

# 35<sup>TH</sup> INTERNATIONAL GEOLOGICAL CONGRESS

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## POST 6

# Archean Stromatolites and their Depositional Environments

**Field Trip Leader: Prof. Wladyslaw Altermann and Ms. Vusani V Mathada  
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The excursion will start from Johannesburg ORT Airport and will drive to the Wit Mfolozi, Pongola Supergroup (3.2-2.9 Ga) carbonate deposits with stromatolites, returning to Johannesburg for an onward flight to Kimberley. From Kimberley the trip will visit Neoproterozoic stromatolites in the Griqualand West region, including the Ventersdorp and Transvaal Supergroup stromatolites, returning to Kimberley airport where the excursion will end.

Archean stromatolites are archives of the earliest life on Earth. South Africa possesses the best examples of Archean stromatolites. These examples include the Wit Mfolozi carbonate platform of the Pongola Supergroup and the spectacular, world's largest Neoproterozoic giant stromatolite platform of the Transvaal Supergroup, including the superlative outcrops of the Boetsap waterfalls. These famous outcrops will be visited during this excursion.

A visit to the world famous Kimberly Big Hole Diamond Mine and Museum will be possible on a private basis, as well as visits to the spectacular Galagadi (Kalahari) National Park, Augrabis Falls at Orange River, one of world's largest waterfall, when in flood season.

Difficulty grade: moderate walking of no more than 5 km in an easy bush terrain but occasional farm fence climbing is required. Overnight accommodation in simple guesthouses, farms and hotels.

**Field Trip Leader: Prof. Wladyslaw Altermann and Ms. Vusani V. Mathada**

**Start: Johannesburg**

**End: Kimberley**

**Dates: 8 days, Sunday 4th to Sunday 11th September 2016**

## ITINERARY

### **Day 1:** Sunday, 4 September 2015

Meet at Oliver Tambo International Airport, at 12.00h. Thereafter 5 hours drive to Vryheid (390 km). Check in Hotel.

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: The Oxford Lodge ( in Vryheid ) or similar on a bed and breakfast basis**

### **Day 2:** Monday, 5 September 2015

**08.00h:** Drive towards, Wit Mfolozi bridge on R34 (South), c. 70 km (1hour). Walk down the Wit Mfolozi River viewing of the famous Pongola – Wit Mfolozi carbonate platform with stromatolites and clastic carbonates, discussion of section, environment and age (based on tuff layers and zircon dating) and of neighbouring siliciclastic facies rocks. Return to Vryheid in late afternoon.

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: The Oxford Lodge ( in Vryheid ) or similar on a bed and breakfast basis**

### **Day 3:** Tuesday, 6 September 2015

**08.00h:** Drive back to ORT Airport and take a flight to Kimberley, c. 390 km, overnight in Kimberley. Check in Hotel

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: Protea Hotel Kimberley on a bed and breakfast basis**

**Day 4: Wednesday, 7 September 2015**

**07.00h:** Drive from Kimberley to Omdraaisvlei, c. 250 km. 10.00-12.00h-visit of the Omdraaisvlei (Khoi San Farm) stromatolites in tuffaceous facies (T'kuip, outcrops, Ventersdorp Supergroup, c. 2.74 Ga). 13.00h – 16.00h visit of the Ventersdorp, >2.74 Ga raindrop imprints. 17.00-18.00h drive to Prieska, (65 km)

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: Riverview Lodge or similar on a bed and breakfast basis ( in Prieska )**

**Day 5: Thursday, 8 September 2015**

**08.00h:** Drive from Prieska to Soetvlei (towards Britstown to SE, c. 40km onto Soetvlei Farm), visit of stromatolites (“Prieska facies”, lower Transvaal Supergroup). Cyclic stromatolitic lithostromes and lithoherms, carbonate “crusts”, herringbone calcites and fan-shaped build-ups (2.55 Ga), discussion of diagenesis versus precipitation on the sea floor.

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: Riverview Lodge or similar on a bed and breakfast basis ( in Prieska )**

**Day 6: Friday, 9 September 2015**

**08.00h:** Stromatolites of the “Prieska facies” at Prieska (Ghaap Plateau Dolomite Formation, Transvaal Supergroup, 2.56 -2.50 Ga. Discussion deep versus shallow deposition, tidal flats? Glimpse on carbonate – BIF transition drowning of carbonate platform. Evening return to Kimberley (c. 250 km).

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: Protea Hotel Kimberley or similar on a bed and breakfast basis**

**Day 7: Saturday, 10 September 2015**

**07.00h:** Drive from Kimberley to Boetsap (c. 110 km). Famous Boetsap stromatolite section, with various giant stromatolites and different columnar and laminated stromatolitic lithohermes and litostromes (dry but long walk, not difficult)

In the evening return to Kimberley.

**Lunch (excluding beverages)**

**Dinner (excluding beverages)**

**Overnight: Protea Hotel Kimberley or similar on a bed and breakfast basis**

**Day 8: Sunday, 11 September 2015**

**07.00h:** After breakfast, possibility to visit the famous Big Hole Diamond Museum. Drive to Kimberley airport and official end of excursion. Departure flight to Oliver Tambo, Johannesburg

**COST INCLUDES:**

- 2 nights' accommodation at The Oxford Lodge ( in Vryheid) or similar on a BB basis
- 1 night accommodation at Protea Hotel Kimberley similar on a BB basis
- 2 nights' accommodation at River View Lodge or similar on a BB basis
- 2 night's accommodation at Protea Hotel Kimberley similar on a BB basis
- 7 x lunch (excluding beverages)
- 7 x dinner (excluding beverages)
- 2 litres of water per person per day
- Transport in private touring vehicle
- Local English speaking driver on all transfers
- Driver meals & accommodation where necessary
- Vehicle E-toll fees and Toll fees
- Johannesburg – Kimberly Flight
- Kimberly – Johannesburg Flight

**COST EXCLUDES:**

- All other accommodation
- Entrance fees, conservation fees and park fees en-route
- All other meals
- All other transport
- All sightseeing
- Personal expenses such as tips for meals, gratuities for driver, all alcoholic and other beverages, telephone calls and laundry, etc...
- Any other services not mentioned above