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# Pan Am 2015: Weather and Health

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Case Study

Pan Am As An Opportunity?

October 25, 2013

# Pan Am Weather and Health

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- Meteorological Service of Canada of Environment Canada to provide weather warnings for public safety and security related to the 2015 Pan and Para Pan Games (July-August 2015)
- Health and Weather package for the Pan and Para Pan
  - Collaboration with Health Canada Public health partners in the Games area
  - Encompassing monitoring and prediction products on themes of Air Quality, Heat and UV
- Our approach
  - Service improvement Initiatives
  - Demonstration or Showcase initiatives

# Service Improvement

- Enhancement of existing service offerings
- Available to the public through MSC dissemination channels (Weather GC, etc ...), through Partners (Weather Network and other technology platforms, etc...
- Test in a public setting national migration



# Demonstration/Showcase

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- Assess market and audiences for enhanced prediction and monitoring services
- Showcase technology and partnerships
- Enhance our internal capability and knowledge base
- Test new concepts, presentations and platforms
- Are not public weather services: –
  - not provided 24/7 365 as operational products and services
- Available to select users only (major client public health)
  - Aware of data/prediction limitations
- Evaluation of value of these offerings / ROI



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Theme	Activity
Air Quality	<p><b>Increase AQHI locations and provide by-location forecast</b>  <b>Shorten forecast increments</b>  <i>Enhancing AQHI model resolution (2.5 km grid)</i>  <b>Firework: Forest Fire Smoke Modeling</b>  <i>Better Exposure Assessments Measures (BEAM)</i>  <i>Roadside Ultrafine monitoring</i>  <u><i>Mapping &amp; application for traffic related air pollution</i></u></p>
Heat	<p><i>Multi-parameter heat monitoring network</i>  <i>High resolution heat and humidity modeling</i>  <i>Urban Heat Island</i>  <i>Southern Ontario heat messaging harmonization *</i></p>
UV	<p><i>Enhancement of UV forecasts</i>  <b>Investigation of UV monitoring technologies</b></p>
Communications	<p><b><u>Outreach with NGO partners</u></b></p>
Dissemination	<p><b>Met-health mobile application @ focus on at risk pops</b>  <b>Weather GC, EC Alert Me</b></p>
Decision Support	<p><b><u>Severe Wx, Extreme Heat &amp; High Risk AQ scenario</u></b>  <u>Business case for met-health in major sporting events</u></p>



# MSC Mesonet Monitoring Network

- 60 locations in Games area
  - Venue/cluster,
  - Transects and science stns (science siting)
  - Security impacts on siting
- Installation begins 2013
  - Decommissioned Fall 2015
- Operating from Spring to early Fall
  - Vaisala WXT520
    - T, Td, wind speed/direction
  - Campbell Scientific Black Globe sensors
    - Multi-parameter heat stress indices such as UTCI and WBGT



Google Earth

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Fly To Find Businesses Directions

