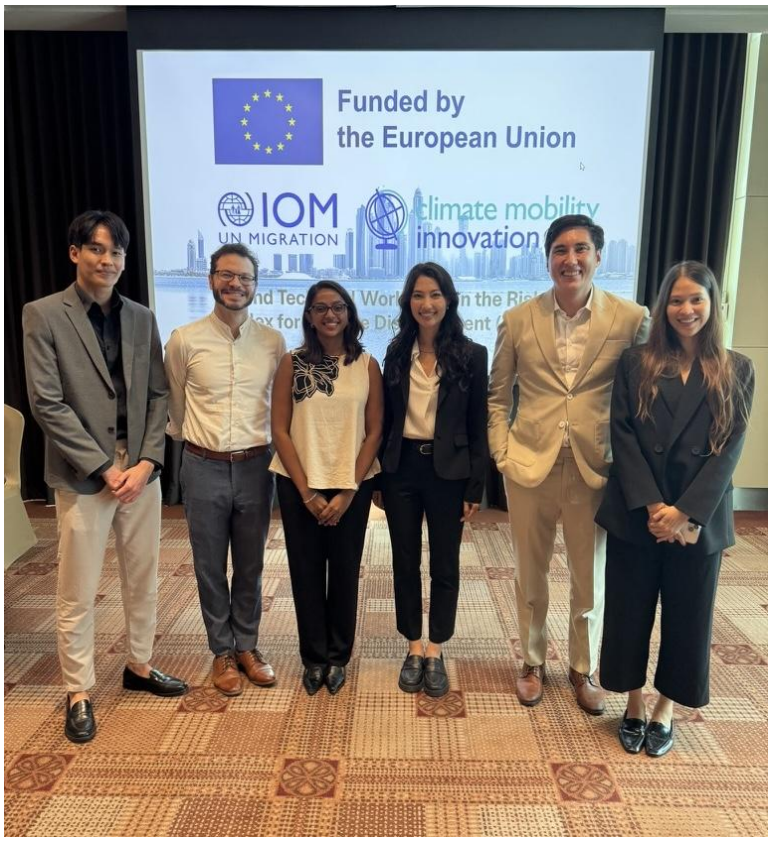
Beyond the Pixels: Lessons on Data, People, and Climate Mobility from IOM in Bangkok

Caroline Crystal

In this Gallery post, Lifelines fellow Caroline Crystal reflects on her summer with the International Organization for Migration's Climate Mobility Innovation Lab in Bangkok, where she worked on a tool that identifies where climate-related displacement is likely to happen. She shares what she learned and how it has shaped her view of Earth observation in humanitarian work.

This summer I worked in Bangkok at the International Organization for Migration (IOM)'s Regional Office for Asia and the Pacific as a Graduate Fellow with the Climate Mobility Innovation Lab (CMIL). CMIL supports communities across the region as they face displacement and other mobility challenges due to climate change and natural disasters. These issues felt especially urgent from the Asia-Pacific office: in 2025, the region accounted for nearly 59% of all internal displacements caused by disasters recorded worldwide.

I spent most of my time on the Risk Index for Climate Displacement (RICD), a predictive risk modeling tool the lab built to identify where climate displacement is likely to happen and why. RICD in turn is a major input for the Climate Catalytic Fund (CCF), which directs adaptation financing toward the places most at risk.



Members of IOM's Climate Mobility Innovation Lab – Asia-Pacific, IOM Thailand Country Office, and Nanyang Technological University

I've been incredibly grateful to learn from such an amazing team dedicated to important work. Our small but mighty core team was comprised of Brad, our fearless leader and lifelong humanitarian with stories ranging from Haiti to Iraq; Victor, our project design and implementation wizard and CCF manager who knew all the best destinations in Bangkok; Sonali, our resident Earth scientist with a legendary sweet tooth and the brains behind RICD; and Suphak (Nong), our indefatigable program support expert and proud mother of a competitive swimmer. I took a lot of lessons from this summer, and they often had less to do with the tools we built than with the processes and people working to build them. I'd like to share a few reflections on how Earth observations fit into my work, as well as my own learning process on science in humanitarian action.

Data in Unexpected Places

As someone coming onto the team with a background in humanitarian early warning and response rather than climate, I was ready to feel out of my depth. In this context, I was equally daunted and excited to see the degree to which satellite data serves climate analysis. This may be obvious to environmental scientists, but for me it was eye-opening and left me amazed at the extent of distance between two fields that could learn a lot from each other. Although people on the team wouldn't call themselves remote sensing analysts, they worked regularly with satellite-derived indicators. Even where the team wasn't already using EO data, we could identify more ways EO data could support their analysis — for instance, in generating land cover maps rather than solely relying on official land cover datasets. It was a good reminder that the discipline you're trained in shapes what you think is even possible to do with data. That's not an argument for applying any relevant dataset naively or without care, but it was a reminder to stay curious about data outside my own background, and an argument for working on interdisciplinary teams.

