TRANSCRIPT

November 17 virtual media briefing on NOAA 2022 Urban Heat Island Campaign Webinar

November 17, 2022

NOAA Communications

Media Advisory: NOAA and partners release 2022 urban heat island mapping results

0:00
Welcome to the 2022 Urban Heat Island Mapping Results webinar.

0:05
My name is Morgan ..., and I'm the Climate and Health Communications and Outreach co-ordinator with NOAA Climate Program Office.

0:12
We're so thrilled that you could all join us today for this special webinar regarding the 2022 Urban Heat Island Mapping Campaigns through the National Integrated Heat Health Information System, and CAPA Strategies.

0:25
We had another amazing year of heat mapping across 15 communities in the US, and we're so excited to share this information with you all today.

0:33
This webinar is also a chance to highlight the amazing work that these communities did this summer, from the leave campaign organizers, community organizations, and, of course, the wonderful volunteers that were out in their neighborhoods, collecting the data to better understand heat in their community.

0:48
Next slide, please.

0:53
I would like to welcome all of our esteemed speakers and panelists and want to thank them again for joining us today. We have a wide range of presenters, including four of the 2022 Urban Heat Island Campaign cities who will be talking to us about their experience and mapping results.

1:08
First up to give opening remarks will be our moderator for this webinar. Know, as Chief Scientist doctor Sarah Kapnick.

1:14
Following doctor Kapnick's remarks will be the 2022 campaign overview by Joey Williams of Kappa Strategies and then presentations from four of our campaigns.

1:23
After the presentations will be a moderated Q and A session where the audience can ask questions to the panelists about their experience participating and then his cap of urban heat island mapping campaigns.

1:33
And just a few housekeeping items before we begin.

1:36
This webinar is being recorded and will be posted to our YouTube channel and heat dot gov tomorrow.

1:42
All registrants will receive an e-mail when it is posted.

1:45
Second, you can ask questions to our panelists for the Q&A portion of the webinar, using the question panel on the right hand side of your screen.

1:53
We would especially like to invite any cities interested in participating in the 2023 Campaign year, to ask any questions to our panelists. And if you are with a media outlet, we ask that you identify your media outlet when asking your question.

2:05
So, to officially kick off, our webinar is doctor Sarah Kapnick.

2:09
Doctor Sarah Kapnick is the Chief Scientist for Noah, and this role, doctor ..., is responsible for advancing policy and program direction for NOAA science and technology priorities.

2:19
Doctor Kapnick has extensive experience at the intersection of climate and science economics.

2:24
Most recently, she served as Managing Director at JP Morgan and the role of climate are senior climate scientists and sustainability strategist for asset and wealth management.

2:33
While at JP Morgan, she supported sustainability and climate action efforts, and served as an advisor on new business and investment opportunities and risks.

2:42
Previously, doctor Kapnic was a physical scientists and Deputy Division Leader, on seasonal to Cato, variability and predictability, and Noah's Geophysical Fluid Dynamics Laboratory.

2:53
Her work spanned seasonal climate prediction, mountain snowpack, extreme storms, water security, and climate impacts.

3:00
Doctor Kapnick received a PHD in atmospheric and oceanic Sciences with a certificate and Leaders and sustainability from UCLA, and an AB in mathematics with a certificate and finance from Princeton University.

3:12
Thank you so much for being here, doctor Kapnick, and off to you.

3:16
Thank you so much for the warm welcome. I'm so excited to be here today to talk about the important subject of heat.

3:23
Extreme heat kills more Americans than any other weather event, with an average of 702 deaths over 67,000 emergency department visits each year.

3:34

Extreme heat is referred to as the silent killer because we do not see the impacts as clearly as we do with hurricanes or tornadoes.

3:42
Climate projections indicate that temperatures will continue to rise in many communities across the country.

3:47
So addressing extreme heat in communities is imperative.

3:51
For example, from June through August 2022 was ranked as the third warmest summer on record.

3:58
And just last month in October, the Pacific north-west experienced a historic heatwave shattering temperature records for the month and Washington State had its warmest October on record.

4:09
Extreme heat is also an overlooked issue. For the mere fact.

4:12
The impacts are invisible, they're not easily seen.

4:16
And there are impacts are often delayed, and they're hard to quantify.

4:21
Some groups are disproportionately affected by heat related illnesses than others.

4:26
For example, outdoor workers and athletes are at greater risk than office workers because they have an increase exposure to heat.

4:33
Other groups may be disproportionately affected by the effects of high heat as a result of age or poor health, or lack of resources that enable them to adapt to recover, such as people experiencing homelessness, incarcerated people, low-income communities, and much more.

4:48
For many years, many federal agencies work separately on components of extreme heat to better serve the American people on this issue and provide a co-ordinated federal response. Noah, along with the Center for Disease Control, launched the National Integrated Heat Health Information System, or NICUs in 20 15 to develop and provide actionable science based information to help protect the nation from heat.

5:13
Since launching in 20 15, 9 has been involved in many projects, including national preparedness, social media campaigns, pilot projects in the south-west and north-east National Meetings, the Urban Heat Island Campaign, and the launch of heat dot gov, this past summer and so much more.

5:30
Well, my has many different working groups and projects. The program we will be focusing on here today is our Urban Heat Island Mapping Campaign program.

5:39
In this program, we're examining the Urban Heat Island effects, which is that cities are typically much warmer than nearby rural areas, especially during the summer. As cities, roads and buildings gain heat during the day and then radiate the heat, Intuit's surrounding air.

5:54
The result is that some areas of cities can be 15 to 20 degrees warmer than areas with more green spaces.

6:00
To address this issue and learn more about how elevated temperatures with the urban heat island effect communities Quality of life and can Adversely Impact, both natural and built environments.

6:11
Noah and his nose, and his partner, with the private sector Company, Kappa Strategies, and 2017, to start mapping the hottest neighborhoods and communities, starting first with Richmond, Virginia.

6:23
Since 2017, our program has found some stark temperature differences that highlight the need for solutions and actions.

6:29
For example, in Seattle and King County in July of 2020, we found temperature differences of over 20 degrees Fahrenheit between neighborhoods.

6:39
While many programs are examining the Urban Heat Island Effect, our mapping campaign looks to improve methods for measuring, monitoring, and modeling urban heat islands by looking further.

6:50
That's the human exposure elements of extreme heat.

6:52
Not just looking at how this hot surface Belinda's, but really trying to understand how and why people are being impacted by extreme heat.

7:02
For the first time in the program, we also implemented additional monitoring products this year and for communities.

7:08
Columbus, Ohio. In Philadelphia, Pennsylvania received air quality monitors to pair with heat data.

7:14
In Las Vegas, Nevada and Columbia, South Carolina, they receive stationary sensors that allow for them to understand their urban heat island over a longer period of time.

7:24
We will also be mapping to international campaigns for the first time this year, in Rio de Janeiro, Brazil, and Freetown, Sierra Leone.

7:32
What is most important and unique about our efforts, though is that it is a Citizen science field campaign.

7:38
It's not your usual research study conducted solely by scientists.

7:41
This mapping campaign is conducted by the residents of these neighborhoods who are out collecting data, learning about the issue of heat and its health impacts, and they are invested and not only seen the results, but also taking actions based on those results.

7:54
This approaches collecting data in intentional ways by including the community and the residents of these neighborhoods.

8:02
After the citizen science campaign is run, communities will receive a report outlining where the hottest areas in the community are.

8:09
Campaign communities are then able to take this data and worked with decision makers to implement solutions Hopefully, addressing areas that have starke temperature differences.

8:18
It's important to note that there is not one set of solutions for every city.

8:22
Every community is different, and solutions from the mapping campaign should be focused on addressing needs of the community.

8:29
For example, the data from our Urban Heat Island Mapping program was incorporated into Seattle King, King County's first, ever extreme heat mitigation strategy.

8:38
It was used by the Honolulu Hawaii Chief Resilience Officer, to inform tree planting.

8:43
The city of Raleigh was able to fund asphalt renovations to decrease the urban heat island effect.

8:49
Additionally, the campaigns were used by the Science Museums in Boston Enrichment to build public education events and many other examples.

8:58
There's a wide variety of ways this mapping data can be used, and we're excited to learn more about how the case from the summer will be using their data to implement solutions.

