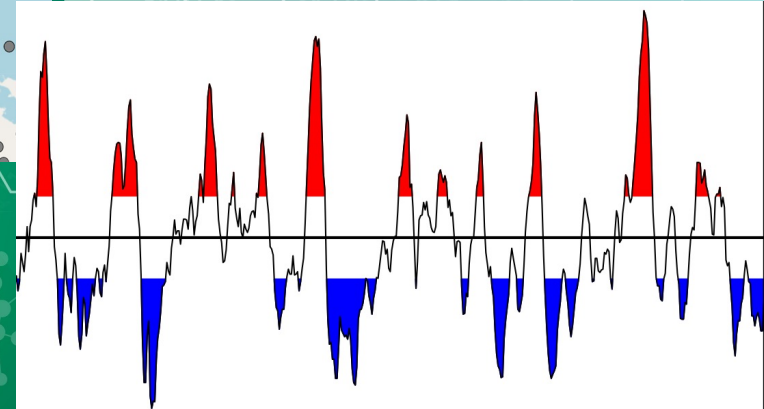
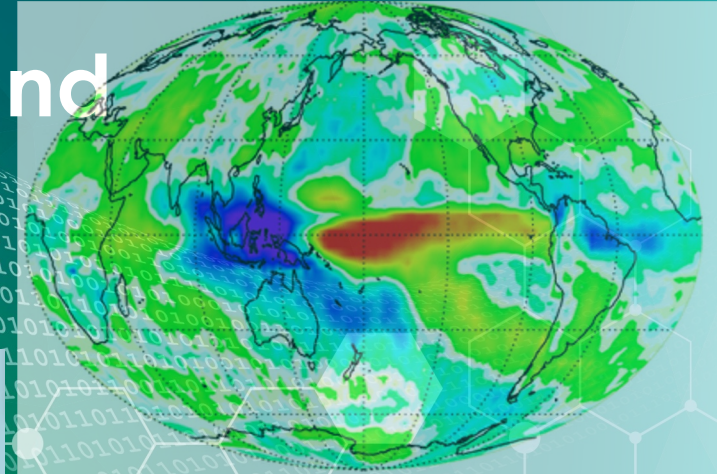
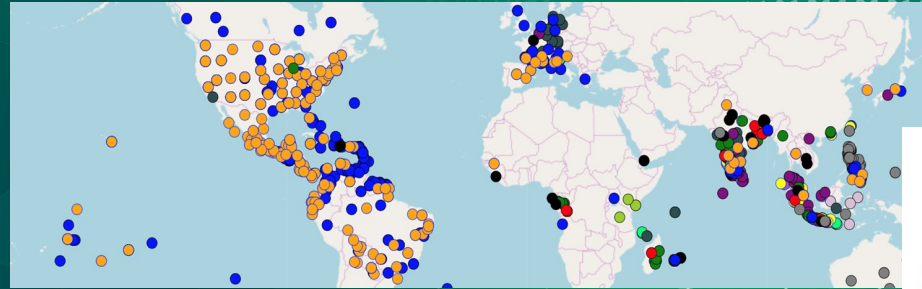


Machine Learning, Climate Variability and Disease Dynamics (MEDINA)

Stephanie Schollaert Uz
(GFSC)

Assaf Anyamba (ORNL)



NASA Health and Air Quality Applications (HAQ) Team Meeting 2023
March 29 - 30 (9AM-2PM ET), Asheville, NC

ORNL is managed by UT-Battelle LLC for the US Department of Energy

SCIENCE AND IMPLEMENTATION TEAMS



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Inst.PI/Co-I: Co-PI: Seth
Kenneth J. Gibson
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Taylor.
*now USU



Inst.PI: Stephanie
Schollaert Uz



Co-I: Ana Rivière Cinnamond



Co-I: Wassila M.
Thiaw (NOAA-
CPC)

