

SEISMIX 2026 – Field Trip: Wits Deep Gold Mine Field Trip

Date: Friday 9th October 2026

Leader: Led by one of the Mining Industry Experts

Time: Meet at the Wits Anglo American Digital Dome at 7am

Cost pp: R1000 per person

Min pax: 10

Max pax: 28

Google location: [Click Here](#)



Overview

Join us for a rare opportunity to visit one of the world's largest, deepest, and most technologically advanced underground gold mining operations in Southern Africa. This exclusive field excursion offers direct insight into the geology, structure, and extraction of gold from extreme depths within the renowned Witwatersrand Basin.

Located within the historic Witwatersrand goldfields southwest of Johannesburg, this deep underground mine provides access to workings approaching depths of approximately 3 km below surface. Participants will gain first-hand exposure to the operational and geological challenges associated with mining at extreme depth, where elevated stress conditions, fracturing, and complex structural deformation significantly influence both mining and geophysical imaging.

The mine is situated within the Northwestern sector of the Witwatersrand Basin, a globally significant geological formation that has produced more than one-third of all the gold ever mined. Formed between approximately 3.1 and 2.7 billion years ago, the basin hosts auriferous quartz-pebble conglomerate reefs deposited within ancient sedimentary environments. These reefs, preserved within the Witwatersrand Supergroup, represent some of the richest and most laterally extensive gold deposits on Earth.

During the excursion, participants will examine key lithologies including gold-bearing conglomerates, quartzites, and shale units, and observe structural features such as faulting, fracturing, and stress-induced deformation. The visit will also provide insight into modern deep-level mining methods, rock engineering strategies, and the integration of geological and geophysical data in guiding safe and efficient extraction.

Itinerary

TIME	DESCRIPTION	ACTIVITY
07:00	Departure from Witwatersrand Anglo American Digital Dome	Coffee and light refreshments available prior to departure
08:30–10:00	Arrival at deep underground gold mining operation	Site check-in, visitor registration, and mandatory safety induction
10:00–13:30	Underground excursion – Part 1	Guided underground visit to active mining levels, including observation of geological units, structural features, and mining infrastructure
13:30–14:00	Break	Light snack and rest period
14:15–16:00	Underground excursion – Part 2	Continued underground tour, with focus on rock mass behaviour, structural controls on mineralisation, and operational considerations at extreme depth
16:15	Departure for Johannesburg	Return transport to Witwatersrand Anglo American Digital Dome



Take-home lessons:

This field trip reinforces the fundamental principle that effective seismic interpretation requires a strong understanding of the geological environment being imaged.

Delegates will gain an appreciation for how increasing burial depth affects rock properties, stress regimes, and fracture development, and how these factors influence seismic wave propagation, velocity structure, and reflectivity. Participants will also develop a clearer understanding of the relationship between geological structure and seismic response, particularly in highly stressed and fractured environments typical of deep crustal settings. The excursion highlights the importance of integrating geological observations with seismic data to improve interpretation confidence and reduce uncertainty in subsurface imaging, especially in structurally complex and high-stress environments.

What to bring:

- Comfortable walking shoes
- Water – enough for a full day out
- Hat and sunblock
- Personal field clothing suitable for underground conditions
- All required safety equipment will be provided on site following the safety induction.

What's included:

- Transfer from the Wits Anglo Dome to the mine and return.
- Coffee and biscuits will be provided at the morning pickup point before departure.
- A lunch pack will be provided with a juice and fruit.