9:08
I also want to note the data from these mapping campaigns are open source, so anyone can access and use the data once it's available, which increases its use in community center for research purposes.

9:19
So we can all learn from this.

9:22
While these campaign, with these campaigns, the cities and counties are able to learn where the hottest neighborhoods are in order to provide and implement solutions in those neighborhoods.

9:31
And more often than not, those neighborhoods tend to be disadvantaged communities that are marginalized, underserved, and overburdened by environmental factors.

9:40
A nationwide study found that neighborhoods objected to the historical red lining, which were discriminatory, discriminatory, home lending practices, typically lack green space and suffer most from urban heat islands.

9:53
The study found that 94% of formula red lined areas, which remain mostly lower income communities of color are exposed to higher temperatures than non red lined affluent areas.

10:05
These racist policies also dictated which neighborhoods historically would receive investments and things like granary and home Energy improvements.

10:14
This historic lack of investment can cause some neighborhoods to be 20 degrees Fahrenheit hotter than others.

10:20
Examiner, uncomfortably warm while others are deadly hot.

10:26
Our Urban Heat Island Mapping Program is part of the by Administrations Justice 40 Initiative, a whole of government approach to ensure that Federal agencies work with States and local communities to make good on President Biden's promise deliver 40% of benefits from federal investments in climate and clean energy disadvantaged communities.

10:45
In the communities' applications for the campaign, we asked, applicants consider factors such as, do you have a plan for identifying, including environmental justice communities? Which are neighborhoods predominantly persons of color, or communities in which a substantial portion of people are below the poverty line is subjected to disproportionate burden of environmental hazards.

11:05
And will these communities be part of the driving routes selected for the mapping campaign?

11:10
Do you have plans for engaging underrepresented community members and the mapping process itself, Such as working with local environmental justice organizations to recruit a diverse citizen scientists into the campaigns?

11:22
Do you have plans to apply the mapping campaign outcomes to increase environmental justice and equity and heat resilience planning?

11:29
I'd like to thank the ... Visualization Lab who helped us create equity analysis maps at the previous an upcoming campaign Cities, which you can view on heat dot gov.

11:39
Through asking these questions, the application process, we are trying to address these issues and the data through the visualization lab can be reviewed for how it is achieving its goals.

11:49
Speaking of this year's communities, the 15 U S communities include Boulder, Colorado, Clark County, Nevada, which includes Las Vegas, Columbia, Missouri, Columbia, South Carolina, Columbus, Ohio, Jacksonville, Florida, Knoxville, and Nashville, Tennessee, Milwaukee, Wisconsin, Montgomery County, Maryland, Omaha, Nebraska, Spokane, Washington, Philadelphia, Brooklyn, New York, and San Francisco.

12:15
On today's webinar, we'll be hearing from for these communities.

12:19
They are Columbus, Ohio, Montgomery County, Maryland, Omaha, Nebraska, and Spokane, Washington.

12:27
We're so thrilled to have for the 15 communities with us here today to talk about their experience with the Urban Heat Island Mapping Campaign, and to learn more about heat in their communities and how they hope to use the data to implement cooling solutions, the neighborhoods.

12:40
I wanted to thank all of the volunteers, community organizations, and campaign organizers for all of their time, effort, and passion in addressing heat and health across the nation.

12:51

To learn more about this summer's campaign, I am now going to turn it over to Joey Williams, the manager at our partner, Capitalist Strategies, LLC. Joey, the floor is yours.

13:06
Thanks so much for that great introduction, doctor Apnic was awesome to hear that overview.

13:13
I'm going to go a little bit more in depth on the process and our outputs, and where we're currently at with our cities can also share out some exciting visuals in our report images as we start to think about releasing those publicly.

13:32
So, this was a great year, fourth year, doing this in partnership with ... and could have done it without the support of the night, his team, as well as support from the National Weather Service. So, I just want to shout those groups out upfront.

13:53
Um, I am the Program Manager for Campus Strategies, which is Climate Adaptation, Planning Analytics.

14:02
We are a firm that is working to expand capacity to address climate change with cities around the US and world. And I really want to highlight this year has every year past could not have been done. We have such an operation here every summer to ship out sensors to manage the team to analyze the data. So, I really want to shout out here, our team at Cap shunned.

14:27
As program manager should be data analysts to serve on virtual?

14:35
Are data visualization and reporting specialists, every voice in our resilience manager?

14:40
Yeah, home.

14:45
So, yeah, as Doctor Cathy mentioned, we added another set of cities to our domestic map here of all our Campaign Cities from years past.

14:57
And I also want to mention, we have two independently funded cities that are also be mentioned here, that was Clackamas County, Oregon, Portland, where I'm at, and also Columbia, Missouri. Which is on the map here.

15:13
So, it's been so great to work in different regions and to grow the cohort here.

15:20
And we had teams from diverse paths come on and speak at various points in the process.

15:26
And so to kind of build on the knowledge base that we've been developing over the years here, with our Campaign Cities, and also, to be able to see what folks have done with the data to date.

15:40
So I just want to touch back on the process that our campaign organizers and volunteer teams took on this year.

15:49
You turn on my Kindle. Yeah.

15:56
No.

16:05
Yeah, OK, good.

16:09
Yes, so, so, since we've been working on this since about March, we had to cities come on board and form new partnerships and coalitions geared at addressing this project, and also using the opportunity to build more momentum in there, in the local areas on heat. So, the first thing we did was establish really robust project teams.

16:35
We had partners from municipalities, non-profits, university researchers, graduate research assistants, and community based organizations on climate justice organizations, all come together here in, in a new partnership, in many cases, to be able to carry out this project and move forward on it.

17:00
So, the first thing they started to do was think about where they're interested in this mapping campaign.

17:06
Many places, we map the entire city, some places we just prioritize. Based on our capacity, where in the city really needed this type of mapping data collection on where it's hotter.

17:21
And we also in teams also started to engage communities early on to be able to carry out this, this very robust mapping campaign that really requires a lot of community involvement.

17:35
As I got closer to the summer, we started to lock down dates are tentative dates where we expected to see the conditions we're looking for are mapping which were clear, skies high, temperatures, low rates of precipitation.

17:53
And low wins in this.

17:55
This couldn't have been done without the support of the National Weather Service and the climate prediction center, so really want to shout those teams out again.

18:05
That was just, that was just been fantastic, down there, support all through.

18:11
So then when we got close to campaign, de ever sent out sensors, distributed list of volunteers brings teams up on what exactly they were going to do to collect the temperature data, as you see here on the right. This is an image of these are actually thousands of traverse voids that are so close together. From this point of view.

18:32
They look like lines, but they're actually individual measurements, temperature, humidity, GPS, position.

18:40
So, they went out and collected these data three times throughout a hot day.

18:44
It's quiet, it's quite a big undertaking for anyone involved to wake up, go out at six in the morning, and, again, a rainy afternoon, and, again, it's 70 evening and drive an hour-long route, which, in fact, gives us, really nice fisher, the spatial distribution of heat across the city.

19:10
Real estate times throughout the day, so we gathered that data back.

19:14
And, Kappa, we did our analysis process, the way the data, looking for outliers, experimental deviations, and then, using machine learning algorithms to create area wide maps across the city.

19:31
Again, it three times throughout the day, for both temperature and heat index.

19:35
Then now, we then, in the last couple weeks, debriefing will always work with teams to address. Where are we? What are the questions that are coming up?

19:47
What are some of the initial interpretations of the results? And where we go from here.

19:53
So, I just want to really focus on this kind of middle part of the outputs in the effort that went in.

20:01
So just to kind of put these all side-by-side, we had 14 Noah sponsored cities, plus two independent cities. And I think it's pretty interesting to see all these side-by-side, these little report covers that, show mostly evening, temperature maps. And then you can see how the distribution really, really lively crosses a lot of different geographies within our cities. This summer's them near water further away, some landlocked.

20:31
Some coastal, many different climate zones as well. And so again, we're adding to this this collection that really helps to understand how it's distributed in different urban morphologies in regions across the US.

20:48
In total, we had another real, very robust engagement and data collection. This year, we have nearly 800 volunteers. This is the number of people who actually went out and participated to collect data during the campaign. Which is, it's just mind boggling how many people across the US are going out to do the same mission in this very similar thing.