Still, not all EO data was fit for our purpose. For instance, we found that global climate models widely used in this space aren't always accurate for Asia and the Pacific. Some dataset localization is baked into the DNA of best practices in climate modeling. Global climate prediction models are often at very coarse spatial resolution, so they are routinely "downscaled" to finer regional grids through efforts like the Coordinated Regional Climate Downscaling Experiment (CORDEX). But resolution is only part of the equation; what you measure matters too. For instance, especially in tropical Southeast Asia, air temperature alone understates how dangerous heat is for the human body, so we relied on Wet Bulb Globe Temperature, which also accounts for humidity, sunlight, and wind. For each country we worked in, we had to identify locally relevant datasets that reflected the country's conditions, rather than starting from global models and hoping they held up locally. This was fundamental not only to the accuracy of our work but also the trust needed to implement it.

Collecting and maintaining local data requires a lot of work. From my time establishing data-sharing mechanisms and coordinating government data requests in Indonesia and Thailand, I saw how hard it can be for an organization like IOM to pull together data that lives in different places,

formats, and languages, and how much that work depends on host governments and other local partners. At the same time, I heard firsthand from government representatives and local partners about how they are often asked to hand over the same data, again and again, to different international partners who use it to train models or support their own research, without seeing results reach the community that provided it in the first place. It is a real administrative burden on the people being asked, and international scientists and development practitioners doing this work need to take on the responsibility of coordinating where possible.

At the same time, no amount of EO or other quantitative data explained why displacement was happening or what to do about it. To me, one of the most impressive parts of RICD is how it integrated both quantitative data on hazard, exposure, and vulnerability with original qualitative data collected from people living in high-risk places. CMIL uses the results from the quantitative macro-level analysis to guide fieldwork site selection, focusing on the most at-risk areas that are feasible to visit. Subsequently, the team conducts micro-level analysis, holding key informant interviews and focus-group discussions to identify the motivations and triggers underlying climate-related mobility. I've always appreciated the value of local knowledge and experience without truly understanding what that meant on a personal level. Living through tropical cyclones and flash floods, even briefly, started to fill in that picture. Seeing how governments and everyday people adapted, from small protective habits to larger infrastructure projects, showed me how much is easy to miss from afar. This qualitative data was fundamental to not only the programmatic response but also the integrity of the analysis itself.

The Artist House, Bangkok

Partnerships

CMIL takes localization seriously in a way I hadn't witnessed before this summer, partnering directly with governments and universities in the countries where the work happens rather than treating them as recipients of finished analysis. For instance, I helped host a workshop with more than 20 Thai government representatives, where we presented preliminary hazard model results, worked through data-sharing, and started the process to collaborate on site visits and adaptation project selection. They were excellent and informed partners, and our work was so much richer for this collaboration. It was also my first time working alongside live translation, and it drove home how much the accessibility of an event shapes who actually gets to take part in it, not just who is in the room.

Data mapping at the 2nd Technical Workshop on the Risk Index for Climate Displacement for Thailand

That question of who gets to participate, and how, came up again in a different form for CMIL's work in Fiji and Vanuatu. Having a seat at the table can be expensive, especially for Pacific Island states facing particularly steep travel costs on limited budgets. In my experience, people often point to EO and remote participation as ways around that cost but do not fully reckon with what is lost in the process: joining remotely is not the same as being there, and it doesn't add up to the same kind of participation.

This issue emerged around organizing a regional meeting in Bangkok and when one of our partner organizations could not send staff to an event in Fiji, as well as CMIL's own process for conducting micro-level analysis in the Pacific. CMIL refused to compromise on conducting comprehensive fieldwork and developing an equivalent product regardless of location, even if expensive. But it's hard to say that the only solution is accepting higher costs. There are practical things the lab has learned, including incorporating travel costs into budgets from the start and notifying partners of potential travel dates early for flight prices. There were also more fundamental strategies, like granting greater authority

and support to offices in the Pacific. Here, we worked very closely with the Fiji Country Office, which was better positioned than the regional office in this regard. Ultimately though, hard questions like these will almost always involve tradeoffs which require consideration as part of program design.

From Earth Observation to Earth Action

It's truly special to find meaningful work in an incredible city with a team that makes a city halfway around the world feel like home.

I left this summer with more than I expected (both figuratively and literally, having bought another suitcase). I gained a different way of thinking about EO data: not just what it can show, but what it tends to miss, and how it can be enriched by the people and knowledge closest to the problem. I also left with a lot of respect for the partnerships and teams doing this work, across civil society, universities, host governments, and communities themselves. Behind every dataset is a person or an office that collected it, and working responsibly means asking what they get back and how to lighten their load instead of adding to it. Finally, I'm leaving Bangkok with a clearer sense of the work I want to do, and with friends and colleagues who can make that work more impactful.