

# Chasing the elusive biogeochemical cycles of noble metals –

## A story covering six continents

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Accompany me and my team on a whirlwind tour covering six continents and more than a decade of research to understand how some of humankind's favourite metals, behave when they enter into biologically determined Earth surface systems. We will visit some of the world's most challenging sampling sites, meet people working with gold and platinum, and look at how we use advanced micro-analytical techniques, molecular biology- and modelling methods to understand the processes and drivers of biogeochemical gold and platinum cycling. Our studies have led to an understanding of how gold and platinum are mobilized, in which form they travel in the environment, which effects they have on micro- and macrobiota and even how nuggets can form. This knowledge is now used to develop applications for mineral exploration, ore processing, forensic analyses and archaeology. For example, we are developing biosensors and indicators for gold, mathematical models to predict formation of exploration halos and biotechnology for ore and e-waste processing.