21:13
As doctor Catholic mentioned, we had two cities in that stationary mapping, which I'll get into a little bit more later, as well as air quality mapping.

21:23
We even had a bicycle campaign in the city that was able to be able to design a bike route because they have such or infrastructure for that in Brooklyn instead an unhappy.

21:36
And we had a maximum temperature light duty of almost 103 degrees in one city.

21:43
And we saw differentials up to 15, 16, 18 degrees in cities.

21:49
And in total.

21:52
This means we had to over one million measurements, individual measurements in temperature and humidity.

21:59

So it's, again, really, really cool to see this all added up here, looking at the distribution of the ages that we had engage.

22:08
And this was for folks who signed up on our volunteer. Sign-up is a little bit broader picture of who was interested in volunteering.

22:27
Just to share out some fun photos, I think one of the best aspects of the campaign is the fun that people have, that in doing this together.

22:39
And so just want to share out some fun photos from the campaign, your Early warning smiles, which I always find amazing.

22:49
People are so excited to go out and participate in this.

22:53
Um, try to put in a photo here, at least to remember say.

23:00
Yeah, we also had some great media coverage and again, this summer.

23:04
And with if an organizer's and volunteers, giving interviews, local newspapers, local affiliates. Lots of evening news coverage of this as well on television.

23:16
And yeah, I think between the media and the engagement, this is always a very robust part of the campaign to get a lot of attention on the heat and how well people are trying to do something about it.

23:34
And so, thinking about where our results live and like doctor Cathy mentioned, these are up on the open platform, the Open Science framework.

23:45
The results that we have are the data sets in the raster Geo to form, as well as the traverse data that were collected in shape file format.

23:54
We've got all the summary reports here, as well as the metadata, so those would be really see everyone is able to go online and access the report, download the data, and we really love to see where teams take it from here.

24:10
And just to cover a couple of the additional monitoring projects, we had this summer that was sponsored by Noah and Kappa.

24:20
Epic mentioned, we had stationary long-term monitoring using these sensors that are position here in the middle of the screen, and this is a temperature and humidity sensor that's gathering data.

24:35
Continuously, we've had teams go out and install these in various locations across the city, that would help us to answer two main questions.

24:45
one is how do how does the how do the temperatures that are mapped on this particular day when we are looking for a typical UAE China conditions?

25:00
How does that compare to ... conditions that show up across the for each season in the city.

25:07
And so we compared to these ranges of temperatures on the campaign day, to the ranges that we're seeing across one month period.

25:17
In general, we saw some very similar patterns. And if one area was hotter on the day, we map. The campaign was also typically hotter throughout the summer.

25:27
And silicon, we'll share out about these results more, in depth, as well.

25:32
The second question to address was, How to evaluate the predictions of our model against actual temperature measurements here, so it's an exhaust exogenous accuracy assessment.

25:46
We saw some very close friends there, in how the data are with our models.

25:53
They do, additional mapping product we had this year, was to, to map the 2.5 particulate matter.

26:03
To do this by mounting the LB sensor, as you see in the picture in the lower left-hand corner, mounting that alongside our temperature monitoring and able to point here was to try and pick up to chronic pollution. That might relate to what's happening in the land use and land cover.

26:23
Actually, Philadelphia and Columbus ways to campaigns, well, we had a fairly clean air day, so it's really interesting to see what does stand out to be sharing out those results very soon.

26:38
And last we had two international campaigns that are coming up very soon here, one in Rio de Janeiro, Brazil in another in Freetown Sierra Leone and we're really excited to be expanding the reach. They're learning from what other countries and continents are doing around.

26:57
And so from here, soon be hearing from other campaign cities with where they're going with their data. But really we're, we're starting in the spring of identifying exposure.

27:12
From here, we're going to look into why the data, and then, to think more broadly, expanding the capacity of our partnerships to be able to address heat, and integrate these data efforts into other initiatives that are going on at cities. And, so, capital has been working with cities who conducted, is the mapping assessments over the years. And, we see these directions, and, receive, applications go in many directions, such as decision support tools, additional monitoring to identify indoor exposure, exposure to air pollution. And we also gather teams to think about workshops and when an integration with the data.

28:01
And, so, yeah, I'm sure you'll hear from many other teams here about, so that directions they're taking a particular data.

28:11
So, I'll end here and just want to end on a note of gratitude for all the campaign organizers and the volunteers, as well as all the support from the National Weather Service throughout this campaign.

28:26

Passing over to Dave Silver Easy with the passing it to me. So, thank you so much, for that overview of that was wonderful. And our next speaker will be David Celebrate ..., who is The Resilience and Behavior Change Manager for Sustainable Columbus, Columbus, Ohio. So, please turn your video on and start your presentation.

28:53
Great, thank you, doctor Cabinet. Can you all hear me OK?

28:57
Yes. We can. Please, go ahead and share your slides if you have them.

29:03
OK, and, actually, um, yes, I did send the slides. Are you able to see them?

29:10
Yes, give me one second.

29:12
OK, gotcha.

29:25
While you're getting the slides up, I just want to say I'm really appreciative of being here.

29:35
They're able to see it now. Yeah, thank you.

29:39
But thank you, doctor Catholic and Noah for introducing me. And hi, everyone. It's good to be here, and I'm going to talk about our Columbus Area Heat Mapping Project. Next slide. But before I do that, I work in our Sustainable Columbus office at the Columbus Department of Public Utilities, and an interesting fact about Columbus is we were home to our own into the Great Columbus experiment. This was a revolutionary water treatment system that virtually eliminated typhoid, cholera, and many other waterborne diseases way back in the early 19 hundreds. And that system was has been adopted around the world.

30:12
So we continue to evolve and innovate and have recently installed a microgrid at one of our water booster stations, and we're using rain gardens among other solutions to handle the sanitary sewer overflow issue.

30:24
Next slide.

30:26
So let's bring the heat. So Columbus is the fastest growing urban heat island in the country for major US cities, where urban temperatures can be up to 24 degrees hotter than rural areas. Our number eight in the biggest difference between urban and rural attempts, in fact, between 151, in 20 12, our annual average temperature warms by 2.3 degrees. And the average low temperature warmed by 3.6 degrees, which is faster than the global and national averages. And more, recently, this past June, we saw the highest number of 90 degree days, in more than 20 years. We also had a major power outage that lasted about 30 hours in some neighborhoods. So, question, we asked ourselves, you know, we, we know we are hard, but we don't know. Why do we need to map, And I guess, is in the next question. So, next slide.

31:17
We know that every neighborhood is not the same.

31:21
In general, we know that the heat is not distributed evenly but we don't know the details on that. So we're looking for a project that allow on the ground sensors for heat and humidity, something we haven't done before. This data would inform our actions and the Columbus Climate Action Plan, specifically, where we

should have our resiliency hubs, and these are locations that can serve as cooling centers, safe food, and water distribution centers, in shelters, during power outages, or heat events.

31:49
And our goal, by 2050 is to have resilience hubs within a 15 minute walk for residents. So the heat mapping data would inform us for that loss and foremost. And where do, or where to focus. Our Green Spot Community Backyards Program, which is a program that promotes stormwater education that residents, residents that participate in that get $50, it can get a $50 rebate, often native tree, or a rain barrel, or $25 rebate on native plants.

32:17
I think we all know the benefits of trees, in terms of water quality, but also in the cooling an area helping keep an area cool, especially during those hot days of summer where we've all been outside. And just been sweating, then you stand under a tree. And you're like, wow, this is like a 10 degree, 15 degree difference, than out in the sun.

32:35
But we know what the trees that were given out, and they're probably around six feet tall, they're gonna take some time to mature, and really provide that much needed shade.

32:43
So, in the meantime, we're also going to put the data will help us focus educational campaigns that are neighborhoods specific and how to prepare for and what to do during the heat event.

32:55
The data will also dovetail off of our tree canopy study.

32:59
Right now, Columbus' has a 22% canopy cover, and we have a goal of 40% cover by 2050.

33:05
Next slide.

33:08
So it was really no way to the rescue. So, they provided a network information, tools, and support to make the project possible. We teamed up with several other departments and external organizations on this project. And a shout out to Kappa enjoy his team for being so responsive, and putting up with all my e-mails. And being such a vital partner, as well as The Weather Service.

