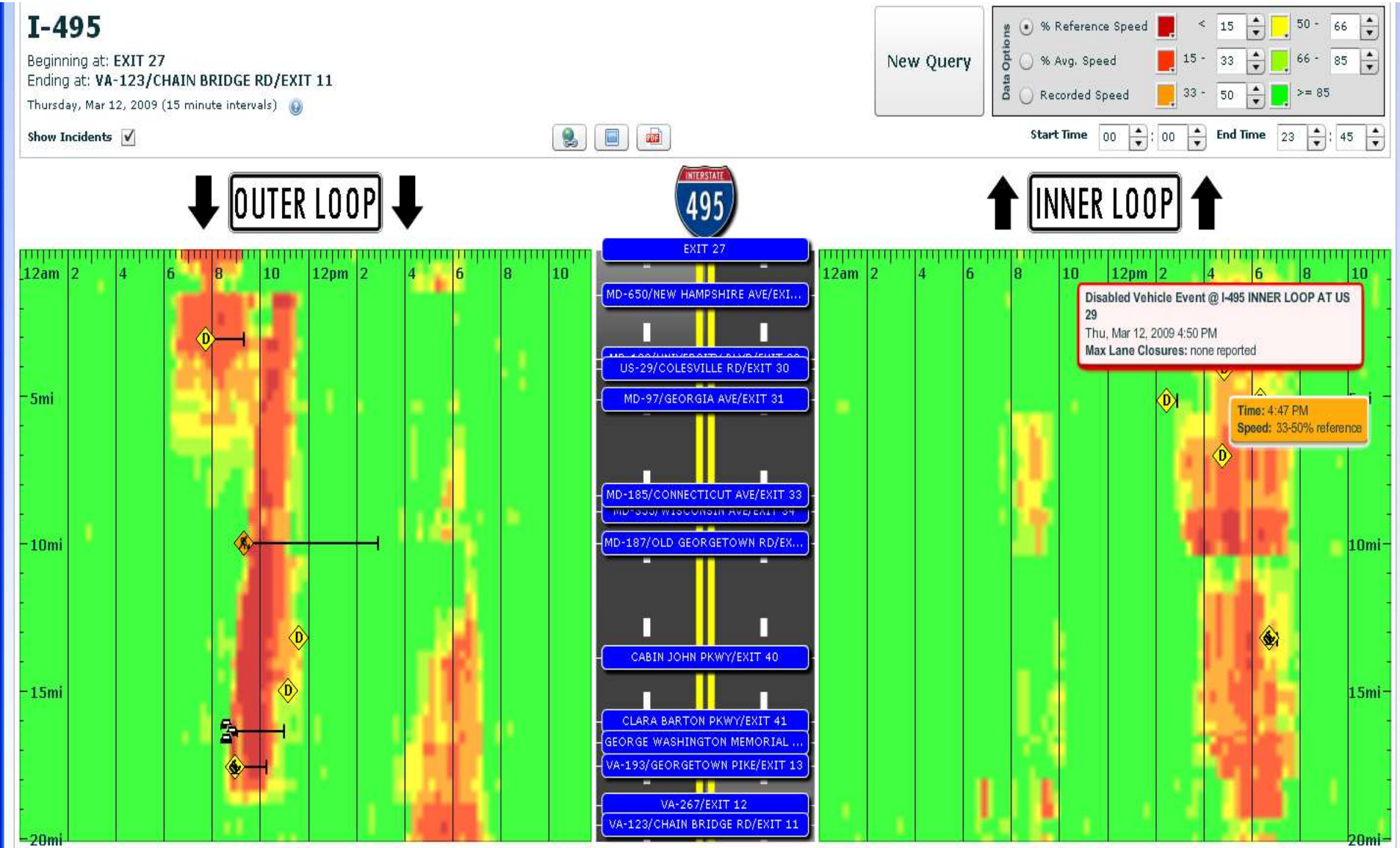
Corridor Incident Locations



Bottleneck Analysis

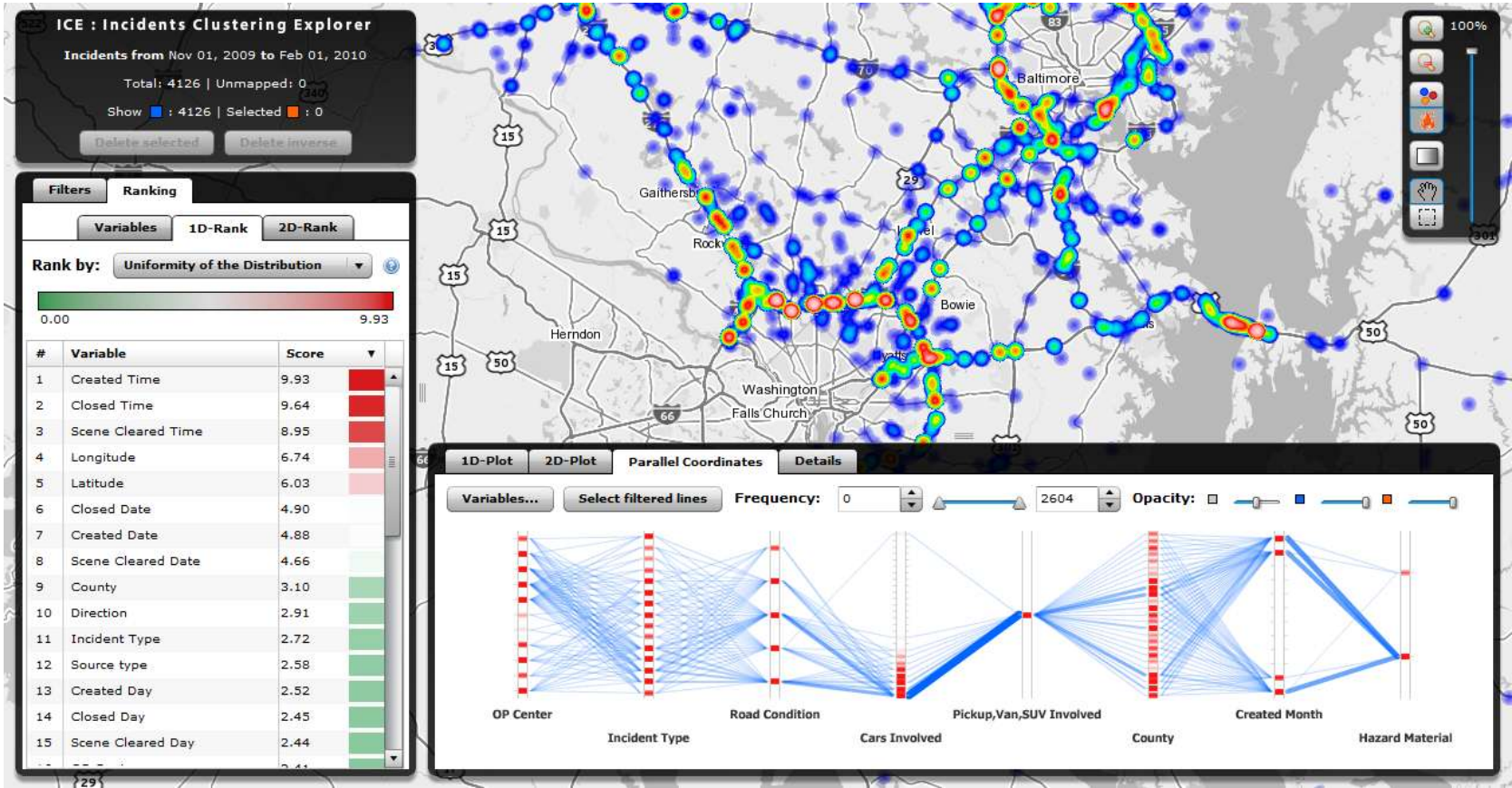


