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PhD

Testimonials

I went straight from graduating high school into a Bachelor of Science at Flinders University. I took Earth Sciences as a fill-in subject. I was originally planning to major in biology, but was inspired by my lecturer, then in just his second year of teaching, to change tack and pursue a career in hydrogeology. I undertook Honours and then PhD degrees. Following a passion, I'd developed through my undergrad and Honours project, my PhD "Using applied tracer tests to predict solute transport in fractured rock aquifers" included a significant numerical modelling component, but also involved planning and conducting a number of field tests in the Clare Valley.

I've since embraced a career in consulting, in which I've been able to grow and apply the technical, problem-solving and critical thinking skills I developed during my PhD. Currently, I lead the groundwater modelling team at EMM Consulting and am fortunate to work alongside some of Australia's leading environmental consultants. My education and career have provided opportunities to travel across Australia and internationally, working on some exciting high-profile projects. I've been hundreds of metres underground in mines and hydro-electric power stations and flown around project sites by helicopter. I've worked on open cut, underground and non-conventional mining projects, covering aspects such as dewatering, water supply, tailings and excess water management and their associated impacts. I've led modelling to inform design and impacts of pumped hydro-electric power projects, to inform sustainable yields, salinity management and housing developments. The things I love most about my role are training and mentoring others, working with leaders in related disciplines (often hydrologists, ecologists and engineers) and the exciting projects I have opportunity to be involved with at EMM.



I moved to Australia in 2015, and the bravest step I have ever taken was to pursue a higher degree after a five-year break from the workforce to take care of my young family. I first earned a master's degree in Groundwater Hydrogeology from Flinders University, and then I went directly to study my PhD titled "Tidal propagation and variable density processes in coastal aquifers". My PhD journey at Flinders University allowed me to fulfill the desire to (1) become an expert groundwater modeller, especially in variable-density groundwater flow, supervised by a great groundwater modeller and (2) dedicate the necessary time to undertake complex mathematical problems – I always liked maths but never had the opportunity to be mentored by a leading mathematician. I discovered a new whole mathematical world with him.

I cannot express enough how proud I am of myself for making the decision to pursue my PhD at Flinders University, the training and support I received during my PhD have opened so many doors for me. It was during this time I discovered my passion for teaching. Currently, I am working as a postdoctoral researcher in coastal hydrogeology at Flinders University, where I also teach (part-time) in the civil engineering cohort. In summary, my PhD allowed me to fulfill my professional dreams.

Dr Cristina Solorzano Rivas (Photo - Right)

Postdoctoral Research Fellow in Coastal
Groundwater
Flinders University



After my undergraduate degree I knew that I was interested in undertaking a PhD, but I just wasn't sure about the topic. I liked the idea of spending several years deeply researching an issue but wanted to choose the right time and subject matter. After working in the Federal Government for 6 years as a hydrogeologist, I knew that a groundwater-related PhD was the right choice. I was lucky to be accepted for a project at Flinders University in collaboration with Rio Tinto.

My PhD research allowed me the time to ask and answer questions about structural uncertainty in groundwater modelling, related to mine dewatering in the Pilbara Region of Western Australia. I began my PhD with some knowledge of hydrogeology but no experience in programming or groundwater modelling. By focusing my research in analytical and numerical analysis, I was able to develop skills in Python coding, modelling and uncertainty analysis. This has been essential for the career opportunities that have followed.

In addition to the skills that I learnt, I was able to travel and live overseas during my PhD. My project included a collaboration with the United States Geological Survey in Virginia, USA. I enjoyed this time immensely and have built contacts across the world. My PhD was filled with the highs and lows of life—marriage, the birth of my daughter, but also losing a family member. I was lucky that the working arrangement was able to accommodate this kind of turbulence. Overall, I feel like the decision to do a PhD was profoundly positive. I engaged in enjoyable research, and it provided me with a career “pivot” by building new skills and expertise.

Dr Sarah Marshall (Photo - Left)

Postdoctoral Research Fellow, NCGRT

Flinders University & CSIRO