33:30
Or you can see our study date in some of the stats on the right now. A couple of things to keep in mind, the previous 2 to 3 weeks before our study date, temperatures were well into the nineties, but we weren't able to do that. We weren't able to run the routes at that time. The Monday before the 12th looked really good, but we had to cancel almost at the last minute, because that atmospheric changing conditions, so he came a little earlier than usual for us. Also, we're still interpreting some of the data. So our final report is incomplete at this time, but I'll get to when we plan on rolling that out later.

34:07
Next slide.

34:10
So, here is our Project area, the Jurisdictions, and the Points of Interest. We did look at mapping the whole County of Franklin County, where we're at, but it would have exceeded the maximum 250 square miles. So we had to be strategic on where the project took place. Next slide.

34:29
Then here are the heat maps, looking at the three different time runs. Each of these maps have different highs and low temperatures but use the same color scale.

34:37
Next slide.

34:41
So, we had 22 routes including one that traversed one of our metro park trails. Alum Creek trail, the redder the line, the hotter it is, click or on site. Next slide.

34:54
There it is. So we took this information and we put them into a GIS map and included later layers for flood hazard, for zip codes, neighborhoods, litter, index, and jurisdictional boundaries. The color blocks you see, those are just to differentiate the neighborhood boundaries. On the actual GIS map, you'll be able to zoom in to see more details and additional neighborhoods that you aren't able to see, at the screenshot level that I did here. Next slide.

35:22
Next came the fun part of recruiting, so we activated our partners, they activated their networks, and we ran social media campaigns. We had two amazing interns live Green and Michael Wolf from the Ohio State University. They put together some really cool means. We also recruited from our 24,000 green stock members and this is a resident in business pledge program that encourages living and operating more sustainably.

35:47
Next slide.

35:48
And to keep that drip of information going, when the maps were finalized, we use that as an opportunity to do some social media posts. So as you can see, we have the dinosaur route there on the left. We have the route on the, on the right. We also had some fun with the sensors when they came.

36:06
Next slide.

36:08
So volunteers, as you can sign up for 1, 2 or 3 times slots. We had a total of 78 volunteers that rode the routes.

36:17
This did prove challenging, since many, only signed up for one time slot, so we had to figure out a way to get the afternoon and evening volunteers, the equipment, We didn't want to burden the volunteers with having to track down another volunteer. So we set up a drop-off and pickup location for that me being a little bit anxious for the day of, I got to work at 3 30 AM that day.

36:38
I did get a few calls, where I'd run out and change out some of the equipment for the morning route, volunteers did get K and K 10, 95 masks, metal, re-usable, Greenspon water bottle and a $20 giant Eagle gift card that was donated by Giant Eagle.

36:55
We also got some volunteer testimonies, and we had a thank you outdoors get together.

37:02
Next slide.

37:04
So, kind of Joy said, All the volunteers really seem to enjoy this project. I know I did. And here's just kind of a brief recap of some of the stats. We got media coverage, as well, and we haven't, as I said, we haven't released the final report yet. We're still working on some of the maps, make it easier to read, and, waiting, I'll just a couple more data points as well.

37:26
Next slide, but we are aiming for a December release to roll it out.

37:32
And, the next steps after that are, are to do a neighborhood specific heat event materials, So looking at those neighborhoods that are disproportionately hotter than the rest of the city From what the data shows and haven't, you know, having things like pictures from that neighborhood.

37:50
We're also looking to do a possible oral history project for those neighborhoods as well.

37:57
We want to research the heat related emergency department visits by zip code. Again, that will help us moving forward with that, and maybe even, you know, revisit this at 6 or 7 years to see how that temperature is changing.

38:10
one more slide left. I just want to give a shout out to the project team and a special thanks to Getty Davis with OSU, who's there every step of the way.

38:21
Thank you so much, David. Next, I would like to introduce Laura ..., Climate Engagement Manager for the Department of Environmental Protection in Montgomery County, Maryland. As well as Ylang Jill Tenon, the Climate Fall with Montgomery County Government.

38:38
Thank you, the floor is yours.

38:42
Thank you so much. Hello everybody, and mowing and the signs up and thank you. We are from Montgomery County. I am with the Department of Environmental Protection, and Iran is one of our climate fellows when the Montgomery County Government and during the time of the campaign, was also actually interning with Akamai County Planning department and says, she's been really integral and, and bringing different pieces together.

39:06
On the slide, I also have some of our partners that worked with us through this. So we had a smaller painting team made up of different aspects of the government folks that we had from the Office of Emergency Management, Department of Environmental Protection, Montgomery Parks, Montgomery Planning, and then we also worked with a non-profit partner when Montgomery Green in order to complete mapping.

39:27
So, next slide.

39:32
And that's actually a little bit about us and our bios, and you can see a little bit about our backgrounds and our interests, and working in this, and building an equitable results.

39:42
Next slide.

39:46
So, a little bit about our mapping. So our mapping took place on August seventh of the summit. We snap 212 square miles of the County, so a little under half of Montgomery County, but encompassing all of the urban areas and Montgomery County, Montgomery County is just north of DC, and it's in the DC. Metro area, so it includes big cities like Silver, Spring, Rockville, Gaithersburg, Bethesda, Places that and lots of cities and urban areas that sprawl from there.

40:16
We had an outpouring of support. We had 554 interested volunteers that signed up to participate in the mapping which we did not have enough mapping to be done for all of these volunteers in any legal talk.

40:30
A little bit about that towards the end of the presentation like Jamin mentioned when he was sharing the results of the different Maps are maximum temperature was 95 degrees and we had a 12.8 temperature differential. one interesting aspect about Montgomery County is a Hugger Murray County has an agricultural reserve. So there's a portion of the county that's been designated to do not be developed and I think that contributes. We weren't able to capture all of the agricultural reserve made sure to include pieces of it to look at how the temperatures change from these less developed areas of the county to the highly urbanized areas.

41:09
Then we also have for heat hubs, which were similar to what Columbus was saying. We had the same thing with a number of volunteers. And trying to find a place where people can, one, just pick up the equipment and connect. Then we use those also as a farm education that I'll talk about as well.

41:28
So next slide.

41:32
So a little bit about the background of how we how we came to this. This heat mapping campaign, sunken Murray County and June of 2021 released the Climate Action Plan. And the Climate Action Plans, Montgomery County Strategic Plan to cut greenhouse gas emissions by 80% by 2027 and 100% by 2035.

41:52
Climate action plan details the effects of the changing climate in Montgomery County, and it includes strategies to reduce greenhouse gas emissions and climate related risks to the counties, residents, businesses, and built the natural environment.

42:04
one of the climate actions, three highlights the importance of temperature monitoring and alerts, and this heat mapping is one element of that action, which spurred this collaboration with NOAA and NIST and Kappa strategies. So, it was really important for us to complete the snapping and understand about where heat is distributed throughout the county, so that we can build more equitable resilience.

42:24
And so, on that next slide, one big piece about our climate action plan and the work that we're working to transform and how it working as a government and within the county, is looking at building this equitable resilience to climate change.

42:38
And making sure that the work that we're doing is focusing on, historically under prioritized areas of the county and residents. Montgomery County has a high migrant population, and there's a lot.

42:51
We have six official languages that have different neighborhoods throughout the county, have higher populations and different migrants. And so it's really important that we're looking at whenever we're doing this, mapping and our outreach methods. But then in general, when looking at climate action, that, we're building this equitable resilience here on the right is a figure from our climate action plan that looks at, that highlights the high concentrations of impervious surfaces in the areas with the highest social vulnerability. And you can see that there's a really high correlation, which, in turn, we have seen from our mapping results as well. So they weren't super surprised by the mapping results. We were expecting to see these areas of high impervious surfaces and low tree cover, but it was really helpful. And is really helpful, and wanted to be continued to be helpful as we're looking through the results to have this data and how we apply it.

43:40
So, next, talking a little bit about our volunteer outreach and the roles. I think one aspect of Montgomery County's campaign that was really unique was the outpouring of support from volunteers that were interested in participating.

43:53
And the, the way, or how this initiated our volunteer outreach was first, we just did a press release. So whenever Noah and Capital was announcing all of the heat mapping campaign cities, we released a press release as well about our participation in this, and that really sparked outreach and outpouring of support within the first few weeks ahead.

