# Small Work Group 1:
# Prediction and Prevention of Heat-related Health Risks across Time Scales

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# Members

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# Primary Goal

To reduce morbidity and mortality associated with extreme heat events and rising temperatures through reliable, decision-relevant integrated information systems, that include early warning, targeted to reduce heat impacts on vulnerable populations.

This effort will focus on identifying, applying and documenting Earth observation (EO) needs to reduce heat-related health risks.

The goal is to build a globally relevant capacity to use EO to understand, predict, and reduce health risks from heat across time scales.

# Objectives

Establish evidence-based warning systems that address neighborhood-scale (~100s of meters) variability in heat conditions;

Identify gaps and track progress in operational weather forecast capacities relevant to heat warning;

Where possible, extend the time horizon of decision-relevant heat forecasts;

Quantify both acute and chronic impacts of heat exposure and integrate that information to warning systems;

Ensure that warning systems and health interventions account for the multiple meteorological variables that contribute to heat exposure (temperature, humidity, and others);

Facilitate access to heat-related health risk information by vulnerable countries and communities with reduced technical resources

# Highlights of the work plan

**Document** existing hazards and proposed methods for triggering appropriate warnings and response during extreme heat events

**Apply** EO to operationalize spatially explicit vulnerability assessment and warning systems at kilometer or sub-kilometer scale.

**Track progress** in forecast-based heat warnings by creating a living document or online forum for the research and applications communities.

**Integrate** use of microclimate monitoring, satellite-based health estimates and modeling of outdoor heat conditions to inform heat warning systems and urban planning and project future heat wave risk using downscaled climate models. **Apply** these tools to operational warning systems in selected pilot studies.

**Perform** heat-monitoring studies in informal settlements and other underserved communities in order to customize early warning systems to meet the needs of the most vulnerable.

**Monitor** seasonality and trends in urban vegetation and other heat-relevant surface properties (albedo, emissivity, permeability). **Advance ongoing efforts** to inventory urban land use at high resolution and physical detail in order to improve model representation of localized heat features.

**Increase the number of studies** that integrate state of the art EO with dynamic population estimates and detailed records on population health and hospital admissions.

**Develop** a global heat risk map based on climate, supported with specific focus studies to develop in depth decision tools that appropriately account for background climate and acclimatization.

**Evaluate** long-term heat risks projected by climate models relative to current operational heat alert triggers in different countries and climate zones.

**Estimate** healthcare costs of heatwaves and benefits of a heat health warning and intervention, including prompt and spatially accurate allocation of health services for children under unexpected extreme weather conditions and air quality.

**Engage** actively with GHHIN, RCC, GRCN, European Union's H2020 projects, and other relevant networks in order to ensure that EOs are used effectively and appropriately to advance their goals.

# Strategic considerations

We need to distinguish between outcomes that primarily involve:

1. Leveraging of existing initiatives
2. Networking
3. Information synthesis
4. New research and analysis

Looking to 2021, the work group should move quickly on **(1)** and **(2)**, needs to consider priorities for **(3)**, and should aim to obtain resources for **(4)**

# At AGU FM2020!

GC089-06 - Global Urban Population Exposure to Extreme Heat

Monday, 14 December 2020

08:50 - 08:54

# At AGU FM2020!

IN012-01 - Bridging urban scales using modeling and measurements for improved urban sustainability (Invited)

Tuesday, 8 December 2020

23:30 - 23:34


https://eos.org/science-updates/converging-on-solutions-to-plan-sustainable-cities

https://journals.ametsoc.org/bams/article/101/9/E1555/348528/Urban-Scale-Processes-in-High-Spatial-Resolution

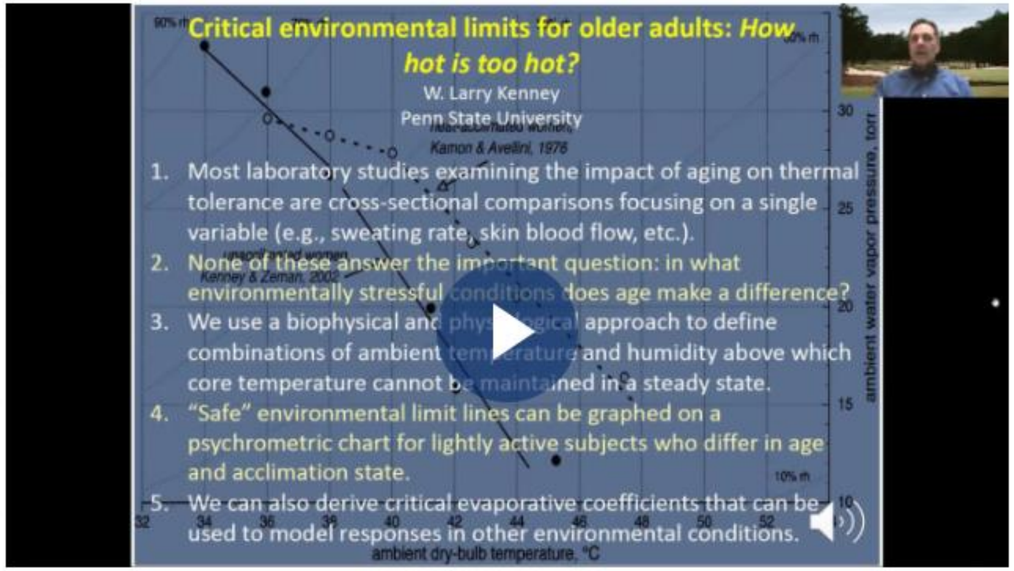
# At AGU FM2020!

NH019 - Impacts of Heat Stress on Infectious Disease: Drawing Biological Links Between Geoscience and Human Health I

Thursday, 10 December 2020

10:00 - 11:00

*Live Event Ended 10 December 11:00*



# Thank You