



## November | Sara Ellison, Astronomer

### What do you do?

I'm an astronomer working on observations of the most distant galaxies in the universe.

### Why is it important?

I believe that astronomy as a science is important for many reasons. It addresses many of the most fundamental questions that we can ask of the physical world, such as how did the universe begin? What is it made of? How will it end? Is there intelligent life on other worlds? Humans may be unique in even being able to ask these questions, and everyone is fascinated by the potential to answer them. Of course, there is also the more mundane answer that it drives technology (many of the advanced imaging techniques developed for astronomy have applications in medical imaging, for example), but I think the humanist, inspirational aspect is just as important.

### What does your research involve?

A few times a year I visit large telescopes in places like Hawaii and the Atacama desert in Chile to gather data (usually each trip is for a couple of nights). The telescopes are located at these remote sites because astronomical observations demand dark, clear skies in dry environments. Deserts and the tops of high mountains are excellent spots for this! I then spend the rest of my time analysing the data and interpreting the results. So, most of my typical day is working with computers to process the raw data from the telescope. I also have to write proposals to compete for the time to use these telescopes (because there are more people who want to use them than nights in the year). Once the science is done, I write the results up as a paper which is submitted to a science journal for publication, and then the cycle begins again! Of course, I also have graduate students working with me, so I meet regularly with them, as well as teaching undergrad and graduate classes and University administration.



## What got you into it?

A high school physics teacher who was a keen back-yard astronomer. He was constantly slipping astronomical examples into our physics curriculum and I thought it was very neat that high school physics could be applied to tackle such "big" questions about the universe.

## Did you ever want to be something else?

I always knew I'd be in science, but in middle school I was more biased towards chemistry and wanted to be a forensic scientist.

## What do you like most about your work?

The flexibility. I like that I determine my own research projects and choose what interests me. I can largely structure my day how I want, and this is ultimately very productive. I also like the travel, both to the telescopes and to conferences.

## What are you proudest of?

In work, whatever project I'm currently working on! Each new project brings challenges that are ultimately very satisfying and give you a "high" to have overcome them and contributed a new piece of knowledge to science. There is the sense that, for this tiny niche, you are the world's expert, and that is very thrilling. Outside of my research, I am proud that I have been able to find a healthy balance between work, family (I'm married with a young daughter) and hobbies.

## What was your first summer job?

My first summer at University I landed a job at the Anglo-Australian Observatory in Sydney doing research for 4 months. Awesome. And then every summer holiday after that I racked up up more observatory jobs: in the Canary islands and Hawaii.

## How long did it take to become an Astronomer?

My undergrad (in the UK) took 4 years and then a 3 year PhD (also in the UK). I then did a 3 year postdoctoral position in Chile before getting my faculty position at UVic. That is the standard "university" route, but there are other career possibilities. For example, observatory work (such as operating the telescopes) can be done with an undergraduate degree. However, if you're interested in research, you will need at least a masters.

## What 5 favourite artists/groups/ pieces of music do you listen to on your ipod?

I tend to only listen to my ipod when I run, so it has to be upbeat! Currently this includes Shakira, Blink 182 and Queen.

## How do you get to work every day?

I bike (towing my 3-year old daughter in the trailer and dropping her at day care along the way).

## What are your favorite things to do when you aren't working?

I train for triathlons, so that takes up most of my free time. I also enjoy skiing, latin and ballroom dancing, painting and any kind of outdoor activity with my husband and daughter.

## If you could meet one famous person for coffee who would it be?

I guess God is out of the question?! (Probably more of a tea-drinker anyway). David Attenborough, I think, because he has a fascinating knowledge of the natural world closer to home and has been fortunate enough to visit so many remote places to explore their wildlife.