44:16
Over 200 people that had signed up and express interest in participating in the mapping, which was well over what we thought we're going to need, I was crossing my fingers for 40 to be able to drive the routes that we needed. So, that was a really big piece of it.

44:30
And we also did, once we, once we received this, initial outreach, was also really important to us, that we weren't just taking the street scientists that were coming, are also doing intentional, outreach, to have more equitable participation, and the heat mapping and making sure that people were doing the heat mapping in their own neighborhoods. And we weren't having people from one area of the county that might be more connected to the government. And our programs mapping a whole different area of the county that I'd be a little more disenfranchised.

44:58
And, so, we did recruitment on social media through our blog, through our newsletter, and through next door to, to continue to spread the word, and from that, there was a lot of media interests, as well, and so we were on multiple news stations in the DC. Area sharing about this heat mapping. And I think that helped raise the awareness, as well, which resulted in the almost 600 people that express interest in volunteer.

45:23
Another aspect of our volunteer engagement was the roles that we offered. So, it was a struggle for us that this mapping had to be done through driving one, because living in an urban area, a lot of people in our area rely on public transportation, and not everyone has a car. And then also looking from the climate aspects. And it was something that we wanted to think really intentional about how we were able to do this, mapping, collect the data that we needed, but still involve everyone in the, in the campaign.

45:53
So, we provided three volunteer roles for people to participate in. So we gave the option of a driver and navigator, and a neighborhood organizer.

46:01
So, the drivers and navigators, and they were trained before campaigned de, and their role is to traverse one of the routes and their neighborhood. And either the morning, the afternoon or evening.

46:12
Then the neighborhood organizers were a little different and a little unique, and it was as sort of a Choose your own adventure kind of role, and provided them a number of resources and how they can engage.

46:22
So, we, first and foremost, neighborhood organizers are seen as neighborhood heat health advocates. So, they were sharing information for them, so that they can share information and heat, resilience, signs of heat health, things like that, to their community. We also did a social media campaign, which I have some graphics on the right that neighborhood organizers and a lot of the drivers and navigator share as well. And then, we, at, most importantly, we gave them a toolkit and train them on story collecting, so that they can work within their community and their neighborhoods, and gathering stories on how heat

impacts people's livelihoods, their jobs, their health. So that we can use that while we're also interpreting the results of the campaign.

47:05
Another aspect of our volunteer engagement was that we offered residents cash reimbursements and then we gave them the option to opt out to either get volunteer hours or community service. Or if they wanted to just wave the reimbursement entirely, which many of the residents, then when the reimbursement entirely, but it was important to us that we were compensating the volunteers. But our time.

47:26
Um, then, lastly, as well, before I turn it over to you in, the campaign de was really exciting day on august seventh, we, because of our position near the DC area, NOAA is actually headquartered, and our campaign, next slide.

47:40
Sorry, um, know, is actually headquartered in our campaign and in Montgomery County, and so we were able to have Noah participation. And then I'm campaign, de also the White House Office of Science and Technology Policy, had interests and participating, and they were able to host a thank you for volunteers.

47:59
And there was, was local, regional, and international media that attended the event, and at that was, and that was really phenomenal. So briefly, I'll turn it over to you then to talk about the heat hubs and the results.

48:13
OK, so thank you, Laura, ..., now quickly go through what's happening on the campaign gate. So, as we mentioned, that we have 500 people sign up, and we really wanted to make sure everybody have a chance to map the result. So, the end, we'll keep 135 volunteer on the campaign date. Next slide, please.

48:31
So, in order to organize all this, what's the starting point?

48:35
And you wanted to organize, make sure that everybody can pick up, we have for defining how the distribute across the county. So the bottom here can come and pick up a device. And also, like making it the heat in the nearby area. We also have ..., and he helped to distribute information about key health resilience, as you can see at a slide here.

48:57
And he hub is mostly located as a community park or recreation center, but I have hype with traffic but closely and the dates, so people can come and check out what's happening here in the room about this campaign will appear with the thermal camera that was provided by the carpet strategy. So, people can use that to take a summer camp temperature picture and see how the temperature with differ from Teresa Faith, as you can see, from one of the image here that was taken by our volunteer.

49:25
And we also have Community ..., so, I remember one community member come and tell me how he help his neighborhood repair the air conditioning, is pretty nice summer day. So this story shows how community was sort of terrorist with helping each other during the summertime, but also tells us that we need to provide assistance for low-income neighborhood to have a functional couldn't devising summit.

49:47
This one, please.

49:50
So, here's the resolve of the Montgomery County's he mapping. As Laura mentioned, it's not really surprised to find out that he was concentrating Heidi, develop an area. So continue. We're also trying to what we see academia upon, to help, to share the resource, weasels, research it, and help the mechanic

hockey understanding how urban heat island was distribute disproportionately impact, the different communities in the county, and also how that related to the recovery, and also impervious surfaces.

50:20
Continue with such high, Can we pull out the retail for the general public? So, we are also working on developing this Toby Map, and share information with the local residents with some creative way to further educate them about the health regime.

50:35
Last, not the least, we also share the result internally with our county agency. So, we show resolve, wisdom, or county planning to assist the master plan process. We also share with the emergency management for Hazard Mitigation Plan, and also our newly hired in nature based solutions.

50:52
To it to incorporate this result into our country's nature based solution, so, this is the nutshell of the ongoing and key making content, and we'll be happy to answer any questions in the Q&A session.

51:10
Thank you very much, Laura, you Link. Next, I would like to introduce abdul-aziz or ..., as he's known for a tour of Duty A Deli.

51:20
A PHD student at University of Nebraska Medical Center in Omaha, Nebraska.

51:26
Aziz, please turn your video and start sharing your slides. Thank you.

51:33
Thank you. Thank you. Thank you, for this opportunity. I would really want to thank, first, the team, the ... Team. It was great in part of this experience, and the whole doctor Jesse Bell team, in Omaha.

51:47
We are really a great team to be able to pull this off. So I'll be talking about the heat campaign in Omaha.

51:53
Once again, it's when you talk about labor, Ascot, must, must have the 24th thing that is always called in Nebraska.

52:01
Now, when the joy was sharing the results, as you can see, Omaha was actually one of the hottest cities that day didn't do this year to his campaign. So it's really hard.

52:13
So I will be explaining kind of token as well about how only braska is one of the most segregated city out of the kind of talking about redlining as well, that's happening. Next slide, please.

52:29
So, doctor ...

52:31
kind of already mentioned how it is the first Scalar, whatever, whatever even kill us.

52:39
You know, we're always, we have seen in 20 22 how almost 80 million people were at some point in August at risk of, it takes oceans.

52:50
And so this is something that has happened, climate change has happened. And we are seeing this pattern as well in Nebraska.

52:57
Rather, having more longer hot days nights advocate in order. So, the problem is there, and what we did first was to go within the community and start talking about these issues that happen and listen.

53:13
So, the first thing we did, before even applying for the campaign, was to that token with this community, in Omaha that we are already at risk.

53:22
And because we have done a lot of studies saying that the same community are happening, oral health related issues compare to other parts of the city.

53:32
So we wanted to focus on one part of STD that is already experiencing a lot of health issues.

53:39
So, we looked at them, talking with them, and what we have seen is, that's part of the CD, even have one cooling.

53:47
So that was already one issue that we've seen that that can even increase again whenever there is any accident.

53:57
So, we wanted to look at whether the City has an action plan, the City of Omaha is one of the cities in the US, that doesn't have an action plan.

54:06
We don't have a climate action plans with ours.

54:09
one of the things that we discuss, as well, that'll be the community sort of ...

54:14
console, when I say committee, is talking with individuals, working with organizations that are working in these community does, are already experiencing audio issues compared to other parts of the city. Next slide, please.

54:31
So I wanted to just mention red lighting. I'm what I started doing this study.

54:37
I was kind of surprised that not a lot of people know about the red line, which I, which is really has impacted the life of many people in the thirties, which are still having an impact today.

54:50
I saw redlining is a national policy that was implemented in the thirties to kind of boost the economy.

54:59
Coming out of the recession, the governmental want to, was the economy that created the Hamilton co-operation.

55:06
Which affected almost 300 cities affecting for 40,000 people who are affected by this.

55:13
This redlining process and they created a mapping, which I will show it's the CD that will impact the decorator color coded maps to help the government even invest in those areas.

