

# Girls into Geoscience Virtual Programme 2020

## Q and A Panels

### **Careers in Geoscience - Speakers Q and A**

You've seen their inspiring videos charting their careers and the different industries that they work in, now is the chance to ask our speakers about their inspirations, career highlights and challenges. Our speakers will also talk about career progression, job applications and interviews after university.

### **Life in the field Q and A**

Fieldwork is often seen as a barrier to those that have never done it before. Where do you go to the loo? Is it scary? Where do you sleep? What is it like? Our panellists will talk about the amazing places they have visited, the highs and the lows of fieldwork and also why it is important an exciting part of an Earth Science degree and career.

### **Applying for university Q and A**

Taking the next step to university is an exciting and daunting time with so many choices, from which course, which university, which city, which country! In this panel representatives from England, Wales, Scotland and the Republic of Ireland will be available to answer questions on the application process and general university entry requirements.

### **Dealing with change, challenges and opportunities Q and A**

Our planet is constantly changing and so are we – are you ready for change? Many geoscientists face changes in their careers from working for different companies, relocating from one city or country to another, perhaps even changing field. Adaptability and resilience are crucial for a successful career and will help you navigate the demands of university. In this panel, our panellists will answer questions on their approaches to managing change, strategies to cope with and thrive in times of uncertainty.

### **Student life Q and A**

What is life at university really like? From, lectures and practical's, to fieldtrips and nightlife, this Q and A panel will give you the chance to ask current students from the University of Plymouth, University of Glasgow, and Aberystwyth University about their experiences, and anything else you want to know about University life!

## Workshops

### **A) Volcanoes, landslides, tsunamis, why look at one? Let's do them all! (Dr Irene Manzella, University of Plymouth)**

An insight on how we can model tsunamis caused by pyroclastic density currents and landslides in volcanic environments. With this workshop we will look at the main factors that influences these events, in particular how big the tsunami wave can be and how far it can go. At the same time we will have an insight on how geoscientists use numerical modelling to assess hazards and therefore reduce risks in rather dangerous environments.

**B) Peruvian glaciers and water resources (Dr Caroline Clason and Dr Sally Rangescroft, University of Plymouth)**

This workshop will explore environmental change in the Peruvian Andes, including the themes of glacier loss and water resources, and discuss what the implications are for local people under a changing climate and increased pressures on land use. You will explore the area in Google Earth and be given questions to think about and try to answer ahead of the workshop. During the workshop we will have a web chat to discuss these questions and your thoughts on the challenges that this region faces. We will also have a short Q&A about what it's like to conduct fieldwork in glaciated/mountainous regions as female scientists, and what it's like to be a female researcher in this field.

**C) Ice Age: A geomorphic scavenger hunt (Hannah Mathers, University of Glasgow)**

How good are you at – pattern-spotting or odd one out? In this workshop you'll explore the Earth's surface through a geomorphologist's eyes; reading clues about past climate and extreme events in patterns and landforms. You'll increase your confidence in visual communication through problem-solving missions utilising a range of geomorphic tools and data visualisations.

**D) Roving with Rosalind (Aine O'Brien & Sara Motaghian, University of Glasgow)**

To explore Mars all sorts of subjects and fields need to intersect: Planetary Science meets Computer Science, Geology meets Physics, Geography meets Chemistry, Biology meets Engineering. This workshop will give you a taste of real mission science for the upcoming ESA ROSCOSMOS ExoMars mission's rover: Rosalind Franklin. You will learn how the Mars rover will be searching for signs of life on the red planet, how the UK plays a pivotal part in this, and how to analyse data it will be receiving in the same way that mission specialists do, to work out whether or not Mars ever hosted life.

