



European Association of Geochemistry

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STARTING A DIALOGUE WITH AFRICAN GEOCHEMISTS; A NEW INITIATIVE FROM EAG AND GS



Bernhard Wehrli

"Less than half of our population has access to safe drinking water," said hydrogeologist Dr. Alfred Ranaivoarisoa, during a coffee break at the University of Antananarivo in Madagascar.

"The exploration of groundwater resources in our country is a high priority, but we cannot do much about it, because our department lacks the necessary research infrastructure."

The discrepancy of urgent research needs and inadequate tools was a recurring theme during my lecture tour in five African countries sponsored by the European Association of Geochemistry¹ (EAG) and the Geochemical Society (GS). The topics of drinking water resources, the analysis of geogenic contaminations, and low-cost methods for drinking water disinfection sparked lively discussions among the students in Earth science departments in Ethiopia, Madagascar, Cameroon, Ghana, and Kenya. In spite of much effort over the last decade, the lack of safe drinking water is still the cause of 1.6 million deaths per year, and half of these are children in sub-Saharan Africa. University scientists like Dr. Ranaivoarisoa could make a huge difference in the education of geochemistry students if they could rely on a basic research infrastructure to explore groundwater resources and to analyze drinking water quality. The enthusiastic students would love to get more hands-on experience in the field and the lab, instead of learning mainly from the blackboard.

In terms of mineral resources, Africa is a very rich continent. About one-third of the tantalum on the world market has its origin in Congo, Rwanda, Ethiopia, Mozambique, and Nigeria. The price of tantalum on the world market has dramatically increased in the last few years because the metal is used to produce high-performance capacitors. These devices are needed as local power sources in the electronic boards of mobile phones. Tantalum is obtained from columbite–tantallite (coltan) deposits, mixed niobium and tantalum oxides. These resources are exploited by artisanal miners in the northern provinces of Congo under the control of rebel groups. The miners earn only \$1.50 per day, and the export of the materials establishes the economic basis for armed conflicts. Analytical procedures are available to track the origin of such minerals and to establish certified trading chains. Again, the geochemists I met at African universities would be more than happy to take ownership of the mapping and analysis of regional mineral resources and to help improve the social and environmental performance of their national mining sector. Many bright young students are ready to learn how to make a difference.

1 Outreach Lectures are available at <http://bit.ly/17DCKTs>.



Pr. Wehrli and the members of the Earth Science Department of the University of Ghana



Corn field during drought. SOURCE: ISTOCKPHOTO

What can we do to intensify the dialogue with African geochemists?

After my series of lectures and discussions in five countries², I recommend three first steps:

- Publish more in open-access journals so that scientists in the Southern Hemisphere can read our papers too.
- Invite not only your colleagues from Stanford and Cambridge to your institute but also those from universities like Antananarivo and Addis Ababa. They can provide relevant perspectives for research priorities and potential collaborations.
- Start a lobbying effort to increase the diversity in global learned societies. At GS and EAG, this means lowering the membership fees for geochemists in low-income countries. Our multisociety journal, *Elements*, was not known among my African colleagues. We should change that.

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2 Outreach Africa websites are (EAG) <http://bit.ly/13PT493> and (GS) <http://bit.ly/11GZxnO>.