Urban Climate Relief Maps

Participatory mapping for spatialized intersectional climate vulnerability

Urban Climate Relief Maps (UCRM) is a participatory and intersectional methodology designed to capture the dimensions of climate vulnerability in urban contexts, with a particular focus on marginalized groups such as Majority World (MW) migrants. Recognizing that heatwaves and flooding/extreme precipitation disproportionately affect urban populations and exacerbate pre-existing social inequalities, UCRM examines how intersecting social identities, such as race, gender, class, and language, interact with environmental stressors to shape individuals' physical and emotional experiences during heatwaves and flooding/extreme precipitation.

Origins

The origin of UCRM lies in Maria Rodó-de-Zárate's *Relief Maps*, a methodology rooted in feminist geography and developed to operationalize intersectionality by examining the

interplay of power structures, emotions, and spatial contexts. Relief Maps were first introduced in Rodó-de-Zárate's research on youth experiences in Manresa, Catalonia, where they were used to visualize how intersecting identities, such as gender, ethnicity, class, and sexuality, shaped individuals' comfort and discomfort across different spaces. This method translated the theoretical complexity of intersectionality into a participatory and practical online tool, allowing for the visualization of the relational dynamics of privilege and oppression.

The method has been adapted in various research fields. For instance, Habimana-Jordana and Rodríguez-García (2023) used it to explore the racialized experiences of women of African descent in Spain, expanding identity categories to include skin tone and physical appearance alongside class, gender, and ethnicity. Similarly, Pascual-Bordas and Rodó-de-Zárate (2022) extended the methodology to examine the domestic experiences of young non-heterosexual women in Catalonia, analyzing how specific rooms within homes both resisted and reinforced heteronormative and patriarchal norms.

The Three-Dimensional Framework

At its core, Relief Maps employs a three-dimensional framework to analyze these dynamics:

- **Social dimension** — power structures such as gender, ethnicity, and class.
- **Psychological dimension** — the intensity of comfort or discomfort.
- **Geographical dimension** — physical and symbolic spaces where experiences occur.

From Relief Maps to UCRM

Building on this foundation, Urban Climate Relief Maps adapts and expands Relief Maps to explore how intersecting oppressions shape physical and emotional experiences of climate vulnerability in urban environments. The methodology specifically incorporates factors relevant to climate exposure and relief, focusing on the unique challenges faced by marginalized groups, particularly MW migrants.

This method maps participants' (dis)comfort across diverse urban spaces, including homes, workplaces, parks, transit systems, and public/private infrastructure related to climate. By identifying spaces that exacerbate vulnerability as well as areas of relief, UCRM provides critical insights into the compound challenges faced by MW migrants. The method not only visualizes the interplay between intersecting identities and spatial

dynamics but also offers a method for informing equitable and inclusive climate adaptation strategies.

Why UCRM in a feminist research project?

In feminist geography, research methods are understood not merely as neutral tools, but as epistemological and political practices shaped by assumptions about who produces knowledge, how, and to what ends. The Urban Climate Relief Map (UCRM) method offers a participatory, intersectional, and spatially grounded framework for exploring how urban climate vulnerability is lived.

A foundational contribution of feminist geography has been to challenge the notion that urban space is a passive or neutral backdrop to social life. Instead, scholars have emphasized that space is actively produced through power relations, shaped by histories of colonialism, gendered labor, racialization, and class inequality. UCRM builds on this tradition by focusing on how vulnerability to climate hazards is experienced through the interaction of social identities and spatial contexts.

Rather than isolating identity categories, UCRM enables participants to reflect on how these intersect in specific places, producing contradictory experiences of safety, exclusion, and adaptation. Rodó-de-Zárate's concept of *"controversial intersections"* is central: spaces that offer physical relief but are emotionally unsafe, or vice versa.

This spatialized and intersectional approach provides a valuable counterpoint to dominant frameworks in climate vulnerability research, where quantitative indicators often obscure the lived complexity of risk. UCRM foregrounds structural factors — legal precarity, language barriers, gendered labor — shaping embodied experiences.

