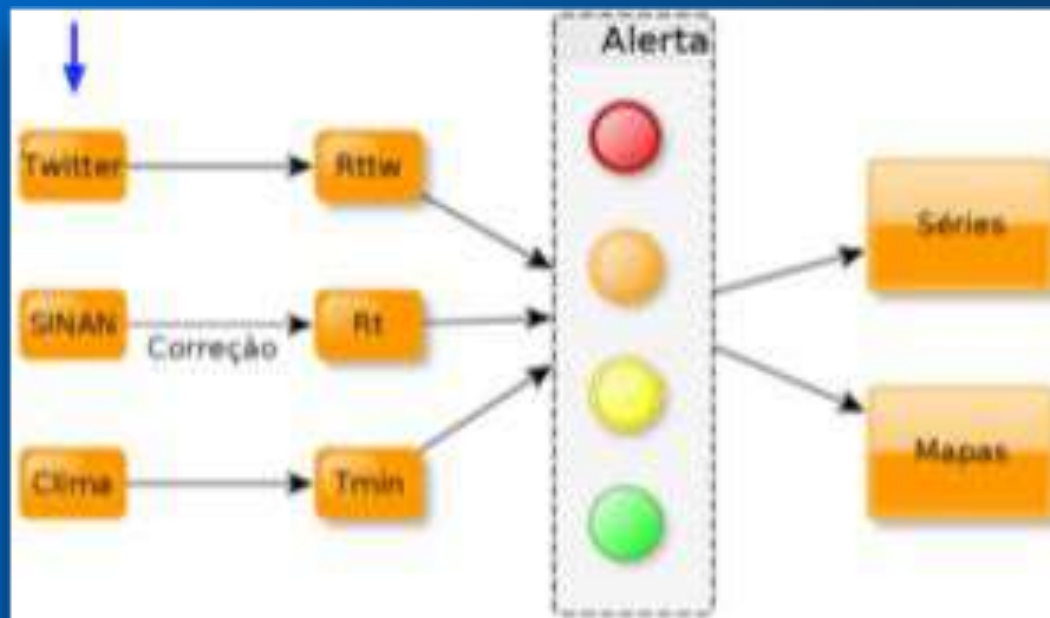




Accelerating Dengue Fever Outbreaks Detection and Actions

Dengue Alert System

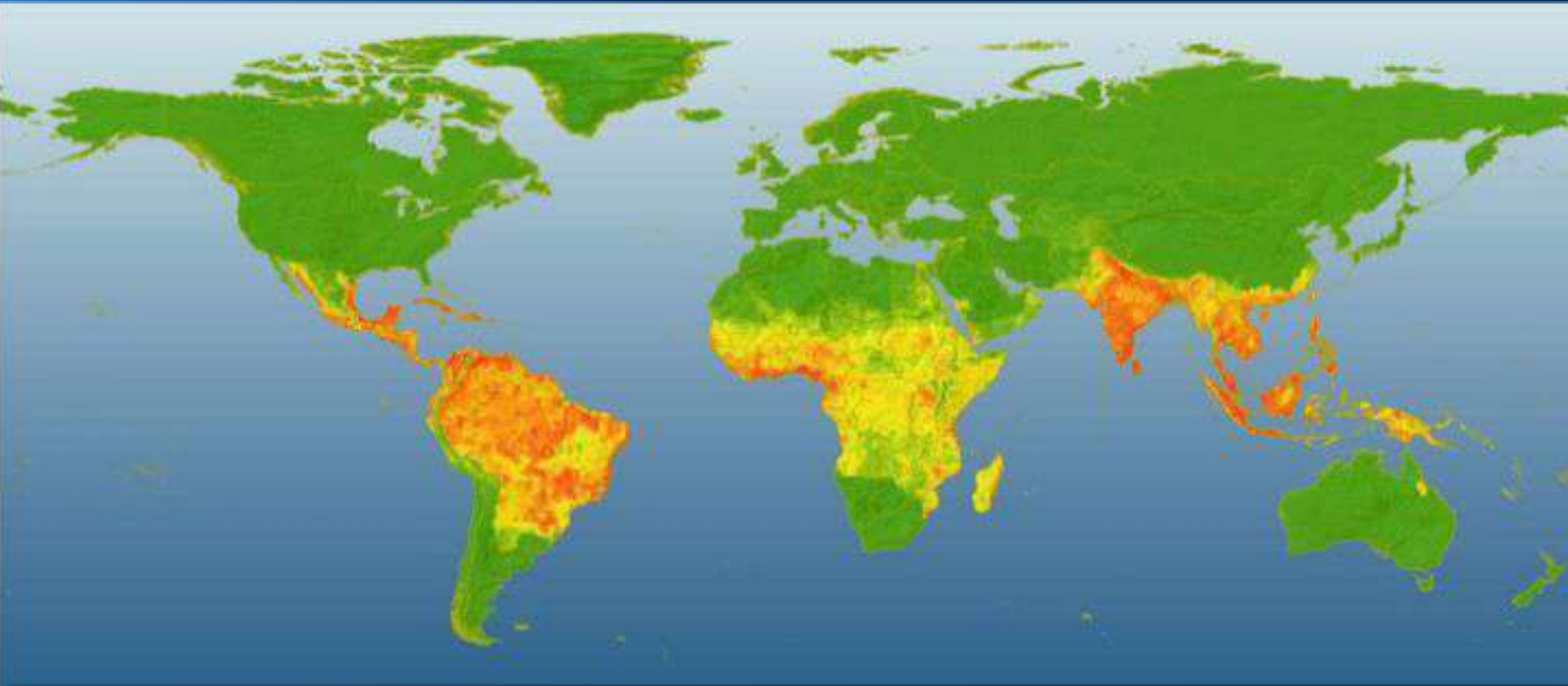
<http://alerta.dengue.mat.br/>



- First city in the world to have such an advanced System to accelerate Dengue Fever detection. Singapore (<http://www.dengue.gov.sg/subject.asp?id=73>) has one, but considers only confirmed cases and transmission. Our DAS incorporates two extra variables.
- Accelerating detection in 7 days

What is Dengue Fever?