55:28

But then, that policy will, was actually used to formalize racial discrimination, which has kind of, you will see, when I show the map now, people of color would actually say it, again, during that process.

55:44
So, people would rather invest in other parts of the city that were predominantly white.

55:51
So even though the redlining policy was spun in 68 in the sixties, we still see studies.

55:59
I've shown that the people living in rural land areas are still suffering as still experiencing.

56:07
When I let that hazard and other conditions, next slide, please.

56:13
So that's, that's what was really our focus. This is the map, the Redline map that was created in the thirties.

56:20
As you will see, this is our study area as you will see this for Carlos that I was mentioning, the areas that are yellow and red were considered at risk.

56:33
When you go to blue green, you will see A, B, C there.

56:38
D is one R, cos theta the goal, the good areas, and when you look at today, the distribution of the population in Omaha, you will see that most widely in the A and B, the green, and blue areas.

56:52
And, other people, people of color leaves most, most of the time in the yellow and the red areas.

56:59
And when you really look at the other social determinants of health, you see that these are the people that are still having the health condition. These are the people that have almost 10 years of life expectancy difference.

57:12
So you can see someone live in three miles away from you, have a 10 year, some more life expectancy than somebody leaving in the airline areas So that this is a fact that these issues as well. So for us, it was interesting.

57:27
Well, as well, see, if they're already experiencing these issues, how can heat the urban heat island kind of affected as well. Next slide, please.

57:40
So, we wanted to see, how can we engage the community.

57:43
Because one thing we were trying to do with this project is, you know, engage a community, come up with the community scientist approach, where you sit down and talk with the people.

57:53
Because we just wanted to go in this community pretending that we have to savviest.

57:59
We want them to listen to them, to know what are at issues, what is the priority, and that's really what we have done whenever we approach people in those community.

58:11
We sat down and told him, these are the issues that we have seen in other cities. What are your issues? What are the priorities? And we wanted to focus on that.

58:20
So having a cop denies come in with this study.

58:24
It was interesting to kind of tell them, chip as well, might be one of the issues.

58:29
How have you guys in coping? How do you guys can help? how can we help you cope better?

58:36
So that's how we actually did we engage the community at the beginning.

58:41
And we went from no community help the City planning mayor's office.

58:51
We talked with a lot of NGOs, especially on my hobbies, a kind of refugee and immigrant settlement, Santa.

58:59
So we have a lot of Afghan. Sudan is an enemy's commodity and Omaha.

59:05
So it was really interesting to be able to sit down and even understand how they perceive on these issues. Next slide, please.

59:15
So, I will, before I talk in details about what is our study area, I want to get to really show all my gratitude to the Omo whole Native community.

59:27
one of the things we're really just about is to make sure that we always talk with the Native community, get them involved in the study.

59:37
And I've already learned a lot about the history of the U S about everything that happened and how these things are important when you go in the community, to make sure you really talk with the people in the Native community as well.

59:53
So, we ended up measuring around 80 square miles or 100 ..., really, more than, what?

1:00:03
70% of the total, all the CD. And once again, we wanted to focus on only the red line areas, comparing it with the areas that I don't know.

1:00:14
So, next slide, please.

1:00:18
So, as I was saying, we've been starting the startup community out of each before applying for the grant.

1:00:26
Which was really interesting, because when we received a grant that has really given us a leverage, was to go with them and say, OK, this is an opportunity for us to start something. Once again, this was a way to start the discussion.

1:00:42
We know the issues we detail; we don't want to come into committee and say, OK, you know, this is on top of everything, you guys are going through.

1:00:52
You guys, as well exposed to heat. We want that to come with the perspective of sale.

1:00:57
This is a way to start that discussion, on how are we going to solve these issues.

1:01:03
Next slide, please.

1:01:07
So, as I was saying, we went all through the community.

1:01:11
We did a lot of engagement with the refugee community, the immigrant community.

1:01:16
Every community event that was happening with Michel, we went there and talk with kids. What was particular with our studies?

1:01:26
We really focus on kids, especially in the refugee community.

1:01:31
The kids are the ones that can be able to relate the commission, and it was great to see that the kids were involved in the study. Next slide, please.

1:01:42
So we had our drivers as everyone, each city.

1:01:46
Once again, focusing on the Old City of Omaha, we had eight routes, and the eight, we have been really able to measure on the. next slide.

1:02:00
So, the campaigned de was great as Joy, as already mentioned.

1:02:06
We really had a good turnout.

1:02:08
We had a lot of kids there, we had the community, we had the media, as everyone as I feel like that was a great of the study and the whole US on the cities that have really seen how people are engaged in this.

1:02:20
Next slide please.

1:02:23
So, these are our outputs. As I was mentioning on my calves out, to be even one of the hottest area city that was measured this year.

1:02:33
We had 109103 maximum temperatures, but what was interesting to me was the difference the difference of almost Alexandra 9.5 Fahrenheit.

1:02:47
it's a lot especially looking at these are communities that already have an order and issues.

1:02:54

Next slide, please.

1:02:57
So, the initial observation was to really look at how, how, these are things that we observe. You just drive out on the CD, you got to see. If you see the pictures, you can really see. So, the green areas, you have seen on the on here, on that, they said these are the area on the red line areas that are accurate.

1:03:15
So it's easy to see how, just looking at this map, you can overlay it with the Redline map and the Red Lighting Mapping to see the difference.

1:03:24
The areas with having a lot of parking which happened in north and south of Omaha, which has the red areas that are yellow or red, still soil higher temperature assessment. Next slide, please.

1:03:38
So these are our Travers, I think Joe has already shown that.

1:03:42
Once again, you will see here when you compare with the Redline map, the areas that were red line yellow and red caught this area as well.

1:03:54
So this is just class system of what, no other studies I've seen in, in, in, in order valon areas.

1:04:02
Next slide, please.

1:04:05
So this is the, actually, when the temperature went over 100, and you can see, this is even around eight PM.

1:04:13
So even when we think about all the sun is down, the temperature should be low, but that didn't happen actually. Even around eight PM, we still had high temperature over 100.

1:04:24
Next slide.

1:04:28
So the next step for us, this is my last slide.

1:04:30
I didn't want that to prevent a lot about what we're trying to do with the result as other cities, we want to go back to the community. And guess what we have been doing?

1:04:41
Talking with the mayor's office, talking with the community.

1:04:45
Apple, OK, now, this is another issue.

1:04:48
A lot of organizations have reach out to wanted to plant trees, but we're just lucky you can plant trees, it will take years to grow. That's a good idea, but right now, we want to talk with the committee about What can we do right now?

1:05:02
And that's what you have been doing in talking doing a lot of awareness campaign talking with people, weren't confidences.

1:05:10
And the good thing, the good news about the heat campaign is the mayor's office is willing to have a hit our next week, next year.

1:05:18
So by next year, every year, we'll have a week.

1:05:21
We'll have a lot of our nice activities.

1:05:24
And that will be good as well, because now Mayor's office has already sent a recipe for a hit action plan for the city.

1:05:34
So it's a really good, I feel like our hit campaign.

1:05:36
It was the right time when everything is starting to happen in the city.

1:05:41
So, that's all for me. Thank you, again, everyone.

1:05:44
Hope I didn't take more time that I should.

1:05:49
OK, thank you for that for you, and for the really positive messaging and the end of how this is really being used. So, thank you is.

1:05:58
Next, I would like to introduce Carly Honey Bang Climate Literacy Program, coordinator of Gonzaga University Center for Climate Society and The Environment Spokane, Washington and current up far ho americorp, Civic Sparks fellow also Gonzaga University Center for Climate Society and the environment also from Spokane Washington. So, the floor is yours.

1:06:22
Thank you doctor Kaepernick. We're so excited to be here today talking to you all about urban heat island mapping campaign. So, my name is Carly Hoenlein, I'm the Climate Literacy program coordinator at the Center for Climate Society and the Environment at Gonzaga University.

1:06:38
And I just wanted to set the context for this campaign that we conducted over the summer so and the Climate Center was founded in April of 2021 with a mission to serve Gonzaga and the broader inland Northwest's by promoting innovative interdisciplinary scholarship teaching, consulting and capacity building on climate society and the environment.

1:07:04
And so this was really the first project that we had the opportunity to engage in working in climate resilience in the Spokane area.

