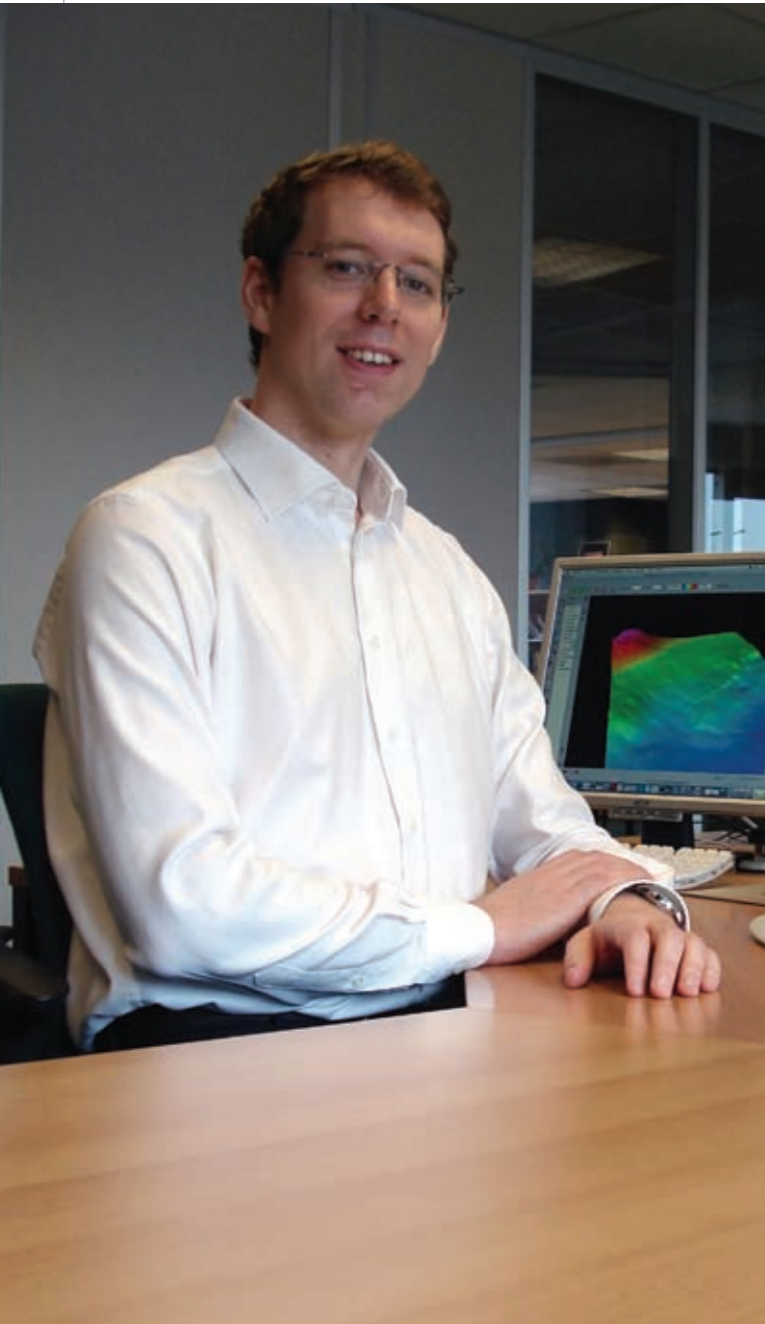


Life as a geoscientist

Geert de Bruin, senior geoscientist with dGB Earth Sciences, describes his responsibilities and some typical working days. dGB is a seismic interpretation software and services company based in Enschede, The Netherlands.



“How do you pronounce your name again?” My client asks me after I hand him my business card. “Kirt de Brew’in?” I joke that my name was meant to scare-off wild animals and then try to teach him the Dutch gargling G and rolling R sounds. You could almost say that the number of ways “Geert de Bruin” is pronounced is just as varied as my job and the trips I make with dGB.