Tropical Disease



Transmission



Dengue Fever in Brazil

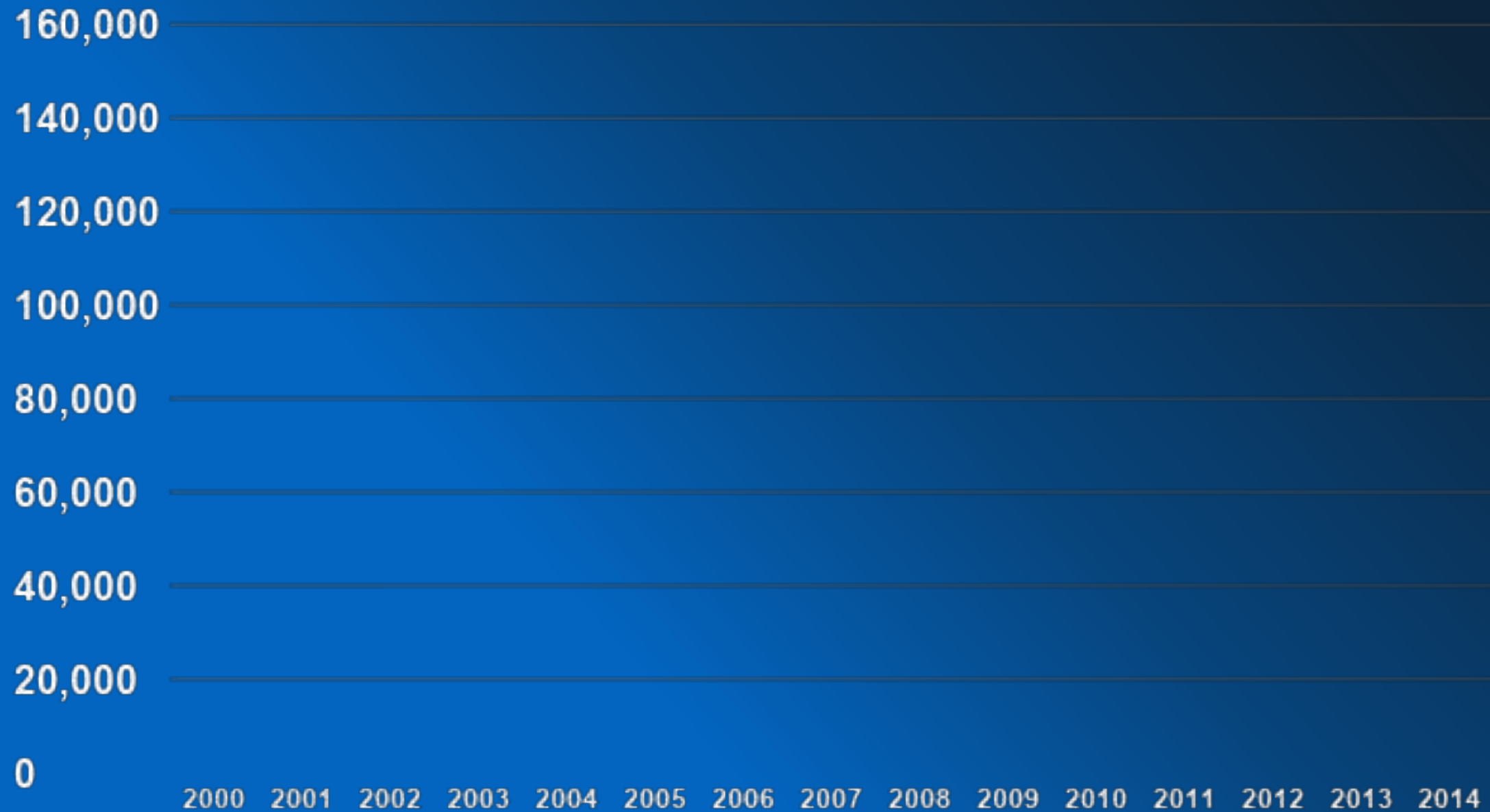


- Outbreaks each 3/5 years since 1986
- 2013 - **2 million** cases in Brazil
- 0,03 deaths / 100 cases (2013) - (rates have been as high as 6%)



Cost for Dengue Combat: **US\$120 million** in 2014.

Dengue Fever in Rio



Cost for Dengue Combat: US\$ 5 million in 2014.

How Rio fights Dengue Today



- **8.4 million** inspection home visits in Rio
- educational activities
- **delayed data when pointing risk areas**



Dengue Alert System

Dengue Alert System



nature International weekly journal of science

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[nature.com](#) > [Journal home](#) > [Table of Contents](#)

Letter

Nature **457**, 1012–1014 (19 February 2009) | doi:10.1038/nature07624; Received 14 August 2008; Accepted 13 November 2008; Published online 19 November 2008; Corrected 19 February 2009

Detecting influenza epidemics using search engine query data

Jeremy Ginsberg¹, Matthew H. Mohr^{1,2}, Rajan S. Patel¹, Lynnette Brammer², Mark S. Smolinski² & Larry Brilliant¹

1. Google Inc., 1600 Amphitheatre Parkway, Mountain View, California 94043, USA
2. Centers for Disease Control and Prevention, 1600 Clifton Road, NE, Atlanta, Georgia 30333, USA