1:07:14
And so, yeah, some situational context. In 20 21, 19 residents in Spokane County died due to the unprecedented heat dome in the inland north-west, and for the first time in the city's history, the City of Spokane had to open cooling shelters to help on house residents and residents without AC. Anecdotally, people who live in the City of Spokane, if known.

1:07:43

The temperatures are not uniformly spread across the city, but this was an opportunity to really dig into which neighborhoods are experiencing heat in a disproportionate way.

1:07:55
Next slide.

1:08:01
Morgan, I'm not sure if you mean to, but you're presenting a PFT of our PowerPoint.

1:08:07
Are you able to see it now? That's how it came to me.

1:08:11
I only see the first slide.

1:08:19
Let's try.

1:08:21
There we go. That looks better. Please go to the yep, there we go. So, Mapping the Urban Heat Islands presented a unique opportunity to partner with some really interesting and excited partners in Spokane that included environmental non-profits, higher education, municipal government, and local media in order to cover a variety of stakeholder interests. So, 350, Spokane is a local chapter of the National Climate Action Group 350 dot org, K X L Y is the local ABC News Affiliate, and we worked closely with their chief meteorologist, Chris Cracker, to recruit volunteers, and share information about our heat mapping campaign.

1:09:03
The lan's Council is an existing non-profit in the inland north-west that works to revitalize and protect forests, air, water, and wildlife.

1:09:13
They have an existing program called ... Canopy that works in partnership with Spokane Parks and Recreation Department to site and plant urban trees in neighborhoods that have low or historically low tree cover.

1:09:26
And so they were interested in partnering with us on this project to use the data to better inform what they knew anecdotally about which neighborhoods, and we're experiencing extreme heat so that they could better plan where they're going to be planting trees.

1:09:41
In 20 19, the City of Spokane passed a Sustainability Action Plan, which includes addressing climate resilience in the city. So this project provided the opportunity to gather concrete data on urban heat islands in Spokane and better understand how heat intersects with other environmental and social justice issues around the county.

1:10:03
Next slide.

1:10:05
So about our heap campaign. And over the summer we were able to conduct our campaign, we had 90 community members, who initially signed up to participate in our campaign, which was really exciting doing community science, most of our volunteers volunteered as individuals. So in the end, they ended up being partnered with people they've never met before, and got the opportunity to meet, like interested folks who care about this issue, and are interested in seeing climate resilience in our community.

1:10:36
Our campaign was on July 16th, and the high temperature for that day was measured at 94 degrees.

1:10:43
On the day of our campaign, we were able to actively work with 40 volunteers who drove seven routes around our city, which is about 70 square miles.

1:10:54
And the biggest temperature differential that we found was almost 14 degrees, which is amazing.

1:11:00
That means that in our city, on a day where it's 90 degrees, in one neighborhood, it could be as warm as 104 degrees in another neighborhood.

1:11:12
So, for recruiting our volunteers, we relied heavily on our partner organizations that has deep roots in our community. So 350 Spokane and the Lands Council have existing volunteer basis who work regularly with them.

1:11:27
So we asked those folks to show up for the day. We also relied heavily on our partnership with our local media to recruit and ask people to join us for our mapping.

1:11:43
We also had the benefit of Noah releasing their press release in addition to Gonzaga and being the University in Spokane, we have a lot of people who are interested in working with the university regularly.

1:11:57
We did an online training for our volunteers the week before our campaign, in order to accommodate schedules, because most of the volunteers for our campaign were of working age. And so in order to accommodate workdays and childcare, we ended up holding an online training in the evening. And we recorded it, so the volunteers were able to attend if they were able and ask questions live. But we also sent the recording to folks so they could watch it when they had the time to.

1:12:27
In terms of distributing, we did a distribution center on campus and had an optional check in the day before. And then had folks come to a central location to either pickup or drop off their materials.

1:12:43
In total, we had 24 media stories about this campaign, including the announcement of the campaign, recruit recruitment, coverage, coverage on the day, and then ongoing coverage of our community wide heat surveys that Corinne is going to talk about.

1:12:59
Next slide.

1:13:03
Hello, so I'm gonna go through our heat maps that we know our results, really. So here's our morning temperature map. This is from 6 to 7 in the morning, as you can see, that there are different, different hot zones and there's also some different cool zones, so one of the most prominent cool or warm zones or hot zones really is about 71.5 degrees And then some of the cooler zones are 58.1 degrees, So this is one of our largest temperature differentials of the 13.9 degrees. This is actually due to Spokane climate, so this is actually one of the higher end of our temperature differential.

1:13:43
In relation to this Spokane climate, it's relatively dry in the summer, and it has low humidity.

1:13:49
But you notice, the East central is predominantly hot, in some of our previous presenters talked about like redlining practices, and then also discussing urban heat islands and what that is composed of. And so, you

central is a predominantly industrial neighborhood, again, where we're noticing, again, looking at, at those, at red lining practices and really throughout the entire city of Spokane. And then, if you, since those hotter areas are typically composed of more concentrated buildings, maybe hot surfaces are dark surfaces, really, they maintain a lot of heat during the day. So this could look like pavement asphalt and even dark rooftops. Next, slide.

1:14:38
And so we see in our afternoon temperature map, this is from 3 to 4 PM. Again, we see those cooler zones and you'll see for the next couple of slides, that the cooler zones are concentrated in the South and the rest of the City of Spokane often is very hot. So, our high temperature here is 93.8 and our low as 85.2. Again, this is all, generally very hot, but are hotter areas are concentrated where there's, again, those urban heat island effects. And one thing I'd like to point out, that was mentioned earlier, I believe Sarah mentioned that there's a Justice 40 Initiative. They have an opportunity, are really a tool, a climate, and economic justice screening tool. that is able to demonstrate just, they just decided that winter consider disadvantaged communities, so this overlays socioeconomic indicators, such as low income and enrollment in higher education simultaneously.

1:15:32
With environmental indicators, such as exposure to pollution, Lead Paint, even proximity to legacy pollution sites. And most of the city of Spokane is considered at this many disadvantaged communities, and, and it's typically overlaying with all those hot areas except the south area with Amanda Toe, Rockwood Comstock neighborhoods. Next slide.

1:15:57
Yeah, so here's our final map. This is from 7 to 8 0 PM. Again, it cools off. And but, in a cooler, or the lower areas in the south there. And it's really, you know, recognizing that in the evening and morning temperature differentials that doesn't really cool off that much, especially in the morning Tempts witches. And in the evening, which is, can be a risk for extreme heat deaths.

1:16:22
Next slide.

1:16:25
So, a little bit about what we do at the Center for Climate Society and the Environment.

1:16:29
We have two different, two different programs, so, are we have a climate resilience program? And we also have a climate literacy program. I'm going to be talking a little bit about our Climate Resilience Initiative, which is beat the Heat. So, our goal is to help our community understand and respond to the impacts of extreme summer heat. Some of our key partners are Chai, which is the Community and health Adaptation initiative, which works with counties and cities across the state of Washington to come together and discuss, you know, what, what we can be doing to prepare and create resiliency in our communities.

1:17:07
And then the Washington State Department of Health really heads this Chai partnership and has been really helpful in how we navigate this beat the heat.

1:17:19
Next slide.

1:17:21
So here's a little bit of our timeline. So Carley discuss what we did and how we how we recruited volunteers. And then the day of right now we're working on a heat survey which allows community members of the City of Spokane to demonstrate their annex express really their experiences and

perceptions around extreme heat. So we can figure out what we need to be doing next to address extremely. Next. Slide.

1:17:47
So our findings so far, we currently have, sorry, survey closes. at the end of November. We have 1673 surveys. We are statistically significant. Sample size was 100. And we so we're working towards that. We have it translated in English, Russian, Dari, and Spanish as well. And we're currently working on Active Outreached under represented different demographics throughout the City of Spokane. And this can look like tabling. So, for example, we might be a tabling at community centers or grocery stores. We've done canvassing, and neighborhoods, and really heard some really impactful story. So for example, one, resident mentioned that people, some people in their neighborhood, their homes are so old that they can't even open up their windows and often have to resort to punching through the windows in order to get any Airflow into their homes.

1:18:40
And even this can look like my, the other Program coordinator for our Climate Resilience Initiative.

