

CLIMADE AFRICA WORKING GROUP MEETING MINUTES – WEEK 15

Host: Centre for Epidemic Response and Innovation (CERI)

Date: June 13, 2023

Time: 12:00 – 13:00 p.m. (SAST)

Facilitators: Dr Houriiyah Tegally

Attendance/ No. of Participants: 76

Start time: 12:01p.m. (SAST)

Purpose of the meeting

Dengue Transmission Potential Modelling.

Agenda Items

1. Welcome
2. Presentation by Prof José Lourenço from Catolica University in Lisbon, Portugal on the contributions of climate to the global transmission potential of the dengue virus.
3. Questions and Discussion

Discussion points and questions

- Prof Lourenco started the presentation by highlighting the research on climate and mosquito borne viruses and discussed:
- The Dengue outbreak in Madeira in 2012.
- How can climate affect the outbreak dynamics and could these effects be modelled.
- The dengue epidemic had occurred in autumn and decreased in winter with an extinction by the next season.
- Questions asked by Prof Lourenco and his team in understanding the affects of climate on the progression of the epidemic and the effect on mosquito traits.
- Incubation of the virus related to the lifespan of Mosquitos.
- Finding the model that fits.

- Transmission of the dengue virus was possible if the temperatures were above 15°C
- The contributions of understanding climate and modeling transmission dynamics on tourism and public health.
- Epidemiological data
- Index P: A suitability measure of viral transmission.
- The use of climate dependent variables and well described climate independent and host specific variable.
- The use of empirical data and climate data for simulations and quantification.
- Models can be used for other arboviruses.
- Validation of index P
- Low correlation and phase shifts which showed a lag in prediction.
- Space and time correlation and validation.
- Global data set from 1981 to 2019
- Areas where dengue is an endemic.
- Historical trends
 - South and North seasonality estimated per month.
 - Quantification of historical events
- Brazil's climate trends looking at temperature, humidity, and precipitation.
- The use of linear regression models
 - Slope of change
 - Spatial distribution of climate driven stress
- Eco background
 - Altitude and index P
 - Index P and Climate stress
 - Climate change is facilitating transmission in higher altitudes.
- Biome
 - Biome spread across the global
 - Stress is mostly occurs in tropical, subtropical, and dry broadleaf forests.

- Land Type.
- Spatial distribution of significant slopes.
- Spatial distribution of climate-driven stress.
- Africa is leading in climate stress.
- Transmission and mosquito suitability are not the same.
- Index Q: mosquito reproduction potential
- Take home message.
- The use of models to locate precision areas or locations for sampling and surveillance.
- What information is needed to calculate index P and Index Q.
- Are urban areas at risk?
- Impact of macro climate changes

Adjournment and Closing points.

1. Dr Houriiyah Tegally adjourned the meeting at 12:59 p.m. (SAST).

Next Meeting

Tuesday, June 20, 2023, at 12:00 – 13:00 p.m. (SAST)

Submitted by: Yajna Ramphal

Approved By: Monika Moir