Co-I: Claudia Pittiglio



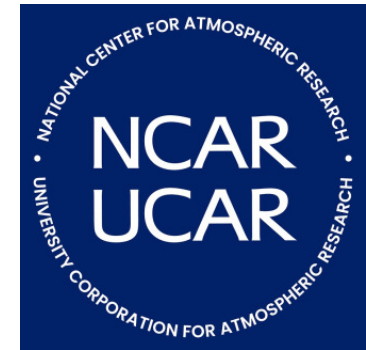
Assaf Anyamba
Heidi Tubbs
Bhaskar Bishnoi



Seth Gibson

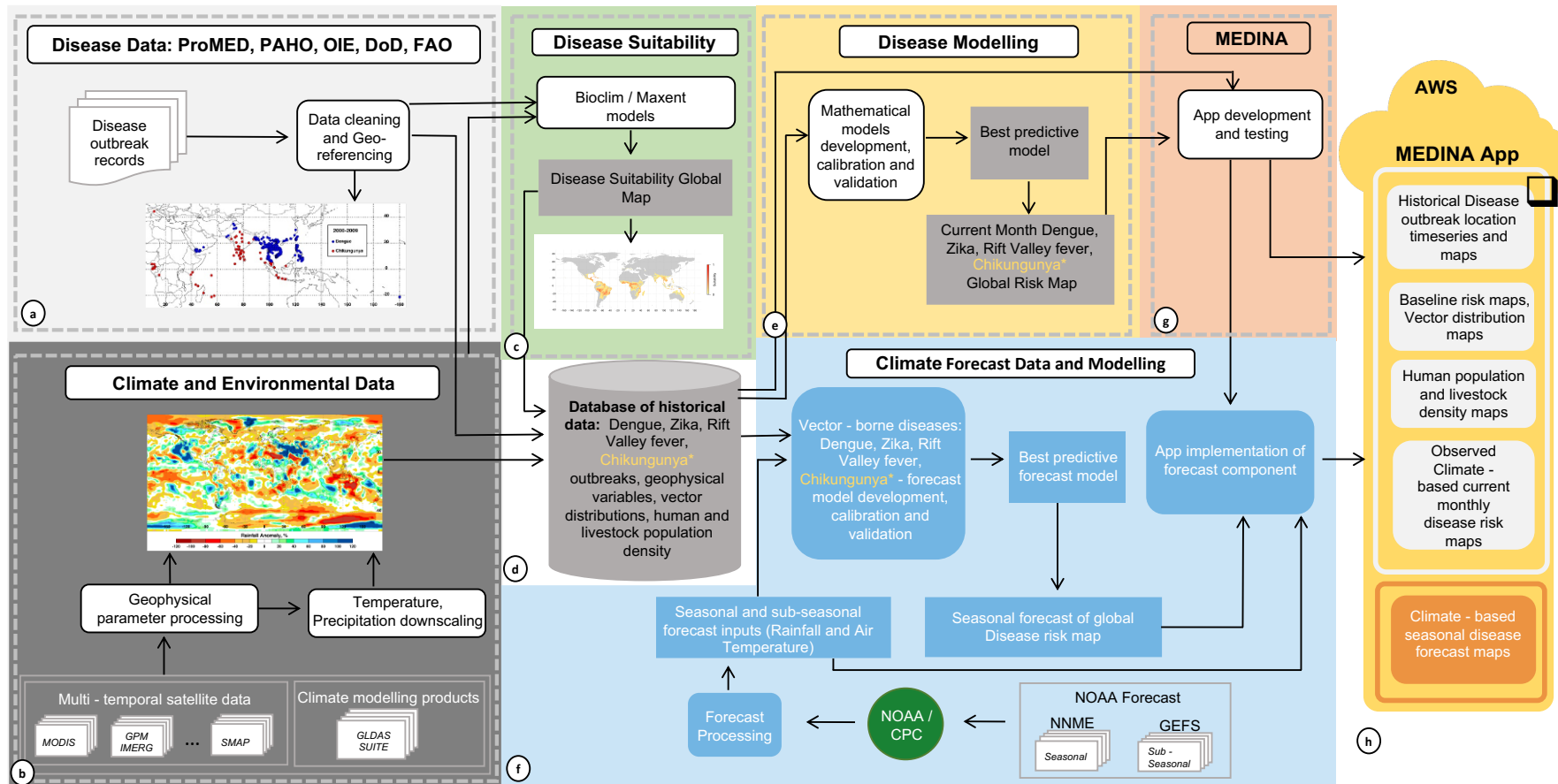


Wassila M. Thiaw



Endalkachew
Bekele

STRATEGY



□ Defense Health Agency's Febrile and **Vector-borne Infections (FVBI) Focus