





# Extreme humid heat and health: Baseline assessment in Basse Santa Su, The Gambia

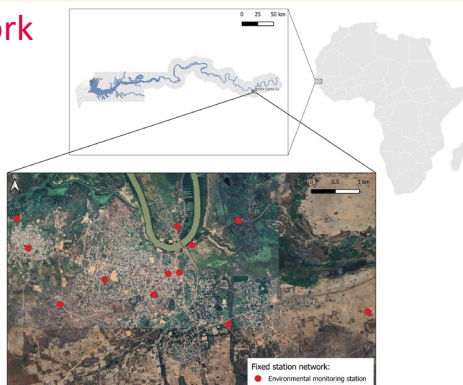
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## Motivation

There is consensus on the health risks of high temperatures, yet the role of humidity is not yet clear. Lab-based physiological studies have shown humid heat's danger due to impaired evaporative cooling. However, few epidemiological studies have isolated humidity's impact, and have yielded conflicting results. This study aims to **comprehensively assess the effect of humid heat** and further environmental conditions on health in the general adult population in Basse Santa Su, the Gambia, a region at high risk of heat stress.

## Environmental Monitoring Network

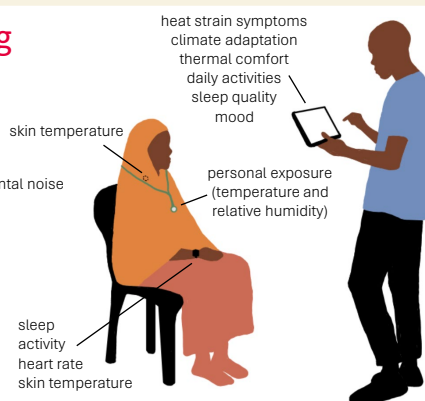
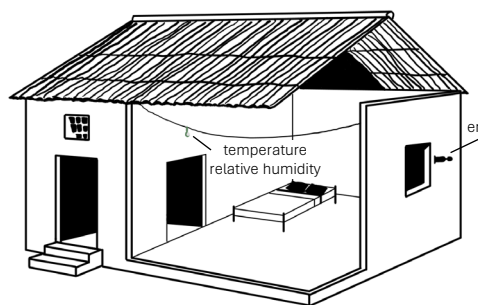
-  Temperature
-  Humidity
-  Heat Stress Indices (e.g. WBGT)
-  Other environmental covariates (e.g. air pollution, environmental noise)



**Output:** land use regression modelling to develop high-resolution, spatiotemporal maps of temperature, humidity, and heat stress indices

The study will run for **1 year**. Participants will be monitored for **4 non-consecutive weeks** scattered across the year to capture seasonal variations between the **dry season (November-May)** and **rainy season (June-October)**.

## Individual and Household Monitoring



heat strain symptoms  
climate adaptation  
thermal comfort  
daily activities  
sleep quality  
mood

**Output:** daily self-reported data and hourly measured physiological and exposure data

## What we know so far

73 adults living in Basse Santa Su enrolled and completed baseline assessments.



6% previously hospitalized or treated for heat-related symptoms.

### Housing materials:

Mainly iron sheet roofs, iron sheet or concrete walls, and cement or concrete floors

Home and workplace temperature dissatisfaction



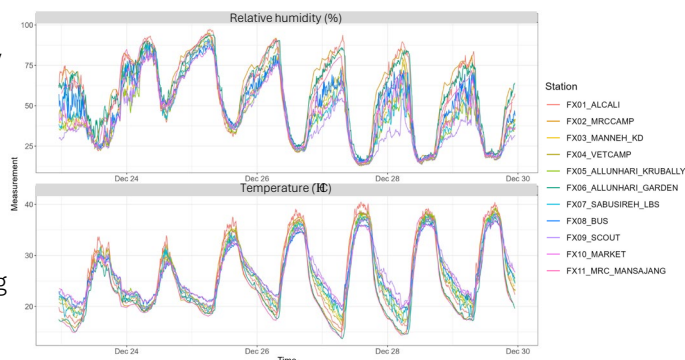
### Working conditions:

Majority have work outdoors and work involving physical activity

**Cooling mechanisms:** No air conditioning in homes, most rely on fans or shaded areas in the compound

**Daily mean relative humidity** 37.2%, hourly averages ranging 9.6% (afternoon) to 97.3% (morning).

**Daily mean temperature** 25.6°C, hourly averages ranging 10.5°C (morning) to 43.1°C (afternoon).



## Outlook

Case-time series with distributed non-linear lagged models to assess **immediate and delayed associations** between exposure to humid heat and physiological heat strain.

**+** Insight into **real-world physiological data** in an extreme environment

**+** Evaluation of the **interaction between humidity and heat**, and how this affects physiological strain

**+** Health policy and **climate adaptation strategy implications**, especially in LMICs with high exposure to heat stress