Fly to e.g., Reservoir Rd. Clayville, NY

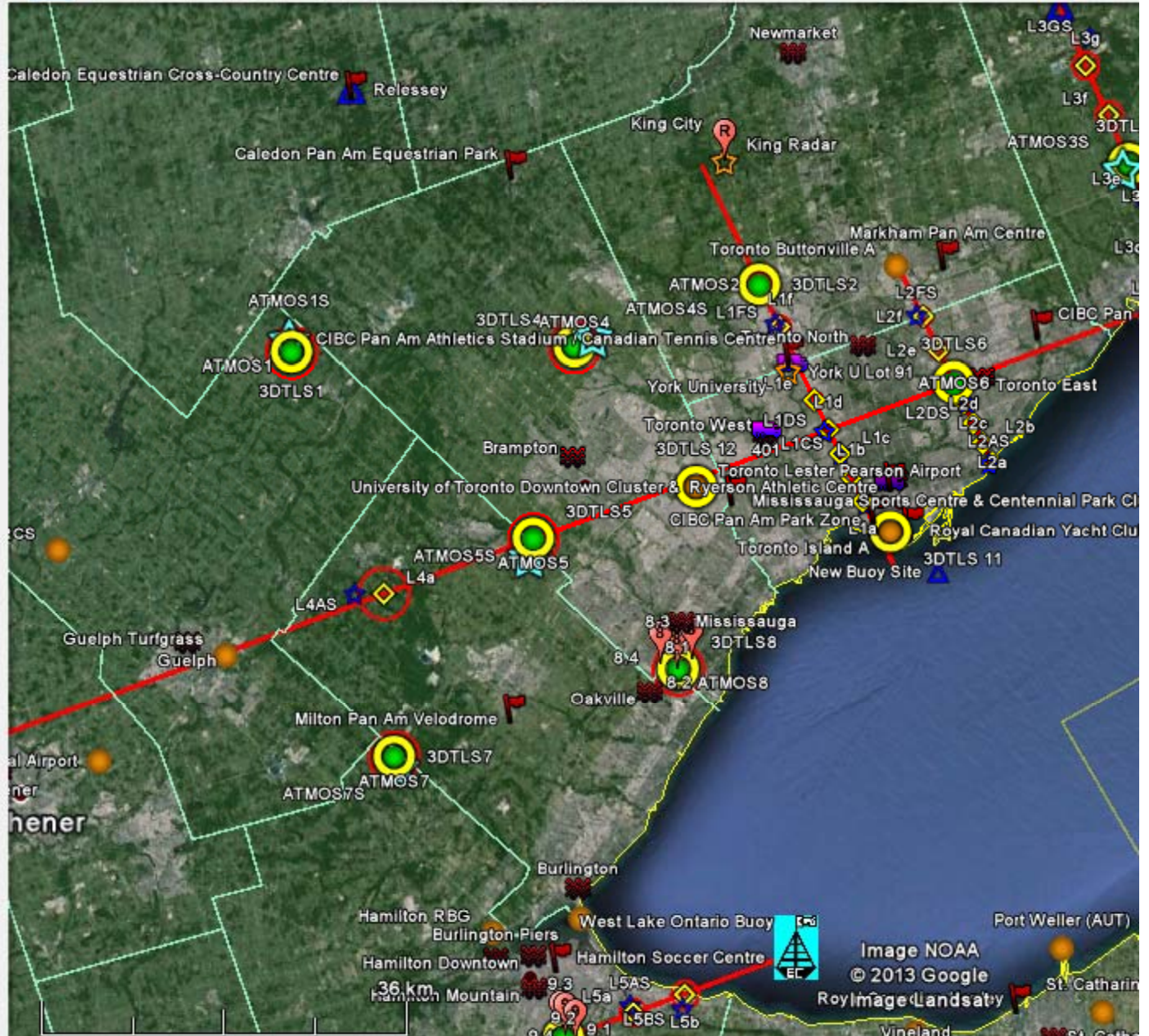
Places

- My Places
  - Sightseeing Tour
    - Make sure 3D Buildings layer is checked
  - Heat Vulnerability Clusters.k...
  - Shareable Pan Am Mesonet....
  - Shareable Pan Am Mesonet....
  - GeneralPopulation\_HVI
  - SeniorPop\_HVI
- Temporary Places
  - PA2015 Mesonet file
  - PanAmVenues

