

Coccolithophores: Science inspires art

An interview with Dr Mariem Saavedra-Pellitero

Explain briefly who you are and what you do, including your involvement with IODP

I am Dr. Mariem Saavedra-Pellitero, a Spanish Marie Skłodowska-Curie postdoctoral Fellow at the School of Geography, Earth and Environmental Sciences of the University of Birmingham, UK (Fig. 1). I work as a geologist and micropaleontologist, using beautiful, tiny algae called coccolithophores to reconstruct the climate of the past. To do so, and despite the fact that I get terribly seasick, I sailed in series of long expeditions including IODP “Exp. 346: Asian Monsoon” to the Japan Sea in 2013, and IODP “Exp. 383: Dynamics of Pacific Antarctic Circumpolar Current (DYNAPACC)” to the Pacific sector of the Southern Ocean in 2019.

How did you get involved with the event?

Although I have a creative side, I never had any interaction with theater and drama performers before meeting the charismatic Catherine Butler & Jessica Barber (Cat & Jess) who constitute LYNNEBEC. I met them when they were looking for volunteers for “[Redacted] Night Tour”, an Arts Council supported project at the Lapworth Museum at the University of Birmingham in October 2019. As an introvert, at first, I said no. But I surprised myself suddenly by volunteering

for this psychological thriller when I saw them rehearsing and cheerfully jumping around “Roary” the Allosaurus very late in the evening at the museum. After that, I kept following @lynnebec on Social Media, and I decided to join #AllgoRHTYHMFromHome without knowing what it was all about...



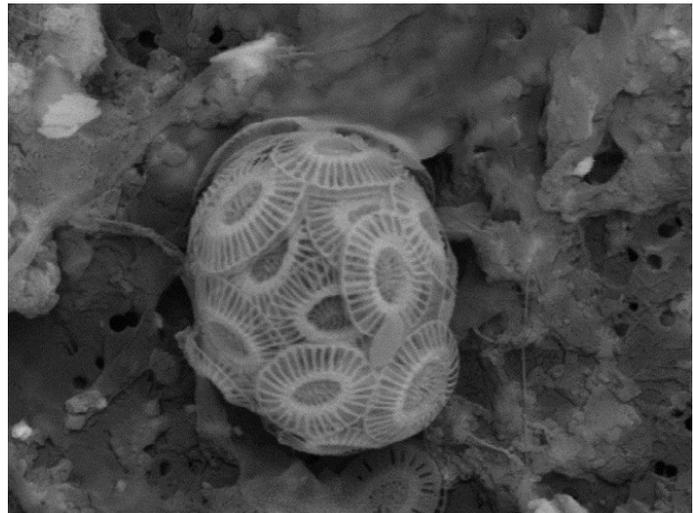
Figure 1. Mariem Saavedra-Pellitero's most recent CV, sketched by herself

Explain a bit about the AlgoRHYTHM series – what is it about? Who is it for?

AlgoRHYTHM From Home was based on LYNNEBEC's existing show AlgoRHYTHM! which turned the research from IMSR (Institute of Metabolism and Systems Research) at the University of Birmingham into an interactive science-dance show due to COVID-19. AlgoRHYTHM From Home was an 8 week free, online workshop series (from 16th July to 3rd September 2020) of 1 hour-long geeky zumba-style classes delivered using Zoom. Anybody could participate each Thursday, people just needed to sign up beforehand. Each week there was a science-based routine, based on suggestions by science enthusiasts from across the world (addressing questions like how sand dunes migrate on Mars or how methane combusts). AlgoRHYTHM aimed to not only encourage learning through arts but also the visibility of women in STEM subjects.

Tell us about your coccolithophore episode of the series

Because I enjoyed the first class so much, I directly asked LYNNEBEC if I could suggest my research topic for an upcoming class. I wrote a small proposal and they chose it! I had a chat with Cat and Jess, and they choreographed a dance based on what they understood. I provided some additional Scanning Electron Microscope coccolithophores pictures and a few illustrations that I made during the confinement (Fig. 2). AlgoRHYTHM From Home week 7/8 was basically the perception of my research expressed through music and body language. I had no idea what they were going to do until that day; I only knew that it was a workout with a surprise science lesson (here you have a taster: https://www.youtube.com/watch?v=cgzCX8yCrcE&t=3s&ab_channel=LYNNEBECCompany). This project was developed to promote well-being and scientific learning in lockdown, for all ages, and dance abilities (Fig. 3). Every class consisted of a warm-up followed by some science facts about the topic of the day, and then the vibrant zumba-style routine itself, finishing up with some stretching.



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Figure 2. Extant *Emiliana huxleyi* from the Pacific Southern Ocean observed onboard JOIDES Resolution using a TM3000 tabletop Scanning Electron Microscope during IODP Exp. 383.



Figure 3. Screenshot of AlgoRHYTHM From Home week 7/8 in which Jess and Cat are explaining what are coccolithophores

What was your favourite part of the experience?

What I really enjoyed about it was the unique and creative way in which LYNNEBEC adapted each of the scientific contents for the public, and the feeling of community they created in just one hour. Such a positive vibe! It was exciting and uplifting! Every week I was looking forward to the next #AlgoRHTYHMFromHome, and to the videos they would put together summarizing the session, which are all now available on YouTube. I got to learn about topics I never encountered before, such as Myositis or the Shackleton crater on the Moon...dancing, laughing and having fun!

Do you have further plans for your science-based art?

Science and art are a combination that I will always cherish. That is why, in collaboration with the Lapworth Museum, I am organizing a very unique exhibition in which I will be sharing my art and my science (coccolithophore illustrations) with the public (Fig. 4). The “lockdown cocos” is a collection of poignant watercolors that I started to draw right after the sudden death of my mother in March 2020, as my own creative, color therapy. This is how I embodied my broken heart, as well as my grieving and confinement processes onto paper. My main aim is not only to show how close art and science are, but also, and mostly to honor my mum and raise mental health awareness. Stay tuned. It will be soon online.

Do you have any words of encouragement for others?

In this regard, I have to admit that AlgoRHTYHM From Home brought to me the positivity I (and everyone!) really needed during the last weeks. As Cat and Jess repeated every day before each science routine: “Don’t worry about getting anything wrong, we made it all up anyway. And if at any point, there’s a voice in your head saying that you look silly or you can’t do it, please imagine our tiny voices telling you you can! We are all in this together”



Figure 4. *Emiliana huxleyi* from “lockdown cocos” collection by Mariem Saavedra-Pellitero.