area** and are included on the **Global Ranked List of Infectious Disease Threats (2015)**

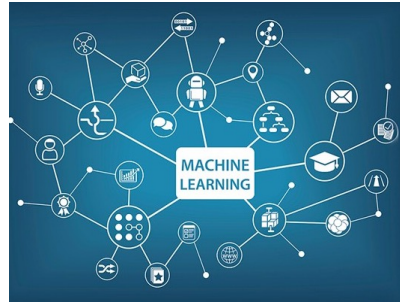
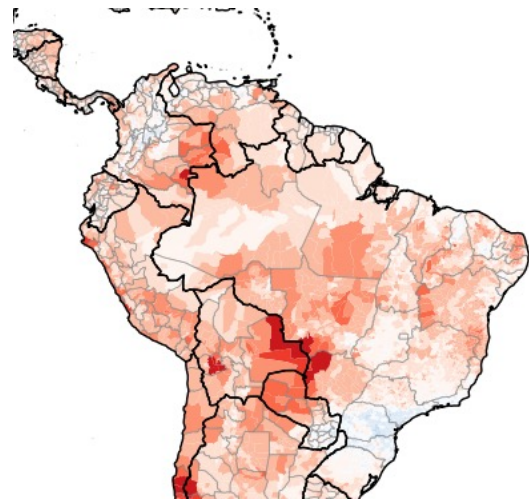
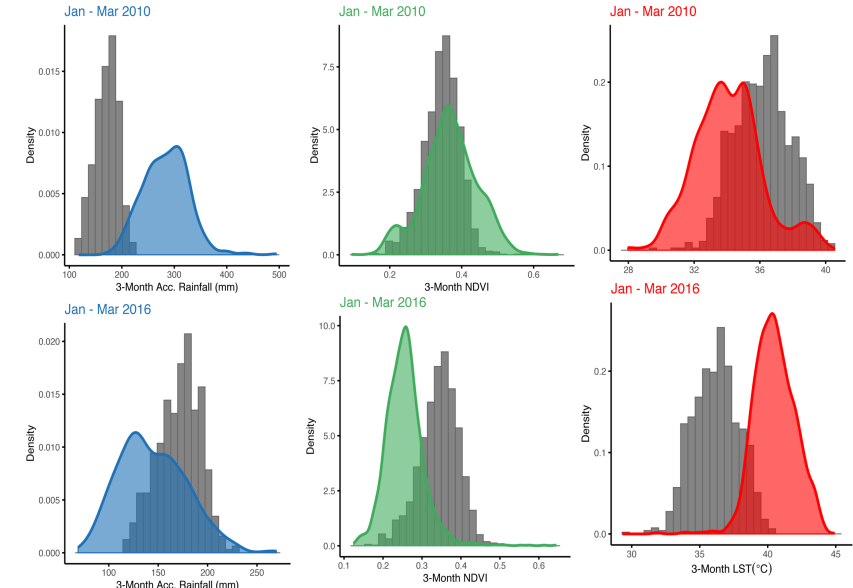
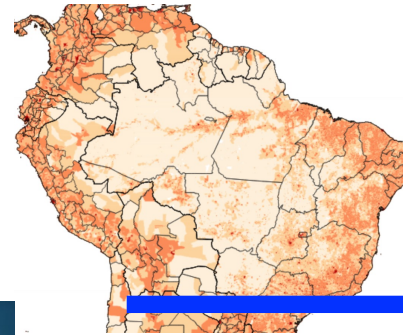
□ Mediated by Climate Variability