Some examples: Congestion Scan



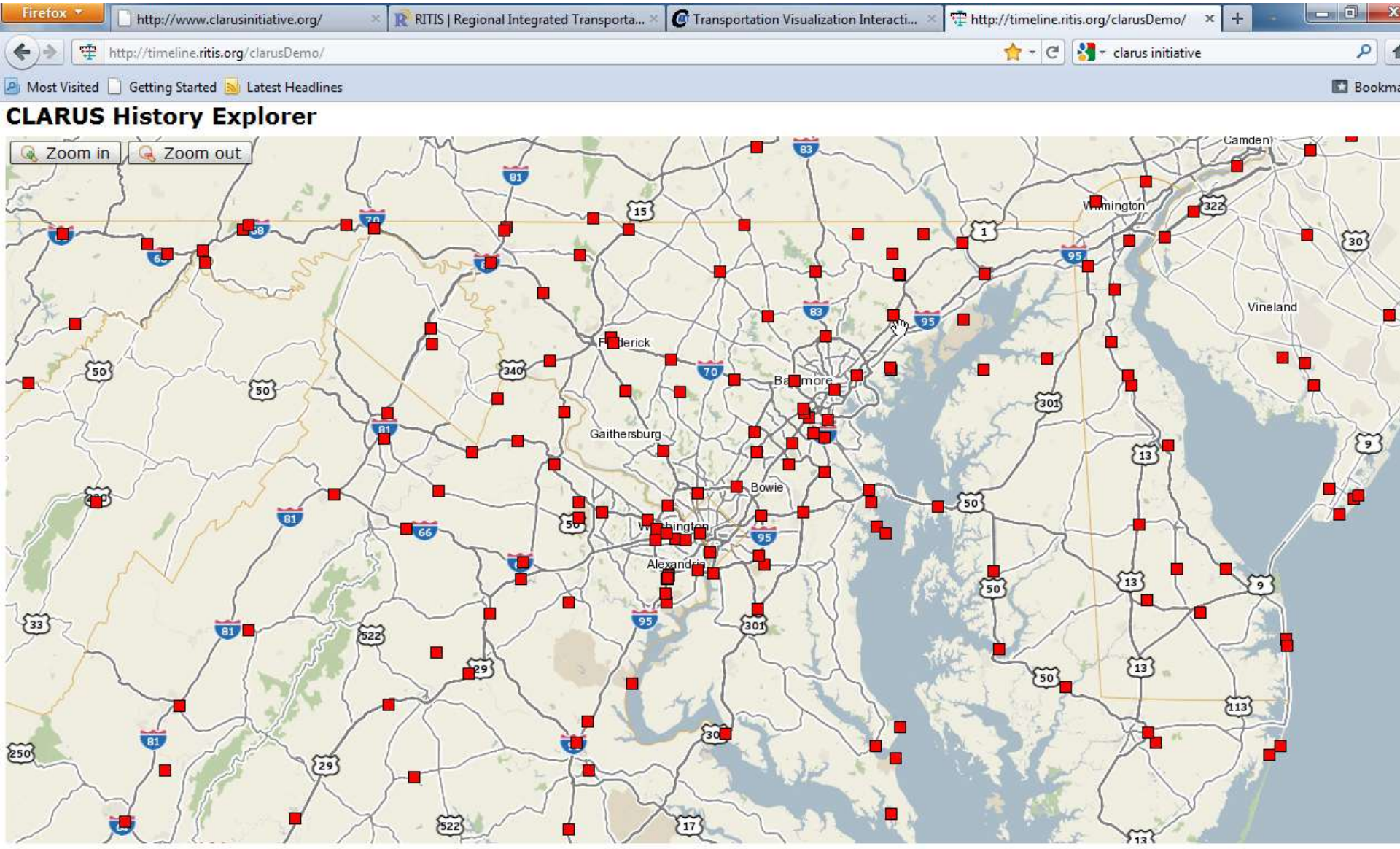
Making Use of the Archive

- Visual Analytics: What they are? How are the different?
