Pan Am 2015: Weather and Health

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Case Study
Pam Am As An Opportunity?
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Pan Am Weather and Health

- 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

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

Real time Data

Forecast Data

PHIMS

Analytics

Current Decision making process
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
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
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

Brode, et al, 2011