1. Dengue
2. Zika
3. Chikungunya
4. Rift Valley fever
5. Hantaviruses

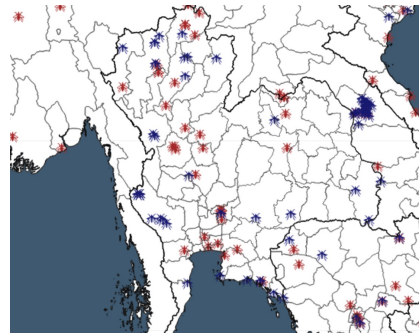
CDC Classification: Category A or C Bioterrorism Agents

Blending Multi-source Data Sets

Outbreak Data (ProMED, PAHO, AHSU)



Population Density (NASA-CIESEN, ORNL)



Climate Data (NASA, NOAA)

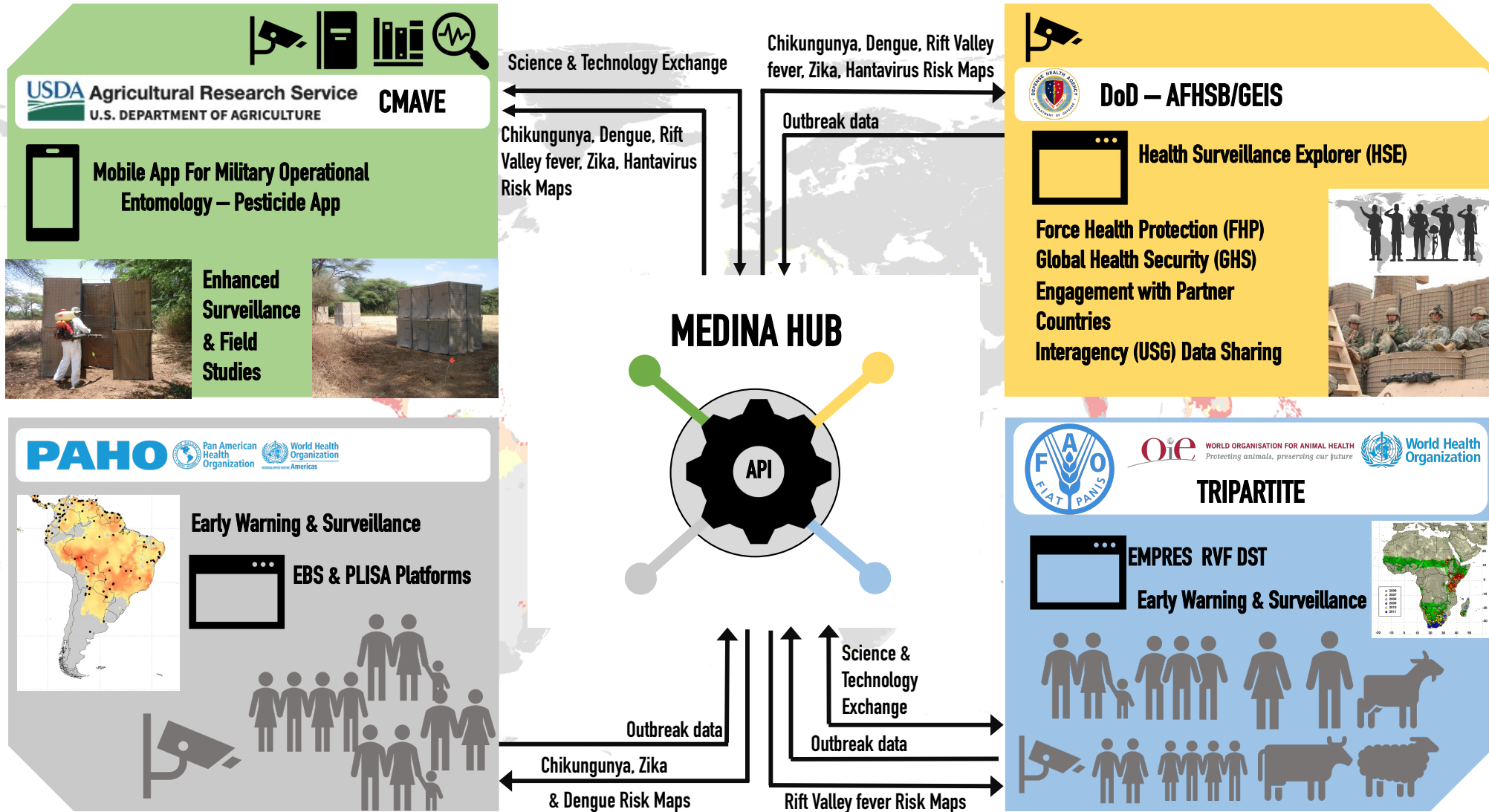
CHIKV Vectors (WRBU, NIAID-BRC)



