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news

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Reading the Rocks

guest editorial

Geo-Sports: Earth-science outreach to an unsuspecting audience

Like most of you, we love talking about Earth Science. For Marjolein, growing up in South Africa was instrumental to fuelling interest in geosciences, predominantly geology. It wasn't just some abstract concept we learned about in school. Every holiday, every picnic in Rietvlei Nature Reserve, every summer afternoon thunderstorm generated constant awe of the natural world and what makes it tick. For Douwe, growing up in the Netherlands

Marjolein Naudé



was the opposite: Earth was something from a school book, as all that was surrounding him was flatland, water, and fields. And one rock quarry to satisfy curiosity. But for both of us, the chances for learning about the workings and history of Earth were limited. Apart from its role in the mining and oil industry, we mostly got confused looks from classmates, family and friends when we told them we were going to study Earth Science.



Douwe van Hinsbergen

After so many years many of them still don't quite understand what we do for a living. Probably many of you can relate.

Of course, the age of the Bushveld Complex, the composition of Karoo basalts, or the tectonic processes that formed the Great Escarpment are not critical pieces of knowledge

to have a productive and satisfying life. But global society has started to go through some rapid changes in its drive towards a more sustainable use of Earth's surface and resources, and changes will accelerate. The reason for these changes is the growing awareness of the negative effects of human influence on climate and environment—which is for a large part coming from Earth Science research. And we as a community also play a key



role in the solutions. The change from fossil energy to alternative sources of energy, and the rapidly changing demand on mineral resources, means that knowledge of Earth processes is critical.

That knowledge is available in the community but is a black box for the vast majority of society. This means that a global process that is front and centre in most elections and in the daily news flow relies on the knowledge and understanding of a small niche group that in many countries does not have a way to spread their knowledge to a wide audience. In most countries, Earth Science plays a marginal role in primary and secondary school education. This means that citizens, voters, have little way to evaluate whether promises made, and directions chosen by politicians are sensible and are in their best interest. So, we tried something fun, to see if we could spread some basic Earth Science knowledge to an unsuspecting audience in a light-hearted way.

With the rise of visual and social media, there are now more opportunities to tell people about rocks and rivers and mountains than ever. Not just to share our love for the Earth and all her processes, but also to explain about geohazards, climate change, and the sustainable use of natural resources.



Douwe in action on the Tour de France course.

How do you share your passion and knowledge with a larger audience? How do you show the public the relevance of Earth Sciences? Building your audience around the topic would attract mostly people that are already within our little bubble of interest, so instead, we thought connecting with an already existing, very large audience might be worth a try. Like that of a popular, well-televised sport event, for example.

For us, it started with the Tour de France. Every year, tens of millions of cycling enthusiasts all over the world watch the live coverage of the Tour, and a multitude read about it. Some people are glued to their TVs or phones all day, others have it on in the background while going about their lives. Hours

and hours go by, while they wait in anticipation of some excitement to happen along the course. In the inevitable quiet sections, commentators fill the time with background information about riders, the course, local history, cuisine, art and culture, and architecture. But... hardly ever about the landscape, other than that there's a climb coming up! Every day the peloton travels through one of the most geologically and geographically diverse regions in Europe, and... nothing*.

Well, we decided to do something about that.

In 2021, during a few rainy afternoons in another Covid-lockdown, Douwe, a Professor of Geology at the University of Utrecht in the Netherlands,



wrote a series of blogs explaining geological phenomena along the stages of the Tour de France. He sent them to the Dutch TV broadcaster and the Dutch live commentators started using them. A Twitter account, @geotdf, followed in 2022 for the next round of Tour blogs, and also tweets about other races, such as the Giro d'Italia and the Vuelta à España. Interviews followed on radio, newspapers, a talk show on Dutch TV, and a website was developed: www.geo-sports.org. We developed the website into an outreach tool for the wider geoscience community and started to invite scholars the world over to contribute with blogs for Tour de France and cycling classics stages—and in return they could use these to advertise their departments to their prospective students. The focus broadened to other major sports events—the Dakar Rally, the Ocean Race. Public and media attention quickly grew.

A two-year grant was offered by the Dutch science council, from which we hired an editor: Eurosport cycling commentator and non-geologist José Been, who made sure the blogs became readable for the non-specialist, and whose efforts considerably grew our social media professionalism. To make them optimally accessible, these are (auto-) translated into nine languages of cycling-mad countries. And we bring short snippets on a myriad of social media channels: [X](#), [Facebook](#), [LinkedIn](#), [Bluesky](#), [Threads](#), [YouTube](#), [Strava](#), [Mastodon](#), [Tiktok](#) and [Instagram](#).

And the grant also allowed us to go to the Tour de France parcours with a film crew. In 2023, Mark Carpenter (a geologist-turned-documentary-maker), Marijn Zurburg (professional camera operator) and Marjolein (lecturer in Earth Sciences at the UU and experienced stage actress) joined the team. Together we began to develop short,

Marjolein in action on the Tour de France course.



2-minute clips about the geology of the Tour de France and selected spring classics, often using the blogs for inspiration. The length of 2 minutes was chosen to make the videos compatible with live broadcasts: longer, and the viewer would be away from the race too long; shorter, and we would have trouble explaining the story. For the last two years, these clips have been used in live stage coverage of and in talk shows about the Tour de France on English and Dutch television, reaching millions of viewers.

All blogs, tweets, and clips follow a similar format. We try to not get carried away too much and remember that our audience did not tune in to hear our story, but to watch sports, for leisure. So, we break into their experience by pointing something out that they see on their screen watching the race. Then we offer a story on what the phenomenon is—an orogen, a mineral, a fossil, an impact crater, a mineral deposit, a landform—how it formed, and how it may play a role in everyday life. Importantly, we try to take a role as educator, not as activist. We do not raise alarm or express political opinion, but simply explain how Earth systems operate. This way, as of this year, more than 60 blogs have been written by invited guests from all over the world. And we made a total of 30 clips that we posted on our YouTube and social media channels—see geo-sports.org for the links.

Through these communication channels, we have connected Earth Sciences with a community of sport enthusiasts, and it seems to be going well. Particularly via X (formerly known as Twitter), we enjoy an active interaction with the cycling community, including pro riders, journalists, and general enthusiasts.

The South African community, with its long history of mining, is probably more aware of Earth Science than most people on the planet, and with a large Earth Science community, the Geo-Sports platform may provide a means to educate people the world over. The Cape Town Cycling Tour provides an excuse to explain the beauties of the Cape Fold

Belt. The Sani2c mountain bike race reveals the geological, geographical, and hydrological wonders of the Great Escarpment. And even though we built the project on cycling races, any sports even that covers ground and takes hours to watch is feasible. Urban Geology during the Comrades Marathon, anyone?

Geo-Sports is an initiative by Earth Scientists, for non-Earth Scientists who didn't tune in to hear us, but who may be interested, nonetheless. Our intention is to showcase the full spectrum of geosciences, to connect science to society, highlight the importance of different research and industrial fields, and share their societal applications. Because Earth Science matters. The stories we tell matter, and we hope to provide you with a platform to show off!

Marjolein Naudé and Douwe van Hinsbergen
University of Utrecht

**Turns out there were a few initiatives by the Museum of Natural History in Paris and French Geological Survey BRGM to explain the local geology (in French), and Italian colleagues developed the GeoloGiro around the Giro d'Italia, but not speaking those languages, we were oblivious to these when we started.*