ARTICLE LINKS

- + Figures and tables
- + Supplementary info

SEE ALSO

- + Editor's Summary

ARTICLE TOOLS

- Send to a friend

Inspired in a Nature's article

Costless Partnership



Data and
integration

Mathematical
Model

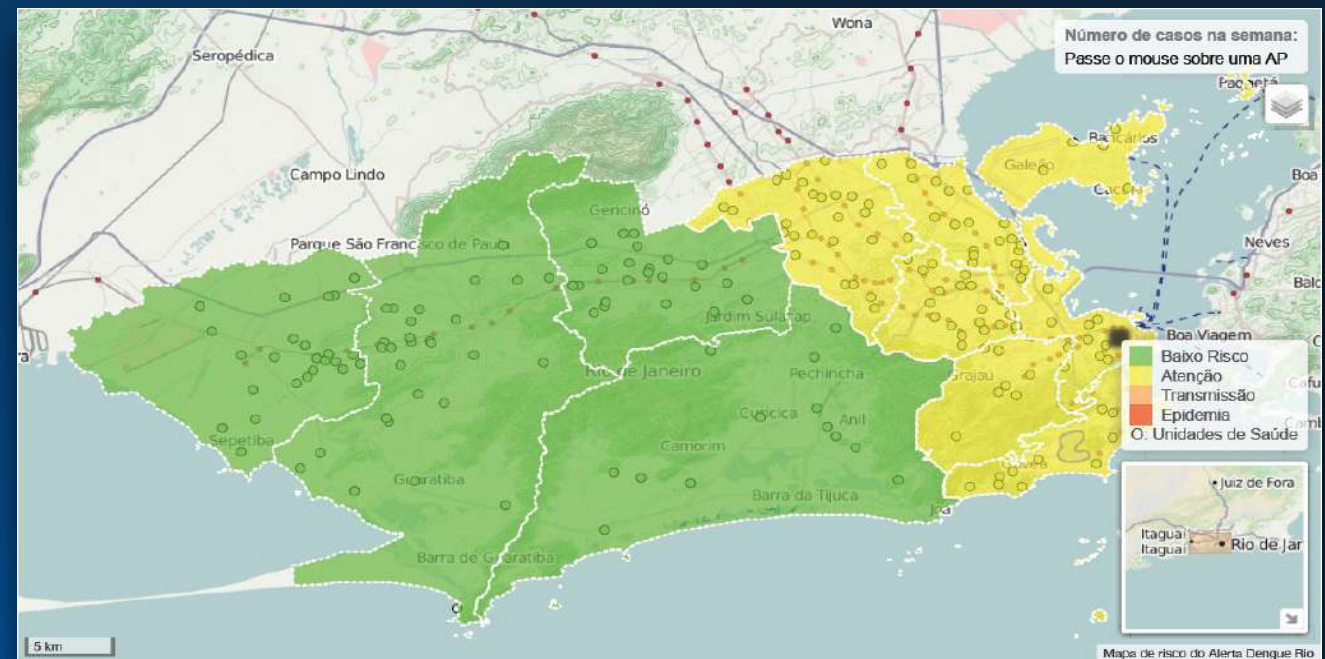
Epidemiological
Model

Client and
Epidemiological
Data

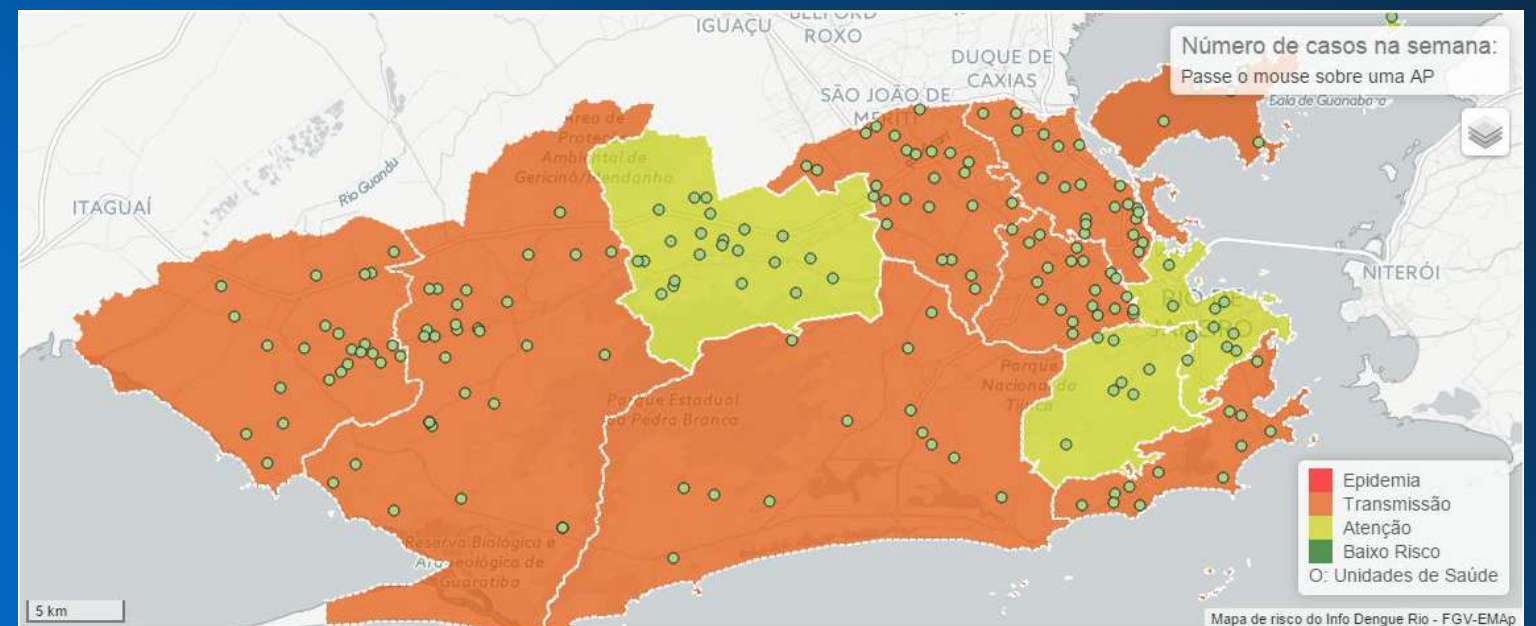