CHIKRisk
MAPPING, MONITORING AND FORECASTING
CHIKUNGUNYA RISK

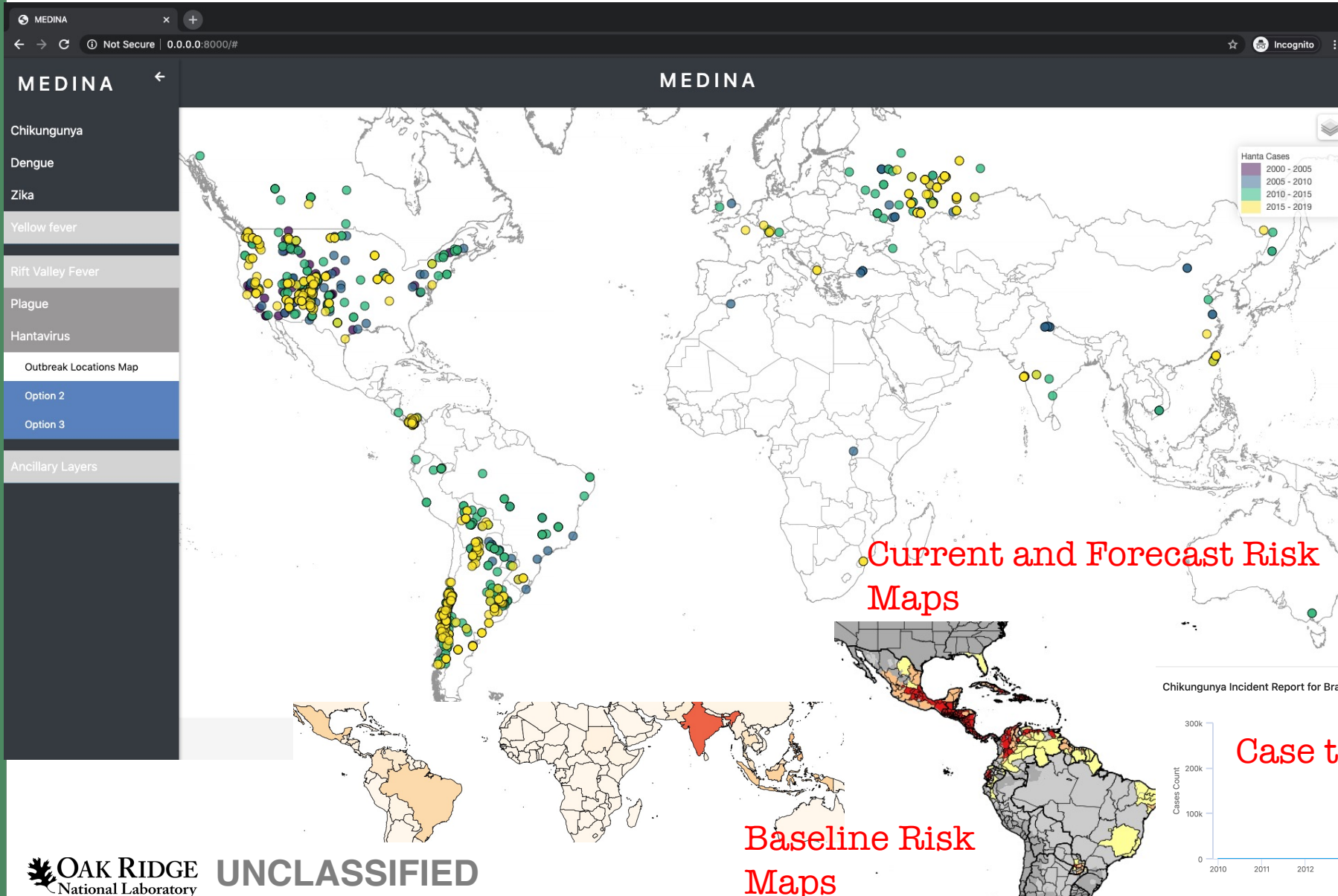
WRBU: Walter Reed Biosystematics Unit
NIAID-BRC: National Institute of Allergy and Infectious Diseases Bioinformatics Resource Center