- Examples…

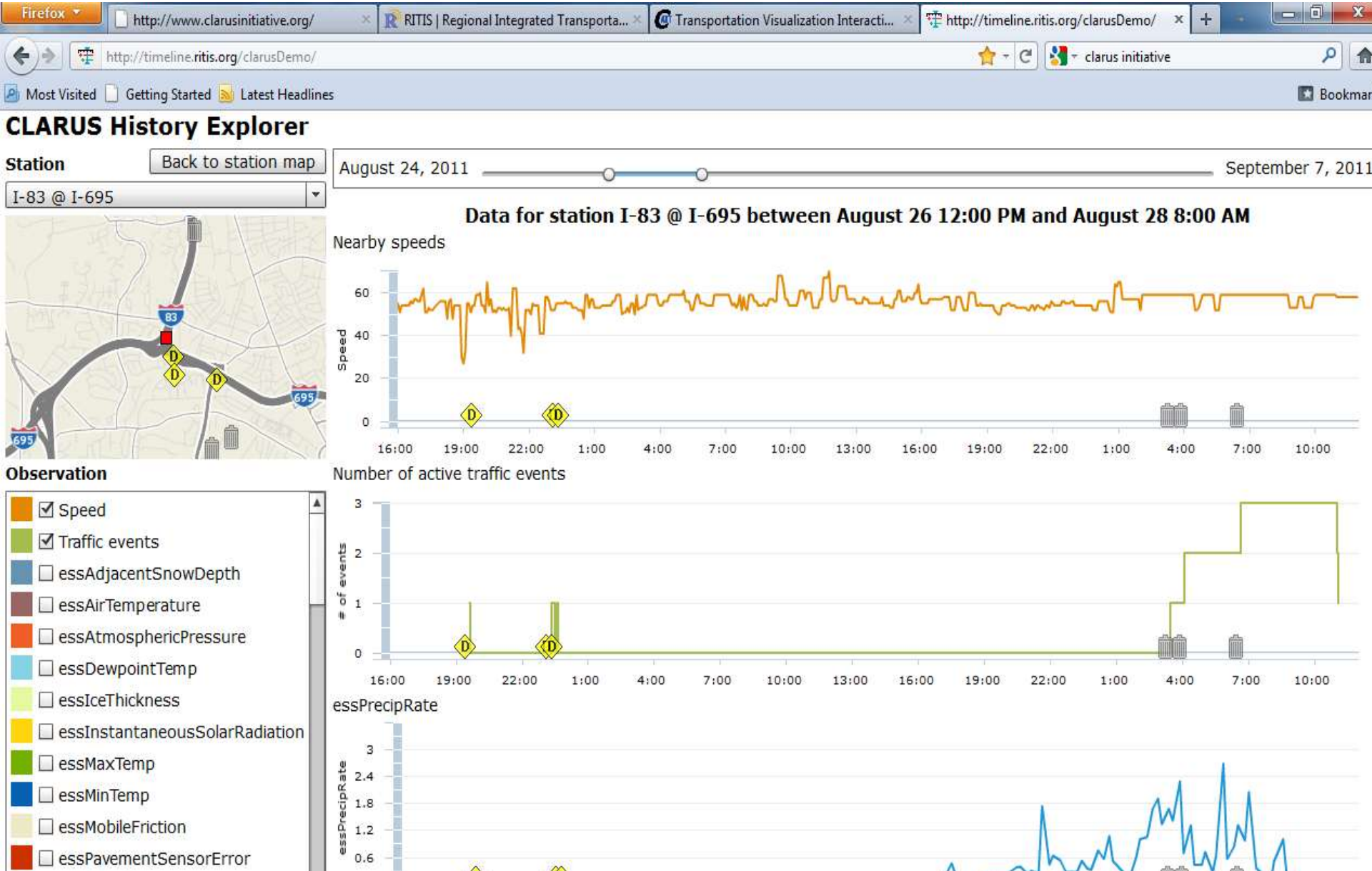


Clarus in the Archive

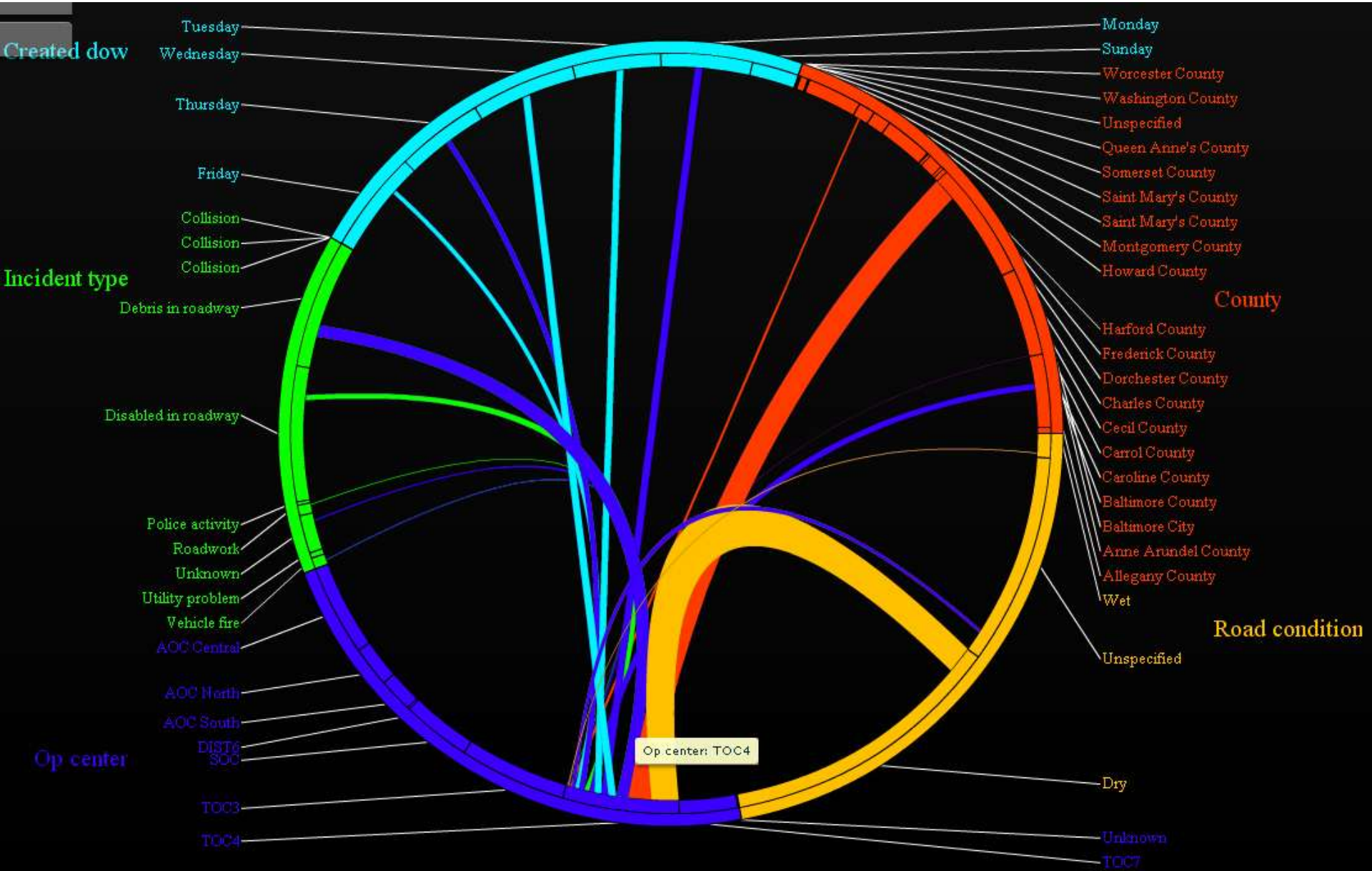
Choosing a Station



Exploring the Data