Grounded in feminist principles of situated knowledge, UCRM prioritizes participants' interpretations and affective responses. The method emphasizes collaborative reflection through a final collective discussion, reinforcing feminist commitments to co-production of knowledge and research accountability.

Why UCRM for studying climate-related health vulnerabilities with migrants?

A core contribution of UCRM lies in its attention to emotions and embodiment. Emotional responses — fear, visibility, exclusion, precarity — are integral to climate vulnerability. For migrants, discomfort is often intensified by surveillance, linguistic exclusion, and gendered labor expectations.

UCRM aligns with feminist work on affective atmospheres, showing that vulnerability is not only physiological but also affectively mediated. Insights generated challenge technocratic framings that neglect emotional and relational costs of climate hazards.

UCRM produces context-sensitive, participatory data that can inform socially just adaptation strategies. It emphasizes the need to center migrant and racialized women not only as vulnerable subjects but as **producers of critical knowledge**.

Implementing Urban Climate Relief Maps in IMBRACE

Profile information and participant setup

The UCRM adaptation is based on a literature review and an expert workshop. The method uses a graph where the x-axis represents participants' significant urban spaces, and the y-axis represents comfort–discomfort.

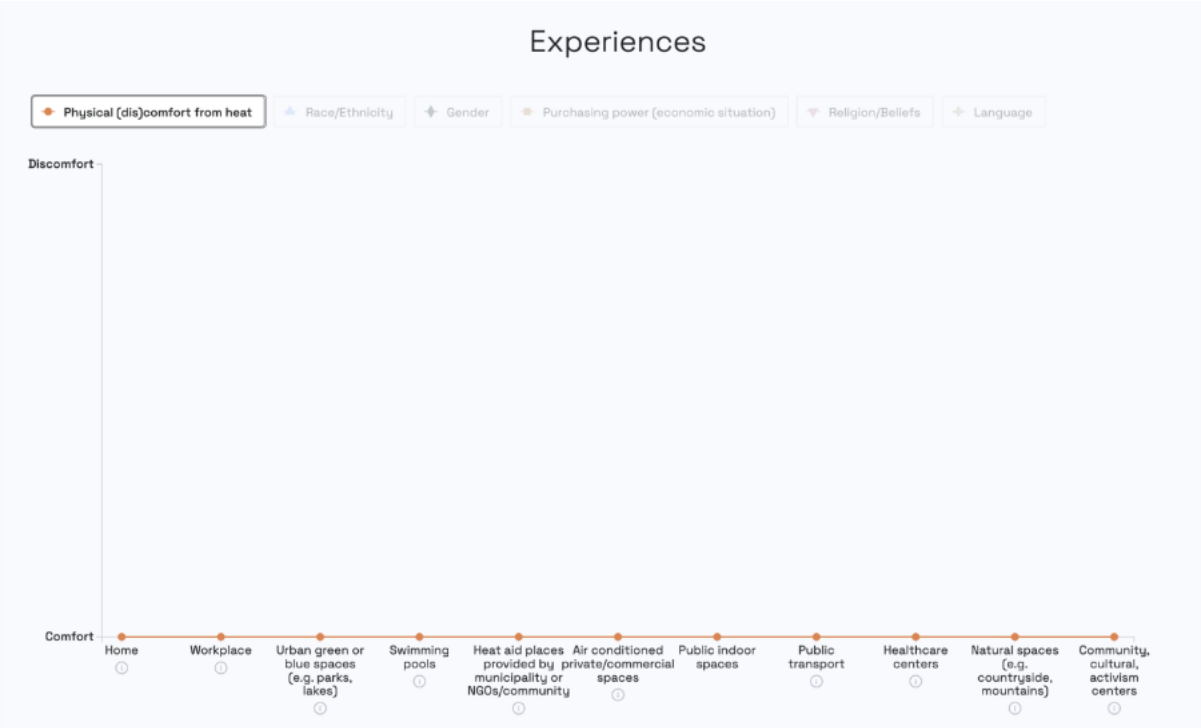

Figure 1: Example of the UCRM adapted for heat vulnerability.

The first step involves gathering socio-demographic information: gender, race/ethnicity, socioeconomic status, migration status, language proficiency, employment, housing, and household structure. This ensures adaptability to different research contexts.

