Smashing Stereotypes: Pearl Ayem

Transforming climate data into real world impact

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Physical climate scientist

Senior risk modeller at Silion

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Pearl Ayem is a physical climate scientist and Senior Risk Modeller at Sillion, transforming climate data into real-world impact. Born in India and raised in Canada, her love for nature led her to atmospheric science, where she models climate risks for businesses.

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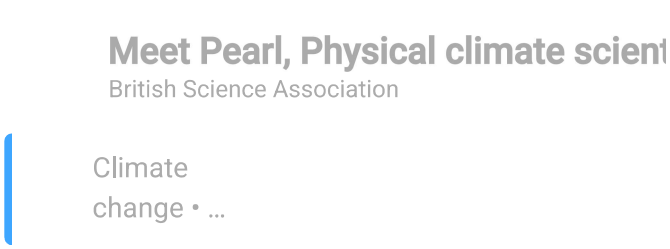

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A lifelong curiosity and love for nature

Born in India and raised in Canada, I grew up with an innate curiosity and love for nature. My family and I spent weekends on long drives, exploring different landscapes, and experiencing Canada's vast wilderness.

I'd always ask questions like, "Why do those trees look like that?" "Why is there fog over the river?" "Why do city lights create a glow at night?". Those questions sparked my interest in the atmosphere, although I didn't think I could make a career out of it.

Finding my path in STEM beyond engineering

At first, I thought I had to enter STEM through engineering, maths, or science. I even considered robotics. But when I got to university, I took a few atmospheric science courses and loved them so much that I decided to switch my major.

For those who may not know, atmosphere science studies physical aspects such as clouds, climate models, and the atmosphere. If you've ever looked at a sunset and wondered why the sky turns red, or why the sky is blue in general, atmospheric science is why.

Studying climate change is a big part of atmospheric science, but beyond large-scale catastrophes and weather forecasting, we also write code and simulations to assess how these events can be quantified, and what are their impacts on clients, assets and human health and safety.

The impact of climate modelling on companies today

I work as a Senior Climate Risk Modeller at Sillion, which advises businesses on their carbon emissions, their climate risk under different scenarios, and how to transition to a sustainable future.

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For example, if a company relies on wood pulp and paper, and we predict an increase in forest fires in a specific region over the next 10–15 years, we help them assess that risk and adapt accordingly.

It's a relatively new field, and regulations are constantly evolving. Instead of building in-house expertise, many companies find it easier to outsource to specialists like us.

While my work is client-driven, it is rooted in climate science. When companies see climate risks framed in a measurable, financial context, they're more likely to take action – whether that means reducing emissions, changing factory operations, or sourcing more sustainable materials. It's a full-circle process.

Fighting gendered stereotypes in STEM

Growing up, I believed STEM had to be about engineering, like working with your hands, building things, and taking things apart. In high school, I was the only girl in my tech education class.

I remember walking in on the first day and everyone clapping because it was a small school, and I was the first girl in that class in three years. I remained the only girl there until I left.

We built battle bots, and I vividly remember a friend jokingly saying that using a bandsaw in the tech lab was the closest I'd get to using a sewing machine. That analogy stuck with me because, at the time, STEM felt very gendered, like masculine hobbies, such as cars, robots, and engineering. But as I grew older, I realised that STEM is also about creativity, nature, and problem-solving.

Once I got to university, I embraced my love for the outdoors, running in fields, and exploring nature, things not typically associated with STEM. However, these experiences shaped my approach to atmospheric science.

Now, much of my work involves writing climate models, simulating global systems, and creating visually engaging maps – items that require a very solid mathematical engine, but also effective communication skills and visuals to get the point across.

STEM is more than just calculations; it's creative, dynamic, and deeply connected to the world around us.

Keeping women in STEM

Getting into STEM today is more accessible than before, but retention remains a challenge, particularly for women. Early in my career, when I worked in engineering-related roles, I struggled to feel like I truly fit in, despite having supportive mentors and peers.

For people from immigrant backgrounds, there's also the issue of accessibility. Growing up, my family didn't go on camping trips or ski holidays. So, when I entered this climate science specifically, I lacked the comfort and experience of outdoor fieldwork.

That doesn't necessarily fall under inclusivity, but it does highlight a barrier to access. I didn't want to be the person in my 20s who had never been skiing or lacked basic fieldwork skills, which created an additional hurdle to overcome.

Working on grassroots initiatives to bring about greater change

An initiative that's close to my heart is Polar Impact, a non-profit and peer support group dedicated to increasing diversity in polar research. It includes scientists, artists, filmmakers, and others working in this space. I started volunteering while doing my master's, and it has been incredible to see it grow into a global movement.

During COP26 in Glasgow, we organised panels featuring underrepresented researchers sharing their experiences in polar science. That was a highlight for me, as it provided visibility for voices that are often overlooked.

Beyond that, I also engage with Women in Climate, a global community focused on supporting women in climate science. While I mostly observe discussions in group chats, I do attend meetups in London whenever I can.

These initiatives create a sense of belonging and make STEM more accessible for those who might otherwise feel excluded. Representation matters, and I'm proud to contribute to making these spaces more inclusive for future generations.

Redefining what STEM is: more than just numbers

We need to move away from the outdated idea that STEM is only for people who excel at maths and science or that it's just about engineering and numbers. STEM is incredibly diverse: it intersects with geography, design, video games, and even the arts. Many of the advancements in AI, for example, were made possible by people who excelled in graphics and GPU programming.

STEM is also becoming increasingly interdisciplinary. Many experts in my field didn't start with a background in engineering or physics, yet they're now leaders in what they do. We need to stop confining STEM education to rigid categories and instead highlight how it connects to creativity, problem-solving, and real-world applications.

Being part of the fight for a safer and healthier planet

Even if not everyone shares my enthusiasm for the planet, my work allows people to engage with sustainability in ways that resonate with them. Whether through cost savings, corporate reputation, or other benefits. Ultimately, it all contributes to a larger environmental impact, which gives my work purpose.

However, this also presents the biggest challenge. For me, the need to preserve our planet is obvious: it's a delicate ecosystem, and disrupting it has dire consequences. But not everyone sees it that way.

Communicating the urgency of climate action in a way that resonates with different stakeholders, especially those driven by financial incentives, can be frustrating. The challenge lies in translating scientific facts into tangible benefits that motivate action. While it can be difficult, seeing progress no matter how small makes it all worthwhile.

This profile was last updated on 3 March 2025.

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Registered charity number 212479 and SC039236