Dengue Alert System

January 8th



June 9th



Integrating Data



*accuracy

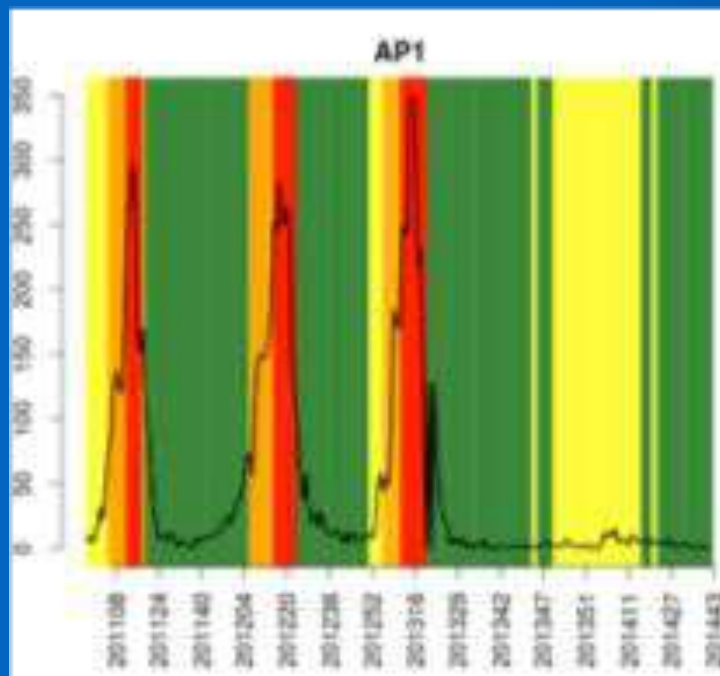
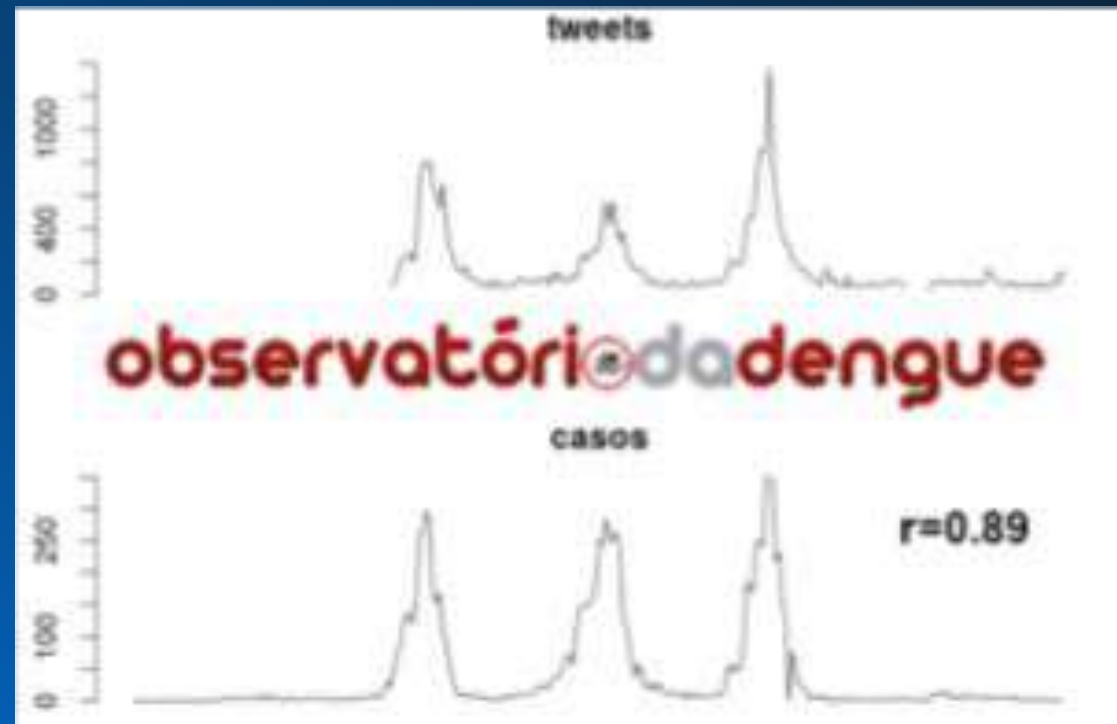