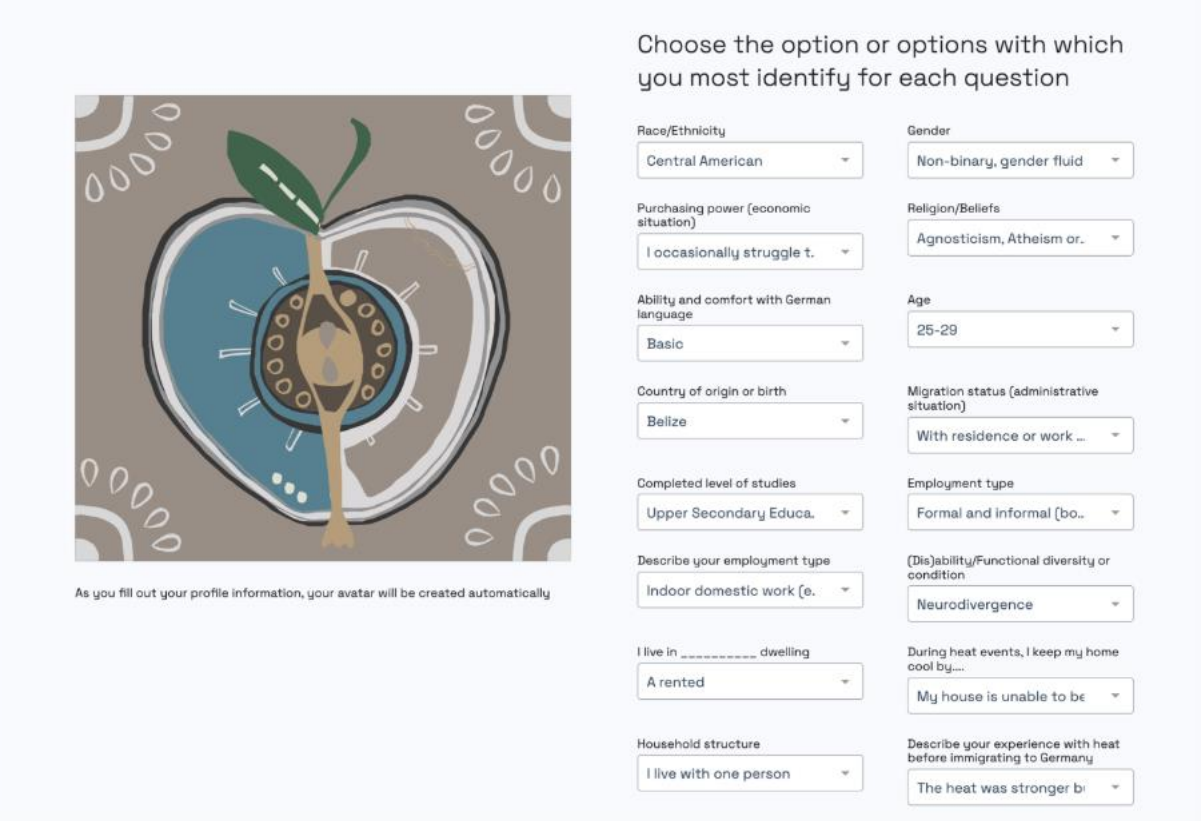

Figure 2: Fictional profile information.

Stage 1: Physical climate comfort mapping

Participants first assess spaces based solely on **physical sensations** related to the climate hazard (heat, rainfall, flooding).

Stage 2: Intersectional mapping

Participants then reassess these spaces through their intersecting identities — race, gender, class, language, religion — and add qualitative reflections and emotions. This encourages participants to add qualitative information into the tool to elaborate on their experiences in each space through the lens of these identities. Additionally, participants can indicate associated emotions, offering deeper insights into how structural inequalities and social dynamics shape their experiences of climate vulnerability.