1:18:49
We, some, in some cases, we'll go, for example, like get to this food drive through that was taking place. And it was, it was raining out when we were handing out flyers. So, really, it's really on the ground work. Next slide.

1:19:06
Yeah, so, what we hope to accomplish is to eventually and next, and we're working towards the step starting in December, working towards developing a community. the awareness campaigns. So this campaign is building you know, building educational materials with our organs Agha University Senior Capstone students are actually working on this. Building these educational materials and doing research about how our community should be preparing for extreme heat related events. And the program coordinator and I are working on developing community partnerships to be able to share this information and work with them.

1:19:42
And in terms of, you know, and we're working on a more equitable framework on how we do this in a manner that is very inclusive and is considerate of many different experiences and backgrounds. And the Washington State Department of Health is currently helping us develop a GIS map that includes income data, canopy cover data, even read historic redlining data. Not. That map will be available for people and community members to interact with, and it'll be really kind of a representation of what's going on here.

1:20:16
As this extreme heat issue is deeper than it, it is on the surface eventually.

1:20:23
Your credit.

1:20:24
That is the use of that, and bringing all the datasets in together is really amazing that you guys are trying to bring everything together.

1:20:33
So I'd like to thank Corinna and Curly, and welcome everyone else back to the group.

1:20:40
So please turn your, your cameras back on. We've been getting questions. And I've been monitoring them as they've all been coming in. So, now, it's time to move on to doing a little bit of Q&A before we have to wrap up.

1:20:55

So, first, one of the questions that we received came in for Dave, the very beginning and this oversight and the rest you can also comment.

1:21:02
The Citizen Science portion of the study was their training on how to use these tools.

1:21:08
one of the comment the Commoner had previously used Purple Air and said they had technical issues with product.

1:21:15
Yeah, so we did have a training in evening training that was recorded, so others couldn't make. it can still watch it. Joey presented on how to use the sensors, the ones with the air beams.

1:21:28
It was a little confusing just because the I think it was green, yellow, and orange for the indicators and the orange meant it's good to go.

1:21:38
So a lot of people thought the green was good to go. So we had a little bit of confusion with that.

1:21:43
And then the day we did have some sensors that we had to change out with last minute. They were either wouldn't weren't holding a charge, or there's some other issue with them, but we had the vast majority of sensors did work with are supposed to be, we're able to get statistical significance with the data that was collected.

1:22:02
Any other lessons learned from other panelists?

1:22:07
I just wanted to add that the latter thing we have learned, because we did a training online, and one of the high school kids reach out to me that they said they were intimidated to come in these kinds of meetings.

1:22:20
So we it was really a lesson learned for us too, how to reach them.

1:22:25
So we had to conduct another meeting on the ground, I went to the school and talk to them.

1:22:31
So that was really eye opening for me to just share that they just didn't feel safe or comfortable come in in this kind of meeting with a bunch of grownups.

1:22:46
Anyone else find that, any equipment issues, or recruiting issues, that you want to highlight, ways that you dealt with them?

1:22:57
I can just add briefly about equipment issues.

1:23:01
There were a few minor things, especially with Montgomery County, since returning the equipment over. It's like every time of the day was a new volunteer. And so, you know, getting used to, like, if the battery is low, or trying to charge them between, and things like that. But, I think based on the mapping, and we, Kappa had somebody on call that we can call and I called him plenty of time throughout the day, to be like, well, that's an issue. Like, how can we handle the situation? And it didn't affect the results of the mapping, because we were still able to collect enough data. So the ...

1:23:35

X for minor had a few issues with sensors across the board sensors that we've used here after year. And this coming year will be completely revamping.

1:23:51
Wrapping up our testing and said we want to expect those issues to persist.

1:23:58
Last chance. Anyone else?

1:24:03
OK, I'll move on to another question. This was for ..., but also for the group in general on your opinion.

1:24:09
How can citizens in cities that might be hesitant to this type of work, how do you think that they can get their city councils and others departmentally participate in the snow program? How did you get the engagement and get this, or to be able to do this program?

1:24:26
I think the first thing we did was to rely on the organization, already, working with the communities.

1:24:32
We will try to reach out, first of all, to the Health Department, that gave us the list of organizations doing great work, at the people for us that already.

1:24:43
So we went to those organization and data one that kind of showed as a community leaders.

1:24:49
So it was kind of a release stage way, well from the health department, to the community organizations, to the community leaders. And it was just amazing.

1:25:00
As soon as the committee leader trusted what we have gleaned, then every community member now weren't willing to talk to us.

1:25:08
And it was just interesting to, once again, I keep repeating it.

1:25:13
We have to stop having the savviest mentality.

1:25:15
When we go look into these communities, I did more listening than talking.

1:25:21
So, I think that was one of the ways we, they trusted us, then they are willing to work with us.

1:25:32
Anyone else have lessons that they've learned of how to get engagement?

1:25:42
For us, it was easy because it was actually the community that came to the city.

1:25:47
So, a lot of the organization non-government organizations you saw on my slides they actually approached us and really wanted us to do it.

1:25:57
So it was an easy sell because we don't have that type of data.

1:26:03
So by having that, it informs our climate action plan, which is a main driver of a lot of our work here.

1:26:11
So, and so I always, what I think you're saying to wrap this is that environmental justice organizations, where I've gotten involved really push for or the fuse themselves really wanted to participate. So from, from everyone's work here, how do you get the communities engage the entire process? Because there's a lot of excitement and engagement on getting that data or desire to get that data, and then getting the data, But then how do you ensure that that data is then incorporated to work afterwards, and it's reviewed in the data and maps And then it gets use it. There was one example is, where they are now adding in all these other information to overlay to be able to analysis. Can you explain, perhaps, probably, for the first, how you start going about doing that to make sure that this data is used the greatest extent possible.

1:27:05
Yeah, I'd say, begin starting building partnerships, and, like, kind of like Abdul Aziz mentioned about engaging, engaging the people early and often, really, with community members and different people who might, know, might be able to provide, I mean, individually, it's can be hard to have all the races, resources yourself. So you really do need to create and foster those partnerships.

1:27:30
For example, the making, you know, figuring out what, what is needed to make sure that it's in the nation can be effective and outreach.

1:27:38
And the Department of Health and other partners are really instrumental to guiding that, especially community members.

1:27:51
A simple last question along those lines is anyone taking this data to explore cumulative impacts or multiple impacts that may happen at the same time as in temperature, plus the air, quality plus, Stormwater Overflow, to be able to look at multiple events, as they may combine an amplifying impact?

1:28:14
That's the example I will give them right now. Even at the mid-west, sort of Rural Health and Safety Conference.

1:28:24
And this is a contract where they asked me to come and be able to just talk with people about the study we did in, advance, said it.

1:28:32
And, again, this came from the community Web.

1:28:34
They were like, Even if we do this in the city, we have families, farming.

1:28:39
Family, that, that, as well, exposed sorts of odd for me is just to say that, one thing we're trying to do now, is to, OK, already, we have been talking with people, and we can kind of see how I got interested.

1:28:53
You're not implementing already the results, to kind of start to making changes, even outside the city.

1:29:01
That's just something that I found interesting to mention.

1:29:07
Thank you, again, for your comments on that. And thank you all, for the panelists, for all of your participation in today's webinar. And for all of your work on addressing extreme heat in your communities. The work that you're doing, it's really it's groundbreaking, are at the forefront of

communities in the United States, and other communities are going to be able to learn from the work they've done. So, thank you, very much, for sharing your experiences with all of us.

1:29:30
Now, I would like to turn it back over to Morgan to close us out for our webinar today.

1:29:37
Thank you so much, doctor Kaepernick, And thank you again to all our amazing presenters and speakers on today's webinar. Apologies to not getting to all the questions, we had such great discussions and presentations and really could keep talking for a few more hours, if we had the time. I'd also, again, like to thank all of the communities that participated in this year's cohort of urban Heat Island campaigns, and, of course, all of the wonderful volunteers, organizations, and the campaign organizers, without whom this would not be possible. I also want to remind everyone that the 2023 Urban Heat Island Maplin application is opened and will close on December 16th. So if you are interested in learning more about heat in your community, you can learn more about the process and access the application on ... dot gov. And with that, thank you all so much for attending today's webinar. I hope you all have a wonderful rest of your day. Take care.