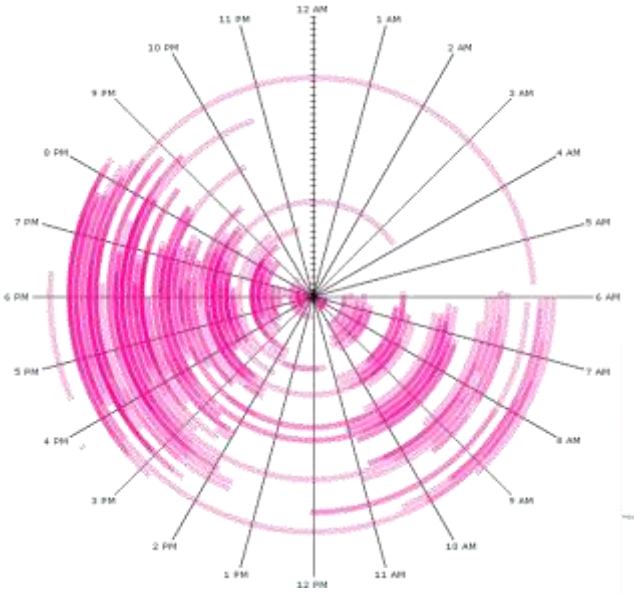


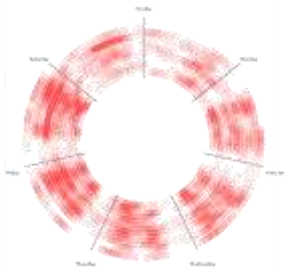
Multivariate Relationships

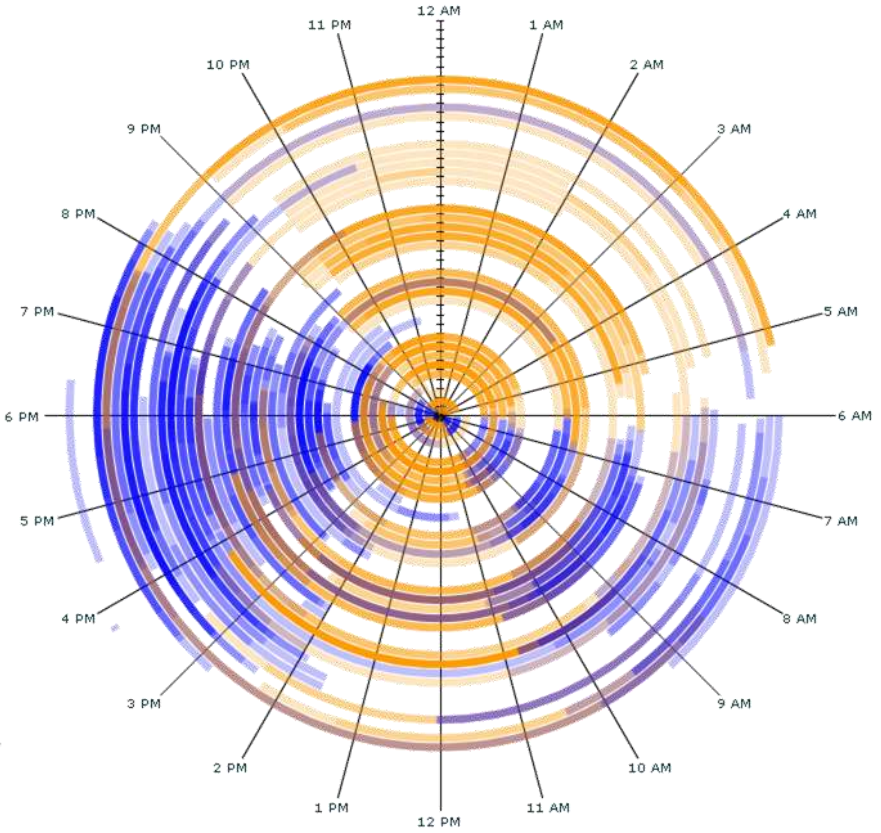