Layers

Earth Gallery >>

- Primary Database
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More



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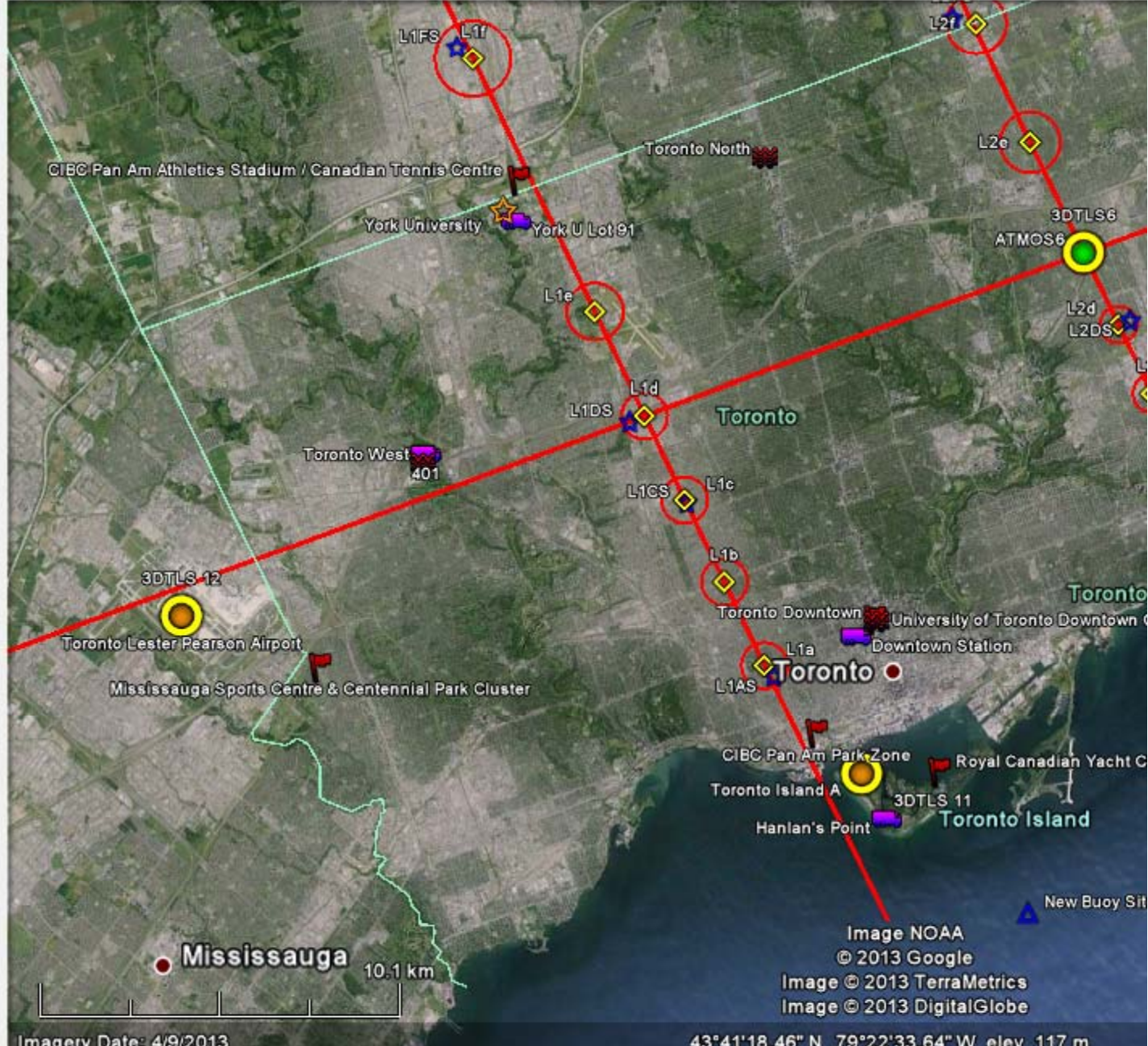
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Imagery Date: 4/9/2013