Being a senior geoscientist includes multiple jobs. I am team leader of the qualitative seismic interpretation group, project leader for sequence stratigraphic software development, a consultant, a sales representative, teacher, and graphic designer.

Today I am a consultant, and after I have been introduced to several of my client's colleagues, we sit behind a workstation and bring-up his seismic data. I immediately see that this dataset is very different from the dataset I worked on last week at a previous consultancy. This is not surprising, because the dataset is from a different continent. While I scan the data with my eyes, he explains the general geology and the particular problems his company faces. dGB has earned a good reputation for being at the forefront of seismic software solutions, and therefore we usually are called in when conventional methods fail. Today is no exception. The data was not willing to give up its prize easily, and I am here to prove that there is more to be extracted when you apply cutting-edge technology.

As a consultant I help international oil companies with their interpretation of seismic data using dGB proprietary software. In general, these consultancy jobs are challenging because, like a box of chocolates, you never know what you are going to get. It is always a surprise

what the data quality will be, where the data comes from (especially when visiting the headquarters of multinational companies), what the quality of the hardware is and the varied geological challenges. These many unknown factors make it almost impossible to prepare in advance for a consultancy project. On top of this, there is always a limited amount of time to get the job done, so I need to be decisive, knowledgeable of dGB and other software, and have a good understanding of geophysics and regional geology from around the world.

We set-off by improving the quality of the seismic data through the use of special filters. “That looks a lot better” My client says enthusiastically. “This will improve all further analysis!” We are using the dGB flagship Opendtect software, unique in the industry because it is Open Source (i.e. not protected by any licensing), so it can be extended at run-time with commercial (closed-source) plugins. At the end of the day we have managed to produce an improved seismic volume and while we start the calculation of a SteeringCube (a seismic dip cube) that will run on the computer overnight, I am invited to go to dinner with several of his colleagues.

My work takes me all over the world. dGB has clients on all continents except Antarctica. On average, I make about one trip per month, sometimes two. Most visits are to Europe, North America and Asia, and they include many interesting places that I wouldn't be able to visit easily myself, such as Iran and Saudi Arabia. Travelling is one of my hobbies, so I always try to visit interesting places when I have the opportunity, especially during weekends. I like to explore the local culture and landscapes.

“So, today we are doing the sequence stratigraphic analysis!?” my client asks the next morning and, since this is one of my specialties, I am eager to show what it can do. When I show the results my client remarks “This reveals lot of new aspects I haven't seen” and before I know it the results are printed on a big plotter and several colleagues gather around to see them.

Our “Sequence Stratigraphic Interpretation System” (SSIS) is a truly unique tool. It is well known that the era of easy-to find structural traps is almost over and that we

need to direct our attention to stratigraphic traps. Seismic sequence stratigraphy has proved to have a great predictive potential, but so far only dGB Earth Sciences has brought a seismic stratigraphic software package to the market. As project leader of the seismic sequence stratigraphic software development, I steer the developers, design algorithms and workflows, keep contact with industry sponsors and train new users in the use of the software. Furthermore, I am a “power-user” of the software since I use it every day for project and consultancy jobs. I am also involved in research to optimize workflows and add new functionalities. I work together with MSc. Students that do research for their thesis at dGB. These students help to get a “proof of concept” of my ideas before these ideas are programmed by our developers. Students also help to test new workflows before they are released. When the research yields interesting results I write articles for magazines such as First Break and give presentations at conferences.

After we have used the sequence stratigraphy software, we continue the next day by applying another unique tool that pinpoints hydrocarbon-related fluid contacts. My client and I are developing a clear understanding of the data, and he asks me if I will give a presentation at the end of the week.

Since I am a power-user of the dGB software, I regularly visit potential customers to give presentations. Since the background of the potential customers is always different, these presentations can be very different; from overcrowded presentation rooms in developing countries to one-on-one contact with a fellow geoscientist. Conferences and exhibitions are another opportunity to meet potential customers. Every year I visit the AAPG convention and the EAGE conference and exhibition to keep in contact with customers, meet new customers, and keep up with developments in the industry.

