

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

SEPTEMBER 21, 2021

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.

2021 Activities

AmeriGEO presentation

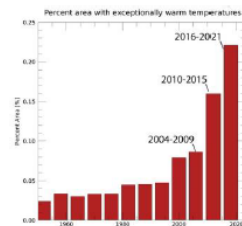
Leveraging Earth Observations to address Heat Extremes

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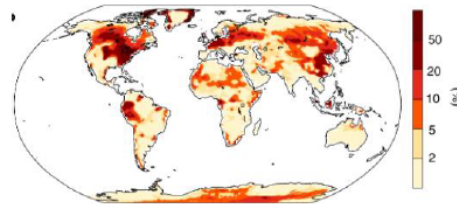
On behalf of the GEO-Health Community of Practice Heat Small Work Group

The Challenge

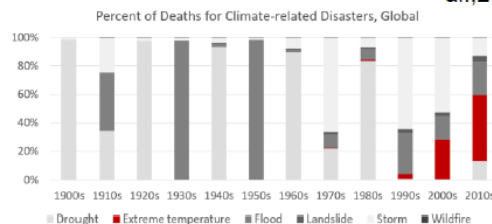
1. Heat extremes are increasing at an alarming rate (F1).
2. “Record shattering” events are projected to increase in coming decades (F2).
3. Heat is now the deadliest type of climate hazard, globally (F3).
4. Extreme heat disproportionately harms vulnerable populations (F4).



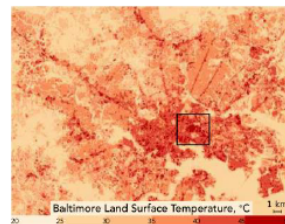
F1: % of Earth experiencing extreme heat (Figure: Chris Funk)



F2: probability of a heat event $> 2\sigma$ over historical record in 2050-2080 (Fischer et al., 2021).



F3: OFDA/CRED International Disaster Data



F4: an Urban Heat Island

The Work Plan

The GEO-Health Community of Practice Heat Small Work group has emphasized the following EO activities in its proposed work plan:

- **Document existing hazards** and proposed methods for triggering appropriate warnings and response.
- Operationalize **spatially explicit vulnerability assessment and warning systems** at kilometer or sub-kilometer scale.
- Generate retrospective analyses of **urban heat exposure**.
- **Track progress in forecast-based heat warnings**.
- Leverage EO to **project future heat wave risk** at high resolution.
- Perform heat-monitoring studies in **underserved communities**.
- **Monitor seasonality and trends** in urban vegetation and other heat-relevant surface properties.
- Increase the number of studies that **integrate EO with dynamic population estimates and detailed health records**.
- Develop a **global heat risk map based on climate**.
- **Evaluate long-term heat risks** projected by climate models relative to current operational heat alert triggers.
- **Estimate healthcare costs** of heatwaves and benefits of a heat health warning and intervention.
- **Engage** actively with relevant heat networks to advance use of EO.

ERL Perspective on EO and extreme heat events

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ENVIRONMENTAL RESEARCH LETTERS

PERSPECTIVE

Earth observations of extreme heat events: leveraging current capabilities to enhance heat research and action

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Supplementary material for this article is available [online](#)

Meetings / research talks

We have had several exciting research talks at our small group working meetings. Please join us and consider presenting your own work in 2022!

Current Work Group Needs

1. Expand collaboration with other groups and fields working on extreme heat.
2. Work towards EO-informed heat outlooks?
3. Apply our vision(s) for EO contribution to extreme heat actions to inform specific (funded) workstreams.
4. Improve global participation.