43°41'18.46" N 79°22'33.64" W elev. 117 m

Image NOAA  
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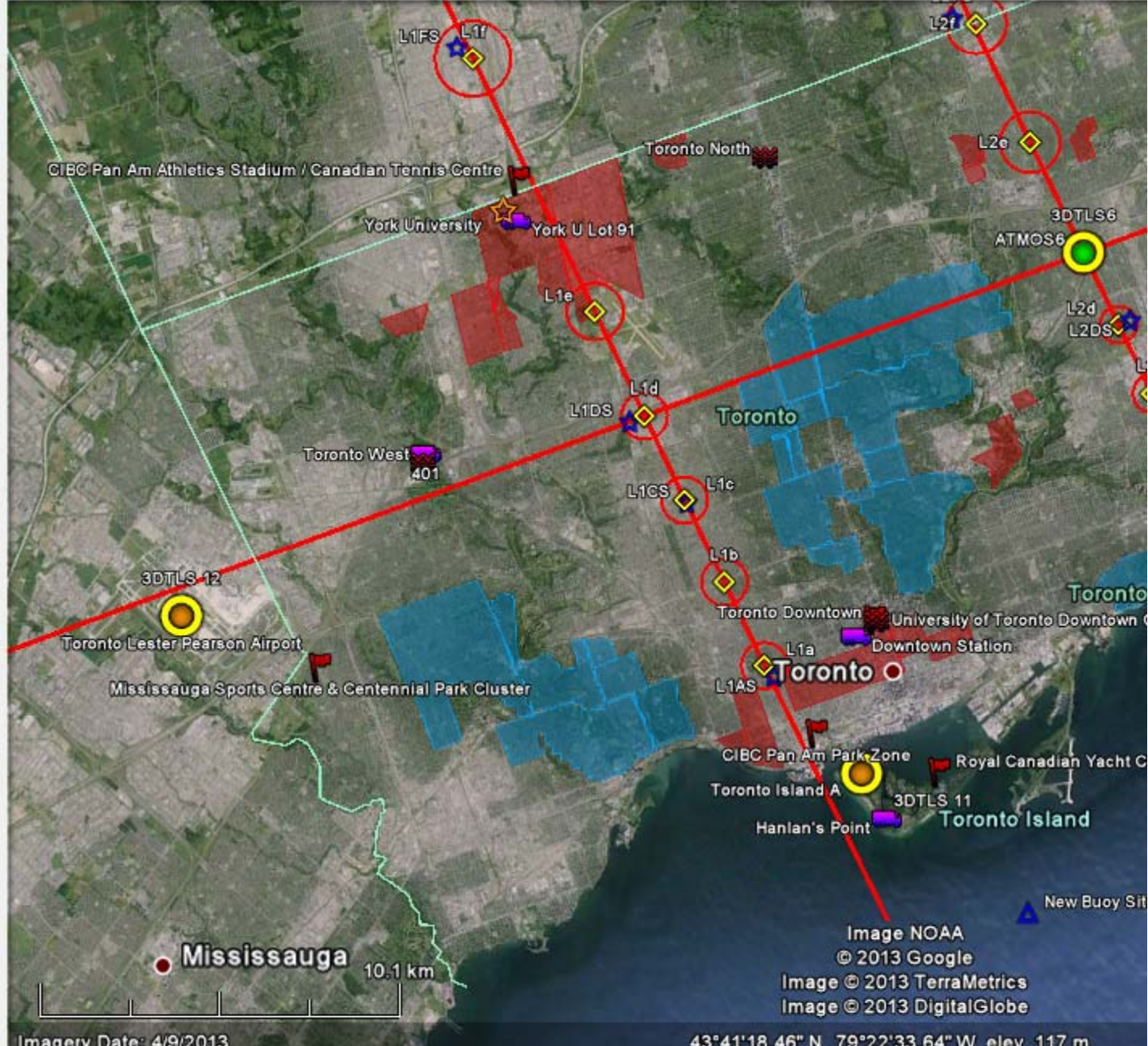
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# Weather/Health Information System and Decision Outcomes Manager (WISDOM)

