

For this issue, we are very happy to have **Gerrit Olivier** from the University of Tasmania as our member spotlight.

1. For how long have you been a geophysicist?

11 years

2. What do you like most about being a geophysicist?

There is something extremely satisfying about using a combination of data from field experiments and computational geophysics to see hundreds of meters below the surface.

3. If you weren't a geophysicist what would you be?

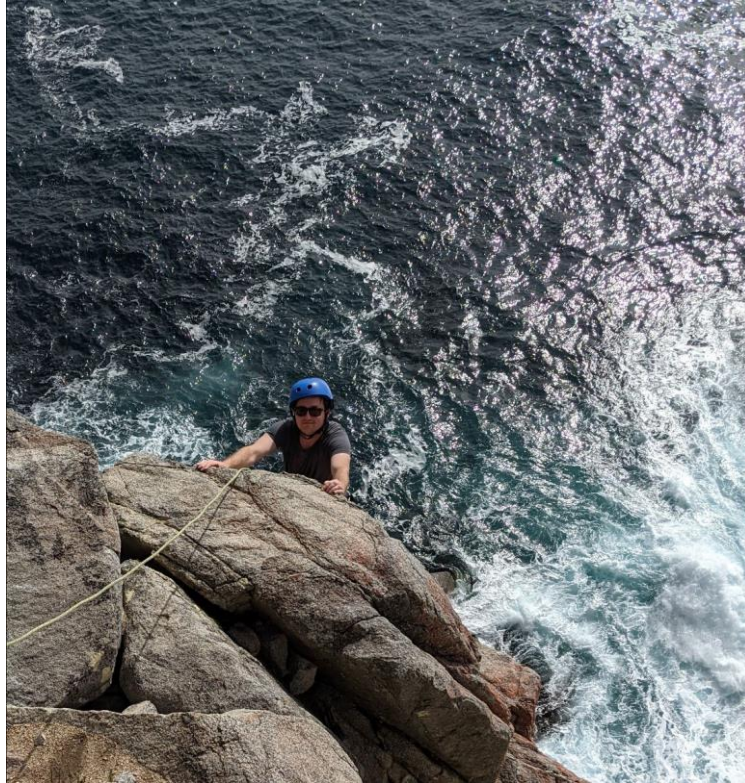
Probably an astrophysicist (boring answer, I know).

4. What made you decide to be a geophysicist?

It was an impulsive decision. I was finishing my MSc in Theoretical Physics and looking for a part-time job to earn some money whilst writing my thesis. I saw a job ad on the notice board in the department for a junior seismologist and the rest is history.

5. What's one thing that we wouldn't know about you?

I got married in Las Vegas (by Elvis of course).



6. What are you reading at the moment?

The Voltage Effect by John List

7. What do you do in your spare time?

Going on adventures with my son, rock climbing or working on my old LandCruiser.

8. What is a challenge that you see in geoscience today, and how do you see the community overcoming it?

The world is starting the transition from fossil fuels to renewable energy sources. To achieve this ambitious goal, we will need to discover exponentially more mineral deposits to provide the raw materials needed (nickel, copper, cobalt and lithium in particular). Unfortunately most of the easy to find and access deposits have been found and depleted, and we need to look deeper and deeper to find new deposits. New geophysical instruments and data processing methods need to be developed to improve our exploration success rates (especially under cover). This is our time to shine as geophysicists! However, over the last decade we have also seen universities all over the world

cutting geosciences from their curriculum amidst declining enrolments. To tackle this massive societal challenge, we need talented physical science students and petroleum geoscientists to consider transitioning to the mineral exploration industry. In particular, I would like to see more young Physics, Applied Mathematics and Computer Science students / professionals consider a role in mineral exploration. I think you will be surprised to see how well suited your skill set is for this industry, and how rewarding a career in mineral exploration geophysics can be.

9. Where do you think exploration geophysics will head in the next 10-15 years?

Improvements in instrumentation are enabling us to routinely use methods in exploration geophysics that have been explored in academia for a while, but not been available commercially. Muon tomography and ambient seismic noise tomography being two notable examples of this. Combining these new (and existing) methods with IOT-enabled remote connectivity and edge-processing, this will give geoscientists fast and detailed 3D images of the subsurface that can guide their exploration efforts in near real-time. Over the next decade, instruments and methods will continue to improve our abilities to image the subsurface with incredible detail, much like the improvements we have seen in the medical imaging industry over the last decade. I hope that over the next decade we will reach a point where the amount of drilling needed to detect and delineate new deposits will be minimal.

10. Do you think AI will take over your job or will the human element remain vital to exploration successes?

Machine learning libraries are now incredibly easy to use and access, which is both a blessing and a curse. We will see many fantastic use cases of these methods over the next few years, but inevitably this ease-of-use will also lead to applications where the fundamental science has not been considered or incorporated and in so doing give controversial (or incorrect) results. There are however certain manual tasks we currently do that can and will absolutely be automated (e.g. core logging, phase arrival picking, etc.). It is in this exact role that I think these methods will excel; time consuming and monotonous tasks leaving the analysis and interpretation to us.

