

# Terri Freemantle

## Senior Earth Observation Specialist

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**Job title:** Senior Earth Observation Specialist

**Organisation:** Satellite Applications Catapult

**Location:** Harwell, Oxfordshire, UK

### How did you get to where you are now?

I have A Levels in Geography, Law and Photography and completed an Environmental Geography degree at University College London, before doing a Masters in Remote Sensing.

After graduating, I undertook a nine month internship at the Institute of Zoology, Zoological Society of London where I worked as an EO/GIS Analyst researching how Earth Observation can support conservation. During my time here I published two papers –

- Advanced Land Observing Satellite Phased Array Type L-Band SAR (ALOS PALSAR) to Inform the Conservation of Mangroves: Sundarbans as a Case Study
- Earth Observation: overlooked potential to support species reintroduction programmes

After this I worked as a self-employed EO/GIS consultant for various organisations including Arup and ICOS/The Mercator Fund, before I began work at the Satellite Applications Catapult in 2014 where I have worked now for over five years as a Senior Earth Observation Specialist.

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### Was there anything particularly useful that helped you get into this role?

The internship with ZSL, greatly helped future employment opportunities and grew my technical skills in independent research.

Since then I have undertaken several advanced training courses in Remote Sensing which has helped me keep my knowledge up to date and relevant – which is critical for my present role. In my present job I also have a Career Mentor who I meet regularly to discuss things like skills, challenges, ways to improve current working, how to deal with conflict etc. I would recommend a mentor as it's a helpful and informal way to get feedback on career progress and aspirations from someone who has more experience in the field. My mentor and I also advocate for the Women In Geospatial network, which is a fantastic way to engage with like minded people in the geospatial community.

### What do you do as part of your role?

My job has several components, a combination of management and technical work - no two days are the same! I oversee a number of projects, providing technical governance, meaning that I am responsible for the geospatial component of these projects, this includes reviewing work before it is submitted for accuracy and managing budgets and resource.

I undertake technical work in Earth Observation, remote sensing and GIS. This can include handling and processing optical and radar satellite data, using image analysis software and computer programming. My main interest is using Earth Observation to help fulfil the Sustainable Development Agenda, by facilitating access to low cost, frequent operational monitoring of Earth systems processes, such as management of water resources, change in land cover (e.g. deforestation) and climate and disaster risk resilience, amongst many others.

I work collaboratively with other teams to

complete funding proposals, scope out potential projects, and design technical solutions that deliver against specific user requirements. We operate a user driven approach to ensure that solutions and products we build are fit for purpose, so regularly get involved with User Requirement workshops, which involve translating a user need into a technical solution which meets that need.

### **What skills and characteristics do you need for this role, apart from geographical knowledge?**

My present role is very diverse and as such requires a diverse set of skills. I undertake technical governance on projects and frequently engage in outreach programmes such as STEM, in addition to conference participation (chairing, speaking). Therefore excellent written and oral communication and team leadership skills are required, however as is the ability to work independently when needed.

Design and creativity skills are also beneficial when generating visually pleasing materials, whether it be generating maps or EO imagery for publication.

My job can often be high pressure and involves juggling numerous different tasks and projects simultaneously, so the ability to self-manage work load and switch between tasks quickly is a critical skill. As part of this, recognising when you need support is also important, so that any issues can be escalated and dealt with in the appropriate manner.

Technically speaking, good coding skills are important for a role in Earth Observation. The industry is increasingly using open source tools and software, so knowledge in both commercial and open source programming languages, image analysis and GIS analysis software is a must.

### **How does geography feature in your work/ what difference does it make?**

Geography defines my job. Earth Observation is underpinned by location data, whether it be vector based GIS data, or raster-based satellite imagery. Our ability to observe the Earth's surface can give us insight into all manner of geographical, geological, demographic, or even political, phenomena. For example, imagery

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collected at night can help map global population, whereas looking at imagery collected at two different times can inform on how an area has developed or been damaged, such as from urbanisation or deforestation.

### **What do you enjoy most about your job?**

I love the fact we use data and technology to find solutions to real world problems. My work focuses on the application of space data and technology to geographical problems, such as climate change resilience, disaster risk reduction, managing food security and monitoring infrastructure, to name a few.

### **What are the opportunities for career progression?**

Career progression in the field of Earth Observation has the potential to be diverse. There are many start-up companies working with EO data so starting your own business is very possible, as is working for a national space agency, such as the UK Space Agency or the European Space Agency (ESA) in policy, governance, management and technical research roles.

### **What advice would you give to someone wanting to go in to this career?**

Educationally speaking, I would recommend qualifications in geography, physics, maths, and computer science at A Level. At degree level, the best degrees would be geography, computer science, maths or physics. Outside this read a lot, learn a lot about your surroundings, learn how to question and critically evaluate problems. However, most importantly, do what you enjoy!

### **Why did you choose geography? Why should others choose geography?**

I chose to take geography because I have always had a natural curiosity about the world around us, how it changes and how it interacts as a complete system. I also love maps and have a keen interest in photography, therefore when I discovered at university that I could combine my interest in photography with a geographical application, I decided to take an MSc in Remote Sensing to combine my two favourite subject areas, by using cameras in space!