- Partnership with KFL&A Public Health
- Based on PHIMS/ACES
- Common Operating – Situational awareness tool for public health (and others) and Pan Am challenges
- Integration of innovative monitoring and predictive data with health outcomes
  - What other complementary datasets do we need?
- All hazards (weather) risk considerations
  - messaging
- Co-developed with Public Health
- Potential integration platform for SIMMER
- Evaluation: Story of value at the end of Pan Am

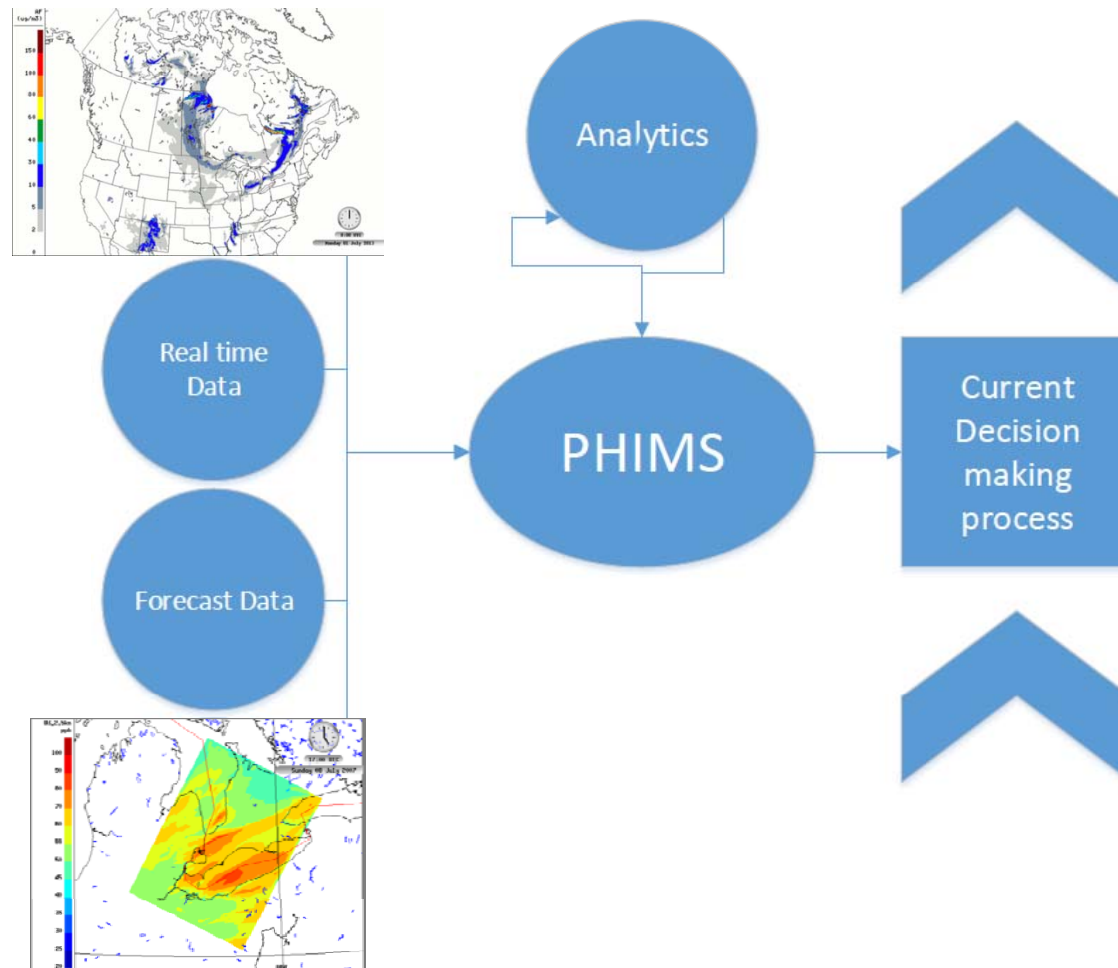


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# Integrating for Decision Making



