

More than child's play: how Dr. Karen Joyce is inspiring the next generation of geospatial scientists

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Dr. Karen Joyce is on a mission to change the way we think about diversity in science. She's a Senior Lecturer at the **James Cook University** in Cairns and the Education Director of **She Maps**, an online and in-school science, technology, engineering, and maths (STEM) training program that helps empower students with the skills of tomorrow.

"I have two angles when I consider diversity. Firstly, I am interested in increasing the diversity in **WHAT** people consider to be science. My mission is to help people realise that there is a greater diversity in science jobs past the stereotypical lab coat and geospatial is a really important component of this.

"Secondly, we need to build diversity around **WHO** should be involved in STEM careers. My focus in this space is increasing the number of women and girls in science" Karen says.

Karen's passion for fostering a love of geospatial technology in students is also aimed at tackling gender bias from an early age and the lack of gender balance in STEM programs by **empowering girls to get involved in drone activities**.

"For the past three years we have run a 'Tournament of Drones,' where local Cairns schools compete against each other in geospatial and drone based STEM challenges. We stipulate schools must have a **minimum of 50% female participation**, and every Tournament so far has been won by an all-girls team," says Karen.

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"We have evidence to show that prior to our offering girls-only drone activities, girls have been unwilling to attend. Clearly these opportunities are having a positive impact on their inclusion" says Karen. To date, She Maps has taught programs around Australia to over **6,000 students and teachers**, with around **70 per cent female participation**.

Karen's work is also making an impact on a global scale, having created an interactive

STEM engagement program that helps students and teachers to experience a day in the life of a geospatial scientist that has been taught around [Australia](#), the [US](#), [UK](#), and [Asia](#), in addition to building a network of other educators in [13 countries](#) to do the same.

But challenging the status quo is not always easy. "Occasionally I meet resistance from people who believe that encouraging women and girls is sexist towards men and boys," she confides,

"But more often than not I have received overwhelming support. I am particularly fortunate to have some amazing partners both in terms of cash funding, but also resources and time to help grow our impact".

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She also acknowledges the important role of men in improving female participation in STEM. "I particularly enjoy having the diversity discussion with fathers who have been unaware of the many challenges their daughters will face when it comes to inclusion. [Men have a really important role to play in bringing about the change we need to see](#), so I love helping them on that journey," she says.

In addition to her work as an educator, Karen also uses her influence as a Co-Director of the [Advancing Earth Observation Forum](#) and other public

speaking engagements to champion diversity. ■

In February 2020 the Co-Convenors of the Spatial and Surveying Diversity Leadership Network issued a call to the spatial sector to showcase leaders in our sector who are investing in opening doors, challenging bias, and creating workplace cultures that foster a sense of belonging and inclusion. This case study is a direct outcome of that call. For more on Diversity & Inclusion in the Spatial sector visit the [2026 Agenda – Diversity & Inclusion webpage](#) or connect at diversity@2026agenda.com