This reveals:

- **Places of relief**
- **Places of oppression**
- **Neutral places**
- **Controversial intersections**

This mapping process provides a nuanced view of how identity and power interplay within spatial contexts. It can also highlight intersectional vulnerabilities and can reveal contradictions, such as a space that feels physically comfortable but is associated with experiences of emotional discomfort or negative emotions due to social dynamics. For example, a shaded public park might be physically comfortable for escaping the heat, but a participant might describe feeling excluded or unsafe due to racial profiling or harassment, marking that space emotionally distressing. Such insights illustrate how physical and social dimensions intersect to shape the overall experience of urban spaces related to specific climate hazards.

Example from the pilot case: Neukölln, Berlin

The Berlin pilot illustrates how intersecting oppressions compound heat-related discomfort, especially for MW migrant women in precarious, gendered work.

A participant explained how caring for children in the heat shifted attention away from her own wellbeing, revealing how climate vulnerability is mediated by migration status, gendered labor, language, and racialization.

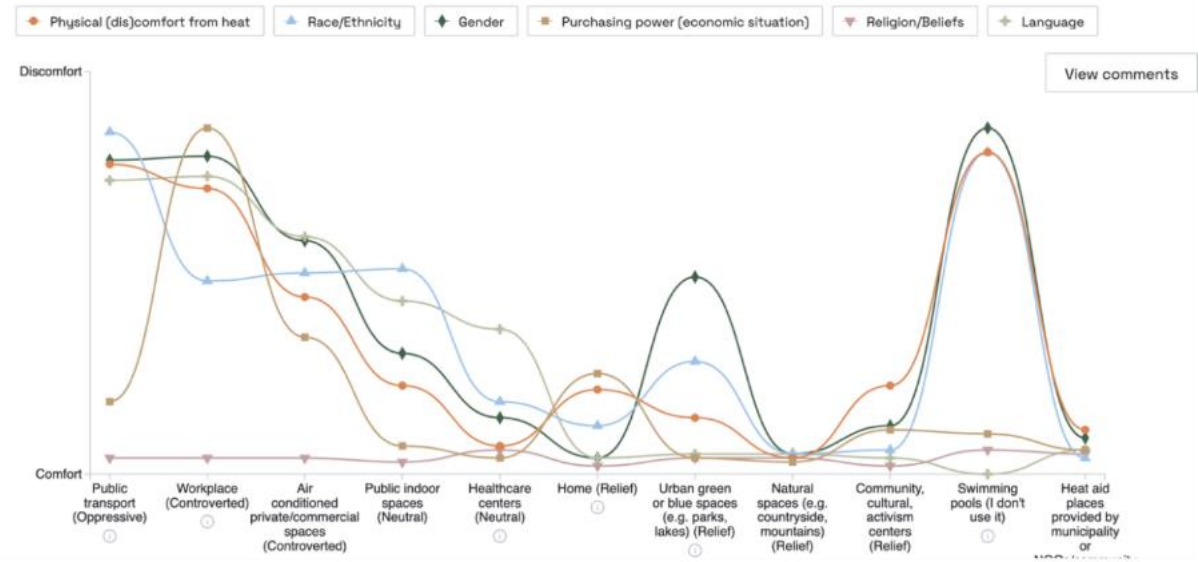

Figure 3 illustrates the aggregated UHRM results of *Participant 1*, a young woman from Mexico employed in childcare. Her mapping data, combined with qualitative reflections, reveal a complex layering of vulnerabilities shaped by language barriers, gendered labor expectations, and racialization.

"If I have to go to work on a hot day, then it's kind of annoying because I work with kids, and we have to go to the park. Then it's like I'm stressed about the bodies of 20 kids instead of mine... I'm super exhausted... If I don't have to go to work, I can have my own strategy and just re-accommodate my schedule to avoid the higher temperatures."

This testimony captures a central tenet of UCRM: how emotional and physical heat-related discomfort are mediated not just by environmental conditions, but also by social roles and identity positions. Her limited German proficiency restricts access to desirable job sectors, while low wages and racialized objectification by parents further deepen her sense of precarity and powerlessness. Gendered caregiving expectations exacerbate stress during heatwaves, shifting her attention away from her own bodily needs to those of the children in her care.