**E) Investigating the earthquake machine: how can everyday objects help us predict earthquake behaviour? (Dr Zoe Mildon and Dr Lucy Campbell, University of Plymouth)**

We know that earthquakes can be really damaging and we as geoscientists want to better understand earthquakes. It's impossible to predict where and when future earthquakes will happen, but we can explore the processes of earthquake slip on faults in the crust through models – these can even make use of common objects from around your house! In this workshop we will guide you through the creation of your own 'earthquake machine' experiment. On the day, we'll discuss the results together and pinpoint what they help us understand about the behaviour of earthquakes.

**F) Understanding volcanoes from dormancy to eruption (Dr Annie Winson and guests, British Geological Survey and beyond)**

This session will introduce the techniques that are employed by volcanologists to understand volcanoes and their eruptions. We will discuss: how the eruptive history of a volcano can reveal its likely future activity, methods of computer modelling that tell us about ash fall and pyroclastic flows, tools for monitoring active volcanoes and how we use this information to communicate volcanic hazard to local communities.

### **G) Using corals to determine changes in ocean temperature (Charlotte Slaymark, University of Glasgow)**

Climate scientists need ways to measure past ocean temperature in order to contextualise the recent warming of the ocean's surface. This workshop will show you that oxygen isotopes can be used as a *proxy* for temperature in coral skeletons. You will learn how oxygen isotopes are measured in coral. You will follow steps to get temperature data from corals that are over 400 years old. Let's see how much the oceans have heated since the industrial revolution.

### **H) The mysteries of mud: exploring sediment cores for records of natural disasters (Dr Millie Watts, BOSCORF)**

Do you remember the 2010 Icelandic eruption? Did you know it cost over £5 Billion in damages to the economy? Did you know that eruptions like this have happened before, and will happen again, and can be many times larger? Did you know that some Icelandic volcanoes erupt more frequently during deglacial periods, when ice sheets are melting fast? Did you know that we can use the fingerprint of these eruptions to identify other hazards such as tsunamis, that have struck the UK coastlines in the past? Join this session for a fascinating look at the UK marine sediment core collection, where I will explain how we use sediment cores and layers of volcanic ash to reconstruct past geological hazards, and to study previous climate change events.

## **Virtual Fieldtrips**

### **I) Virtual Fieldtrip: Siccar Point (Scotland) – the “birthplace” of modern geology (Dr Amanda Owen)**

This virtual field trip takes you to a particularly special geological site located on the east coast of Scotland. It was at this site that James Hutton in 1788 changed perspectives on how we understand our planet. This virtual field trip will demonstrate how we look to understand the geologic record by applying the concept of uniformitarianism which states that processes that occur today have operated throughout Earth's history and will continue to do so in the future. This workshop will allow you to explore the outcrop yourself through an online based virtual outcrop model and deduce the geological history of the area based on the principle of uniformitarianism and guided activities.

### **J) Virtual fieldtrip: Sandway Cellar, Kingsand-Cawsand. An introduction to geological field techniques (Dr Meriel FitzPatrick)**

This virtual field trip will enable you to explore an important geological site located on the western side of Plymouth Sound. The rocks at Sandway Cellar near the villages of Kingsand-Cawsand are of great interest because they demonstrate some fantastic local geology. On the beach there are several units of rock which when observed carefully, can be used to build up a picture of their spatial /age relationships and to interpret the geological history. This location provides an excellent opportunity to study these rocks virtually using video and online resources, to help you make your own virtual field observations, developing some of the skills needed as a Geoscientist. These field techniques include how to describe rocks in the field, make your own observations and infer their stratigraphic (age) relationships.

## Speakers

**Niamh Faulkner, Trinity College Dublin**

***Geoscience and climate change: Looking into the past to save the future.***

Our planet is in the midst of severe changes to global and regional climate patterns. However, this isn't the first time in the Earth's history that there has been a shift in the climate. Geoscientists can study these past climate change events that have been recorded in rocks and to help give a better understanding of climate change, and what can be done to tackle it. Geoscience explores climate change from the large scale- volcanic eruptions & their climate impact, to the small scale- nanomineralogy and carbon dioxide reduction. Learn why geoscientists are crucial to addressing climate change.