*temperatur
e



*speed

City is alerted 7 days ahead



-  Low activity Dengue
-  Risk of activity elevation
-  Dengue expanding
-  Dengue in high activity



Incorporating Big Data in the Management

Incorporating Big Data in the Management

- **Early indicator for the Situation Room.**
- **Contingency Plans for each alert level.**
- **Monitoring and *Accountability*.**
- **Transparency and Communication.**
- **Integration - Rio Center of Operations.**

Dengue Alert guiding actions

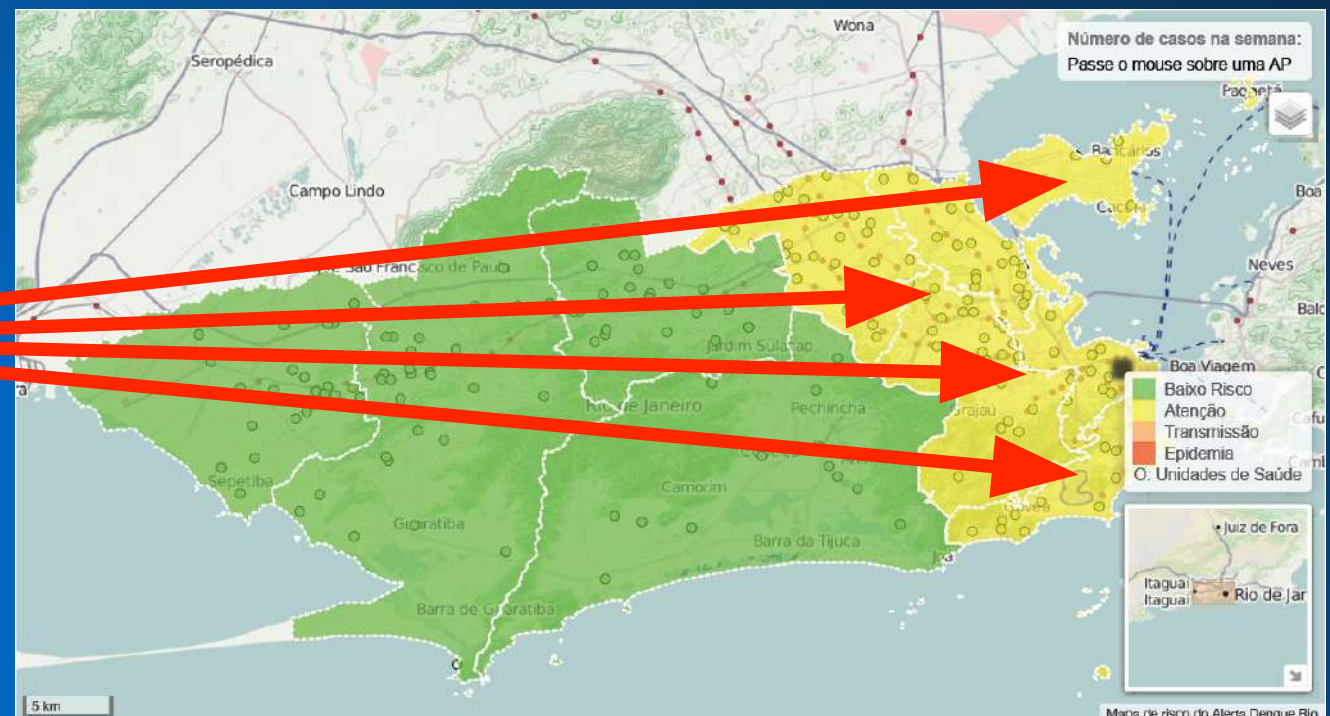
-  Low activity Dengue
-  Risk of activity elevation
-  Dengue expanding
-  Dengue in high activity



How intense?

- Promotion and education
- Inspections
- Multisectorial involvement
- Health Care System preparing
- Infrastructure preparing

Where?





Challenges

Is communication effective?

How to measure results?

How to institutionalize system?

Conclusion



Hearing people
and the environment

Innovation and
contemporariness in Rio



Taking care of people with their own ^{Big} data

Elen Barreto - Public Health Department
Pedro Arias – 1746 Contact Center

Thank you !