DECISION NETWORK



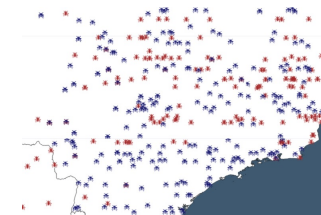
MEDINA Decision Support System Network (MDSSN) illustrating data and product flows to support various decision-making elements for various project partners as well as science and technology exchange

VISION : MEDINA



Unified Dashboard

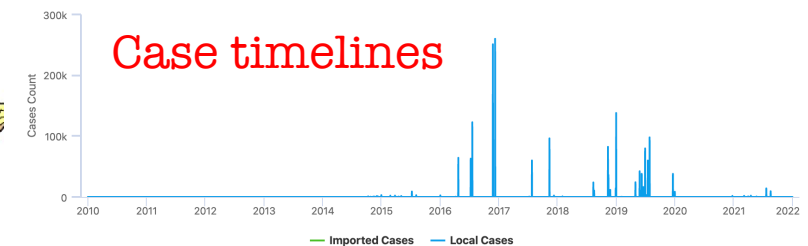
- Persistent VBD Threats
- Current and Forecast Risk Maps
- Baseline Risk Maps
- Case timelines
- Vector Distributions
- Operationally Relevant
- Upgradeable



Vector distributions

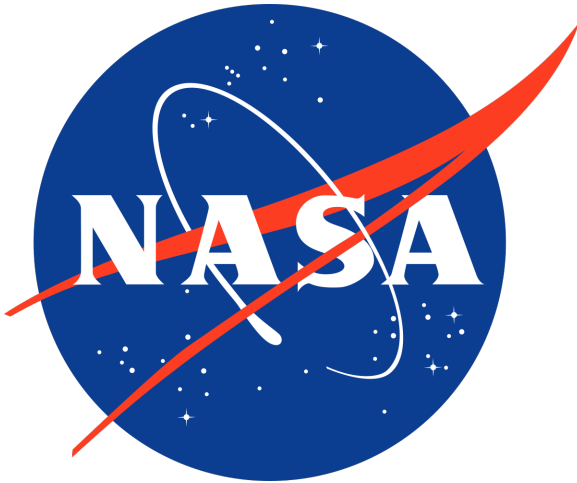
Chikungunya Incident Report for Brazil

Monthly Overview



Case timelines

Thank You !



EARTH SCIENCE APPLIED SCIENCES

NASA Applied Sciences Program – Health and Air
Quality, Grant # 21-HAQ21-0027