Challenging students' perceptions in seismic interpretation

The EAGE Student Lecture Tour for 2015-2016 is ready to roll in the Asia Pacific region. Dr Gaynor Paton of UK geoscience software company ffA will travel the region with her lecture on 'Colour Perception and its Role in Seismic Interpretation: a Geological Expression Story'. EAGE talked to Dr Paton to find out more about this new student lecture.

Dr Gaynor Paton will talk about colour.

Tell us about your career and how it started?

My career started at the University of Aberdeen studying for a BSc and PhD in neurophysiology, I was investigating synaptic transmission in the pathways of the brain that are involved in learning and memory. However, I soon realised that research was not what I wanted to do, so after my PhD and a two-year stint in a completely different industry, I joined ffA and began working with seismic data. My first job involved using image processing techniques to help see geological features in seismic data. This was when attribute analysis was largely unheard of and very rarely used. Since then my role has expanded and the use of attributes and more advanced seismic analysis techniques has become standard practice in the industry. This has enabled me to be involved in pushing the boundaries of seismic interpretation, and to be part of the development of tools and workflows that enable us to reveal and understand the geology in the subsurface at a much higher level, all from seismic data. So it took me three attempts to find a job and a career that I enjoyed, but even now I find myself applying the skills I learnt in different industries to what I do in my current role.

What prompted you to take on an EAGE Student Lecture Tour?

At the end of my time at university I felt that my path had already been defined by the subjects I had studied. I want to show students that there are many options out there, both between different disciplines and within the area being studied. I will show students the latest approach to seismic interpretation, one that they may not be aware of, and I hope to highlight that their careers can now go down many different paths, many of which they don't yet know about. University gives you the tools you need to start your career, learning never stops, and having a successful career is all about learning new things and adapting to changes around you. I want to show students how looking at something from a different angle can yield positive and unexpected results.

What can students expect to learn from your lecture?

Students will learn not to trust what they see and to question their assumptions. But I hope they will also learn to have an open mind, to analyse what they are looking at, and learn techniques to help them understand when to trust what they see. My talk will be covering how perception, context and association can influence the decisions we make when we are interpreting seismic data. I will also be showing how using a data-driven, interpreter-guided workflow can give us both an objective analysis of the data and can incorporate a priori knowledge such as analogues and context.

What do you expect from your student audience?

I expect the audience to be active participants in the lecture, to give me opinions on the questions I challenge them with, and take part in the experiments I plan to run. I hope they arrive with an open mind and an interest in understanding how our intrinsic neuronal processes can influence our thoughts and decisions, no matter what industry we are in.

In your view, what has been the most important technological breakthrough in the past 10 years?

The developments in computing technology over the last 10 years have enabled us to run ever more sophisticated algorithms on large datasets in minutes. What was a 12-hour process 10 years ago can now be run in 10 seconds, meaning that seismic analysis and geological expression workflows can be run in an interactive manner. This means that our decision making process is much quicker and our understanding of the data and the geology grows rapidly. The advancement in computing technology has been an enabler, allowing creativity in algorithm and software design so that we can get substantially more information out of our seismic (or other) data sets.

What inspires you to serve the geoscience student community in the Asia Pacific region?

I am involved with our offices in Kuala Lumpur and Perth and regularly see the challenges faced by E&P companies operating in the area. Today's students are tomorrow's scientists. I strongly believe that if you learn different techniques early on in your career you become a more effective professional. I want to help the students who will be working in this region to be better equipped for the challenges they will face.

Is your lecture accessible for geoscience students from all disciplines?

Absolutely. I will be using real seismic case studies to illustrate the concepts and workflows that I will be talking about, but there is nothing heavy or complex about what I will be presenting.

A lot of the lecture will be about perception and how we make sense of what we see, linked in with data comparison techniques, both of which apply to any industry and any form of data.

What is the most important point you want students to remember, after they have attended your lecture?

I would like students to leave the lecture with an understanding that an integrated approach which combines objective data analysis with subjective factors such as experience and context is the best way of getting a complete understanding of the system being investigated. I would also like students to leave the lecture understanding the importance of questioning everything, including the colourbars they use to display data.

Online Geo-Quiz winners set for Madrid showdown

The 2014 Geo-Quiz in action.

In early March EAGE's legendary Online Geo-Quiz was held for EAGE Student Chapters with the prize of three travel grants to contest the final at EAGE Madrid 2015. This was a big deal for the chapters and with the growing number of chapters, the competition was tough. EAGE congratulates the three winning teams: 1) Dalhousie University, Canada, 2) Heriot-Watt University, UK, 3) Student Geoscientific Society Berlin & Potsdam, Germany.

Each of these teams received travel grants for three Student Chapter members to compete in the Global EAGE Geo-Quiz that will be held on 2 June in the Student Court.

Students tell the story of their success so far

Dalhousie University

Founded in the fall of 2014, the Dalhousie University Student chapter of the EAGE was streamlined by Dr Grant Wach of the Basin and Reservoir laboratory within Dalhousie's Earth Sciences Department. Dr Wach encouraged students to get involved in the opportunities that the EAGE offered at the graduate and undergraduate levels. Acting as chapter president, third year undergraduate student Philip Sedore quickly expanded the membership to 18 students ranging from graduate to undergraduate enrolment.

After the success of the chapter's submission to the Fully Integrated Evaluation and Development (FIELD) Challenge, the remaining members of our student chapter were determined to bring an additional three members of our group to the EAGE conference taking place in Madrid this June. With only 30 minutes to complete 20 skill-testing questions dealing with a vast array of geological topics, our team came together and answered 18 of a total 20 possible questions resulting in a first-place finish worldwide out of all participating student chapters.

With six students making the trip over to Madrid in June, we are understandably excited to take part in this global event. With a chance to network and learn from industry professionals, student attendees are enthusiastic that the conference will be a great opportunity to expand our knowledge base as well as our positions within a global community of geoscientists and engineers.

Student Chapter members of Dalhousie University will be put through their mental paces.