Collective reflection and discussion

To deepen the relational and analytical potential of the UCRM process, a final focus group discussion is recommended following the individual mapping exercises. This collective moment offers participants the opportunity to share and reflect on their personal maps in conversation with others, fostering the identification of shared

patterns, contradictions, and spatial dynamics across experiences. By engaging with each other's narratives, participants often recognize overlapping sites of discomfort or relief, as well as differences shaped by intersecting social positions. Beyond generating richer data, this dialogical phase reinforces the participatory ethos of the method and can facilitate the emergence of a shared language around vulnerability, care, and resistance. Situated at the intersection of reflection and co-analysis, the focus group both concludes the mapping process and reinforces the method's feminist commitment to collaborative, embodied, and situated knowledge production.

Bibliography

Anguelovski, I., Connolly, J. J. T., Pearsall, H., Shokry, G., Checker, M., Maantay, J., Gould, K., Lewis, T., Maroko, A., & Roberts, J. T. (2020). Why green "climate gentrification" threatens poor and vulnerable populations. Proceedings of the National Academy of Sciences, 116(52), 26139–26143. https://doi.org/10.1073/pnas.1920490117

Askins, K. (2016). Emotional citizenry: Everyday geographies of befriending, belonging and intercultural encounter. Transactions of the Institute of British Geographers, 41(4), 515–527. https://doi.org/10.1111/tran.12135

Bondi, L., Davidson, J., & Smith, M. (2005). Emotional geographies. Ashgate.

Camus, A., & Kotsila, P. (2025, April 8). Climate injustice as intersectional heat experience: The case of Neukölln, Berlin. Undisciplined Environments. https://undisciplinedenvironments.org/2025/04/08/climate-injustice-as-intersectional-heat-experience-the-case-of-neukolln-berlin/

Coddington, K. (2017). Feminist geopolitics and children: Using children's everyday experiences to reconfigure geographies of violence. Political Geography, 56, 145–147. https://doi.org/10.1016/j.polgeo.2016.09.003

Elmhirst, R. (2015). Feminist political ecology. In T. Perreault, G. Bridge, & J. McCarthy (Eds.), The Routledge handbook of political ecology (pp. 519–530). Routledge.

García Lamarca, M., Anguelovski, I., Cole, H. V. S., Connolly, J. J. T., Pérez del Pulgar, C., Shokry, G., & Triguero-Mas, M. (2022). Urban green justice. Environmental Research Letters, 17(5), 053007. https://doi.org/10.1088/1748-9326/ac70e2

Habimana-Jordana, N., & Rodríguez-García, D. (2023). Mixedness and intersectionality: The use of Relief Maps to understand the experiences of multiracial women of African descent in Spain. Ethnic and Racial Studies, 46(11), 1966–1987. https://doi.org/10.1080/01419870.2022.2146040

Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. Feminist Studies, 14(3), 575–599. https://doi.org/10.2307/3178066

Pascual-Bordas, J., & Rodó-Zárate, M. (2022). Gender, sexuality and home: Young non-heterosexual women and their experiences in domestic space rooms in a medium-sized city in Catalonia. Gender, Place & Culture, 29(11), 1639–1661. https://doi.org/10.1080/0966369X.2022.2091523

Rodó-de-Zárate, M. (2014). Developing new methods for intersectionality: The case of the "Relief Maps." Qualitative Research, 14(3), 293–310. https://doi.org/10.1177/1468794112471120

Rodó-de-Zárate, M. (2015). Young lesbians negotiating public space: An intersectional approach through places. Children's Geographies, 13(4), 413–429. https://doi.org/10.1080/14733285.2014.893750

Rose, G. (1997). Situating knowledges: Positionality, reflexivities and other tactics. Progress in Human Geography, 21(3), 305–320. https://doi.org/10.1191/030913297673302122

Sultana, F. (2022). The unbearable heaviness of climate coloniality. Political Geography, 102, 102638. https://doi.org/10.1016/j.polgeo.2021.102638

Truelove, Y., & Carr, E. R. (2020). Beyond epistemic provincialism: De-centering global North research imaginaries. Annals of the American Association of Geographers, 110(5), 1651–1668. https://doi.org/10.1080/24694452.2020.1723396