**Josie-Alice Kirby, Plymouth Coastal Observatory**

***Crumbling coasts, climate change and why geoscience isn't all about oil!***

The talk will cover a brief introduction into how I got into geoscience and about my current position at the Plymouth Coastal Observatory and PhD in CCMA's. I will talk about the importance of monitoring the coast and the effects of climate change on coastal communities. Finally I will try and provide an insight to the different paths geoscience degrees can take you on (not just petroleum exploration, which is what everyone thought I was going to have to do with a geology degree!) and give some examples of amazing female geoscientists I have worked with.

**Dr Caroline Buttler, National Museum Wales**

***Not just dinosaurs – a career as a museum palaeontologist***

What jobs are available for geoscientists in museums and what decisions and choices did I make that lead me to a career as a palaeontologist in a museum? What does working in a museum actually entail and how have the opportunities there changed for women over the last 30 years?

**Katy Kemble, Jacobs**

***Fluvial Geomorphology: Bridging the gap between science, engineering and environmental services***

I can hear the first question on your lips is "What is fluvial geomorphology"? It is a good question and one that we will explore in this session. This talk will look into my journey from outdoor lover, to studying Geography at university and now being immersed in the consultancy world where I get to influence engineering designs of all scales making them environmentally sensitive and pushing the boundaries of how to embed science in the 'real world'.

**Claire Bond, Aberdeen University**

I will take you on a wander through my non-linear (read slight crazy) career path to becoming a professional Geoscientist. Trying to work out what made me happy and 'tick' (I am still learning) and how I could get there. It will take in personal failures, successes, dawning realisations and being me.

**Hannah Mary Goodlad, Equinor**

***The Transition Zone***

Hannah Mary Goodlad grew up on a family run salmon farm in the remote Shetland Islands, which led to her developing a strong passion for nature and harnessing the energy from the oceans. After securing a Geology degree from the University of Glasgow, she went on to gain a petroleum geology masters from Imperial College, London. Equinor snapped her up as one of their young graduates and she went to Oslo to work on the subsurface development of the giant UK oilfield, Mariner. After a few years in the subsurface world, Hannah Mary had the opportunity to transition into the “New Energy Solutions” unit of Equinor. Hannah Mary's change in role took her down to London and away from Geology. She now spends her time as an asset manager developing new offshore wind projects internationally. Hannah Mary's ambition is to play whatever part she can in helping to move Equinor towards more sustainable energy solutions for the planet. The world demands more energy, but less carbon – she believes this is an exciting dilemma to solve!

**Dr Anjana Khatwa, Earth Scientist and Presenter**

***How to talk about rocks and influence people***

Geology and the Earth Sciences are a hard sell; unless of course you know the tricks for how to make them come to life. Over the course of fifteen years, I have developed award winning learning content for the Jurassic Coast World Heritage Site and enthusiastically broadcast stories about the subject as a TV presenter and YouTuber. It's not an easy task, as many of the concepts that make this science beautifully unique need to be created in the depths of your imagination. A great part of successful science communication is to tap into that initial sense of awe and wonder and nurture it, so your audience feels as passionately as you do about your subject. Fossils, rocks and landscapes all have hidden stories that are patiently waiting to be heard. Now, as we are in the midst of a Climate Change Emergency, their stories are more relevant than they have ever been as we hope to learn from the ancient past about how to approach an uncertain future.

**Laura Hoath, Wardell Armstrong LLP**

***Soil, Asbestos and Contaminated Land – the Diversity of Environmental Sciences.***

I have been working in Environmental Consultancy for 2 and a half years. During this time I have worked on a large exciting variety of projects ranging from asbestos forests and more. In my talk I will take you through some of the interesting things you can get into from studying Earth Sciences.

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**Please make your choices of Q and A panels, workshops and virtual fieldtrips on the attached booking form**