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# PanAm and SIMMER

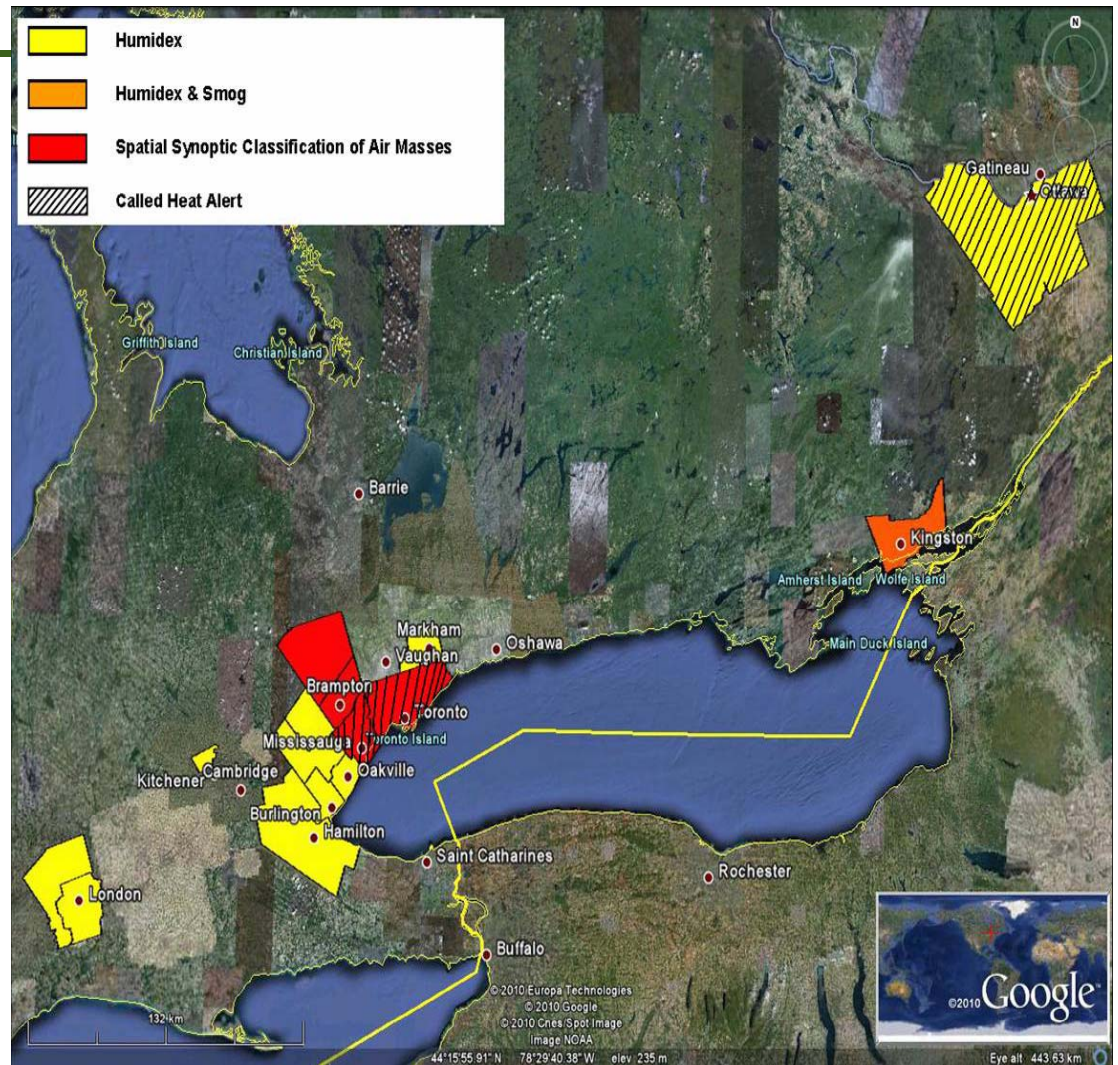
- Collaboration with Public Health Ontario on heat health thresholds in Ontario