The week after my consultancy I am back in the Enschede office. I start with an informal meeting with my boss, Paul de Groot, president & CEO of the company, to keep him informed about my work and to hear about the developments of the last weeks. Immediately after that, I have a meeting with my team.

dGB has two main departments: Software Development and Case Study. The case study department conducts studies on behalf of oil companies. In most cases these companies turn to dGB when they cannot extract the information they want from seismic data using conventional geophysical or geological techniques. This means that we get to work on challenging datasets from around the globe, which requires flexible and adaptive approaches, integrating various disciplines, going off the beaten track, while using the newest tools and techniques. The case study department is subdivided into two groups. The Quantitative seismic interpretation group works on seismic inversion and rock property predictions such as acoustic impedance and porosity. The Qualitative seismic interpretation group, for which I am responsible, conducts projects that cover seismic facies analysis, object detection, chimney interpretation, fault seal analysis and sequence stratigraphic interpretation. Since these projects are often very challenging, it is essential to work closely with my colleagues, drive them for optimal results, and at the same time leave them the freedom to explore alternative workflows. We often explore workflows that

At dGB, I am part of a small, international and dedicated team of geoscientists and IT specialists. We hold individual contributions in high regard, which means that I have a lot of freedom in my work. Of course, I get particular assignments for which I am responsible, but how I do it is completely up to me. This freedom is also reflected in how I became the 'SSIS project leader'. Since I was interested in sequence stratigraphy, I became more and more involved in the development project. In the end I became the specialist and was appointed project leader. Other colleagues have similar positions in other fields such as reservoir characterisation, attribute and neural network analysis, and fluid migration. I am in close contact with these specialists in my office as well as in our offices in Houston and Mumbai. Very often the first thing I do in the morning is to 'Skype' a colleague in Mumbai and at the end of the day, Skype the Houston office. When my boss and colleagues at dGB discovered that I was creative and could work with photo-editing software and drawing packages, I also became responsible for the graphics that are used for company posters, brochures, articles and website design.

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are not in the original proposal. What counts is that we add value to the data and our customers are happy.

My colleagues brief me on their progress during the previous week. The project they are working on is advancing well, but we are still missing some crucial information. As team leader I make sure that the project is on track, divide the workload equally, and decide what has the highest priority. After the meeting I call the client to update him about progress and to ask for the missing well log. The next morning I welcome the attendees of a three day general training course in our office to a varied group of customers from different oil companies.

I give training courses in the use of dGB software both in our own offices and at client's offices. I also co-author the manuals that are used during training courses. The level of attendees can vary from beginners to world-experts, posing different challenges. With beginners, I need to give a lot of background on science or even teach general geophysics. With experts, I can expect a lot of in-depth questions and to cover more advanced workflows.

At the end of the first day of the training course, the attendees are slightly overwhelmed by the amount of information, so I invite them for some refreshing drinks and dinner later that evening.

My fascination with geology started at a very young age. While digging in my parents' garden I discovered that the earth was not homogenous and I could not help wondering why there were clearly-defined layers. As an adolescent I started to explore mountains and I wanted to understand how they were formed and why they all looked so different. Halfway through high school I already knew that I wanted to study Earth Sciences. I studied geology at the Free University in Amsterdam, where I specialized in carbonate geology and sedimentology. After university I started working for dGB. Since dGB is a very specialized company I learned a lot 'on the job', first as a team member in the case study department, and over the years I became the senior geoscientist that I am today.

As project leader of SSIS I have been in the fortunate position to have worked on an exciting new technology. This has led to several papers and presentations on workflows and applications. My next ambition is to pursue a Ph.D. whilst continuing my job as senior geologist / project leader of SSIS at dGB. This will only be possible if I can find a paid project with a suitable dataset that I am allowed to use in my research. In my opinion this can be a real "win-win-win" situation: dGB wins because it gets a paid project; the client wins because, in addition to the "normal" project results, they get free research under scientific scrutiny and I get my Ph.D.