Next Steps

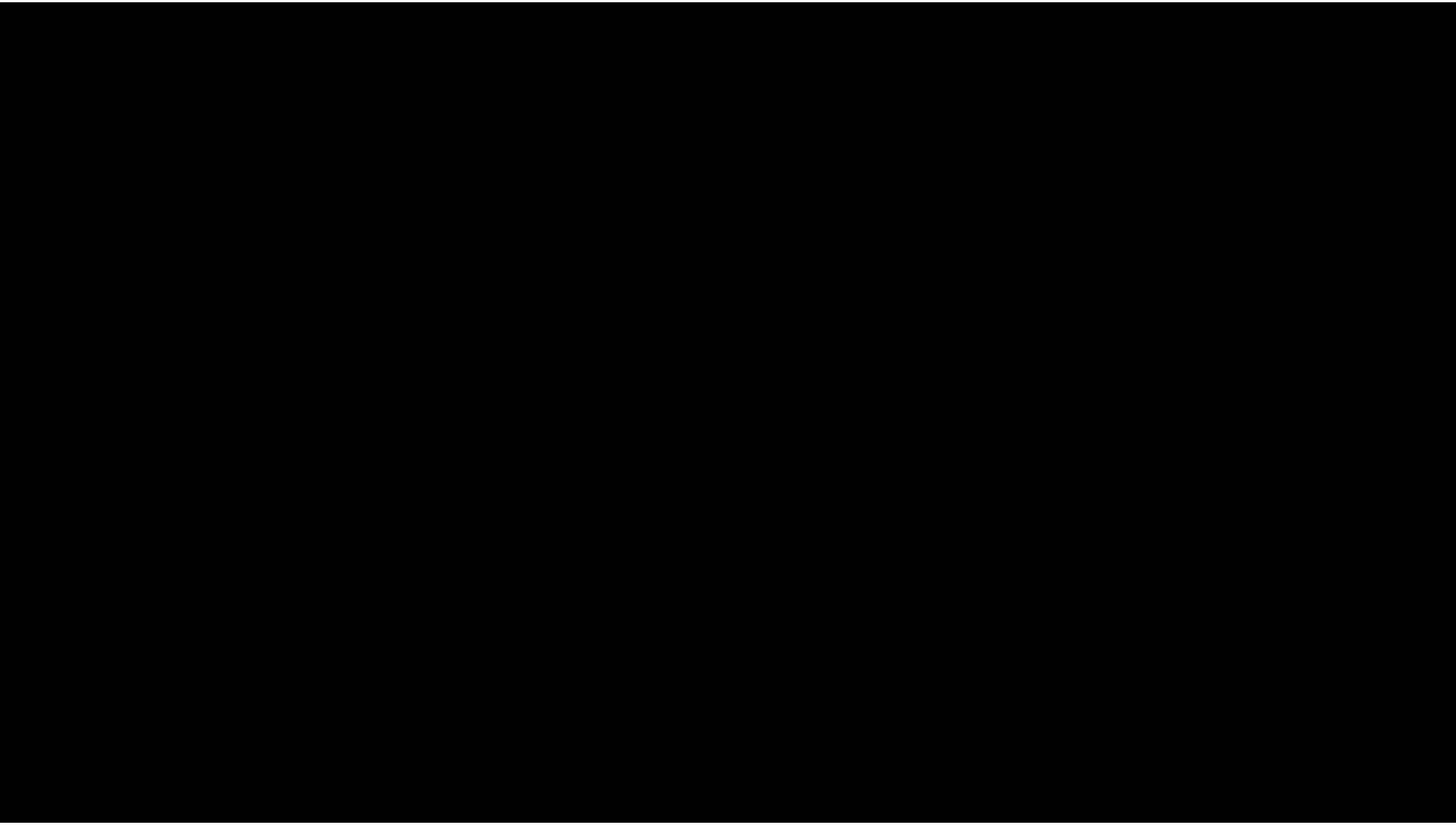
- Refine/Enhance visual tools: Speed, functionality, etc.
- MORE data integration: Radar, AVL, etc.
- More Vis tools:
  - Spiral Charts







www.cattlab.umd.edu/demo



Questions

For additional information contact

Michael L. Pack,

Director, CATT Laboratory

PackML@umd.edu

301-405-0722

Demo Links

- Clarus Data Viz Demo
- Spiral Demo
- RITIS (production)
- RITIS (staging)
- ArcChart