- Learning from activities on climate and urban heat island in Toronto and Houston

- Support the identification of vulnerable populations

- Linking Toronto's hospitals to KFL&A Syndromic Surveillance System (ACES)

- Use of PHIMS to integrate Toronto-related results



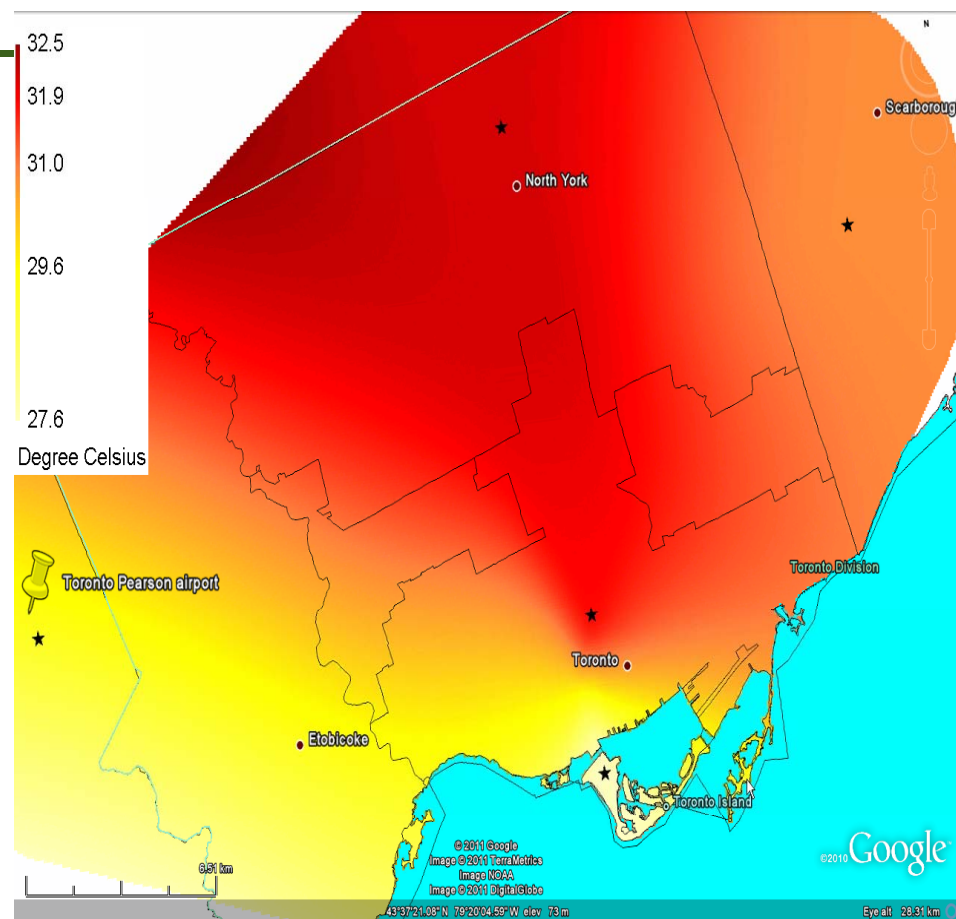
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# PanAm and SIMMER

- Opportunity to promote the use of existing tools and information materials
- Opportunity to have access of health outcomes (e.g. ED visits, EMS, Telehealth)
- Opportunity to participate in showcase studies and identify options for future funds on heat and air pollution
- Opportunity to have a better understanding on the synergies between heat and air pollution



**Spatial distribution of Heat: Average of daily maximum temperature in July 2010**



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# PanAm and SIMMER

- A physiologically-based metric to measure heat and cold stress/discomfort (simple output from a complex and integrated thermo-physiological/clothing model)
- Several international experts involved in its development (peer-reviewed papers published)
- International standard for human biometeorological core applications

