**Oman Drilling Project – BA4A – Lead Scientist On-Site Log (LSOS).**

**14th February 2018 to 28th February 2018**

This is an electronic version of the blue on-site logbook.

**BA4 22.88501ºN, 58.69505ºE, Altitude 596 m**

Hole BA4A. Vertical hole

***Overview***

**DAILY UPDATES**

**14th February 2018, Wednesday**

**On-site: NW, JC, BJ, DJ, TH, MJ Rest of Geoteam arrived 09:40 (LR, DK, CA, BC)**

**Microbio: DN, CG**

**Trainees: Yousuf & Ibrahim (will arrive at 10:30)**

**LSOS: Jude Coggon**

Arrived on site: 08:10

Rig started:

Rotation started:

Summary of the day:

09:51 Spud in BA4A

Casing set to 6 m at end of day = 5.7 mbgl

15:38 – last core of day - Drillers stopped to allow science teams to catch up!

Weathering profile from surface to 23.7 m.

Top 5 meter is brown (Fe-hydroxide) and pervasively weathered. At the bottom of core 4Z at ca. 8 m domains of dark (fresh?) harzburgite can be observed. Down to ca. 10 m carbonate veins are common. Rare below that level. Fracture controlled weathering can be observed to the deepest parts (20 m +) in a gradual transition from completely weathered to unweathered harzburgite. Unweathered rocks i.e. no weathering around faults are yet to be observed (tomorrow?).

**15th February 2018, Thursday**

**On-site: NW, JC, LR, BJ, TH, MJ, DJ, DK, CA**

**Microbio: EB, DN, CG**

**Trainees: Ibrahim ~~& Yousuf~~ (No show)**

**LSOS: Jude Coggon**

Arrived on site: 07:20

Rig started:

Rotation started: already started

Summary of the day:

11Z4 22-26 cm bonus TS to sample pegmatitic dyke

Extending casing [after 13Z on deck at 09:00] to 30 m due to extreme water loss at 29.70 – 30.00 m.

15:15 Still extending casing (at ~18 m at 14:30). Mansoor does not expect to recover more core today. DJ, LR, CA, DK and Ibrahim went up the wadi to look at the geology. MBio team an Bjørn back to Ibra and Lulus. JC + TH onsite, JC packing up, TH looking at DIS and entering images etc.

End of day, total casing = 24 m (22.60 mbgl). Will continue on Saturday

**17th February 2018, Saturday**

**On-site: NW, JC, LR, TH, MJ, DJ, DK**

**Microbio: EB, DN, CG**

**Trainees: Dawood and Suliman (MRMWR)**

**LSOS: Jude Coggon**

Arrived on site: 07:20

Rig started:

Rotation started: already started

Summary of the day:

Advancing casing

Morning was spent re-drilling a vertical hole for the casing (material saved starting around depth of core 9Z-4) because the original hole started going in a slightly oblique direction.

Needed to extend casing to ~30 m due to loss of circulation yesterday. Casing stuck at depth (from drillers) of 28.20 m. POOH and emptied rock out of casing = core 14M, 100 mm diameter, so not possible to box this material that was “cored” by the shoe bit and casing due to deviation (probably of both the original and cased holes). However, we *were* able to reconstruct almost all of it into a single piece, and match up a gabbro dyke (12 cm thick) with the same feature in 9Z-4. Hence could constrain drilled depth (top of 10Z = 23.70 m) and by extrapolation, top depth of core 14M.

JC made decision to give this core, which geo team cannot store/ship, to Bio team. Cannot be whole-round scanned due to crescent-shaped cross-section, so curated into DIS as a single section. Bio team bagged up entire core after recovered length and tablet photos taken.

NB. DIS does not allow sample interval >180 cm, so entered samples in m instead…

Subsequent M cores are HQ size. Missing material is puzzling.

NB. Discovered today that Microbio sample 12Z-3 (entire section) scan was overwritten on Thursday with a subsequent scan so no file exists. We do have tablet photos and Bio team also have photos.

14:00 casing depth = 32.60 mbgl

[resumed coring]

**18th February 2018, Sunday**

**On-site: NW, JC, LR, TH, MJ, DJ, DK, WB**

**Microbio: EB, DN, CG**

**Trainees: Dawood and Suliman (MRMWR)**

**LSOS: Jude Coggon**

Arrived on site: 07:15

Rig started:

Rotation started: already started

Summary of the day:

Great bounty of mantle rocks transitioning from mainly dunitic to mainly harzburgitic. A variety of gabbroic intrusions and some clinopyroxenite are developed within this succession. Intrusions range from simple veins with sharp contacts to irregular, of trocktolitic domains that grade into the host peridotite.

Degrees of serpentinization appear high throughout. Different generations of black, green and white serpentinite veins. Rare carbonate veins.

**19th February 2018, Monday**

**On-site: NW, JC, LR, MJ, DJ, DK, WB**

**Microbio: EB, DN, CG, JS, EK, KR**

**Trainees: Dawood and Suliman (MRMWR)**

**LSOS: Jude Coggon**

Arrived on site: 07:20

Rig started:

Rotation started: already started

Summary of the day:

10:40 Eric and John left to Ibra to exchange landcruiser for JC, then to MCT to get pick-up truck.

11:00 Dawood and Suliman left site to head back to Muscat.

100% loss of circulation since ~52 m. Noticable today as cores dirtier and stickier. Mainly dunite with some Hzbgt.

**20th February 2018, Tuesday**

**On-site: NW, JC, LR, MJ, DJ, DK, PK**

**Microbio: EB, DN, CG, JS, EK, KR**

**Trainees: Zainab, Hooriyah, Safiah (PAM)**

**LSOS: Jude Coggon / Peter Kelemen**

Arrived on site: 07:15

Rig started:

Rotation started: already started

Summary of the day:

13:30 trainees asked to be taken back to Ibra. John drove them back.

Mix of dunite and harzburgite, with 5-10% gabbro dykes and impregnations. No circulation all day but nice core. Wolfgang at home sick, PK newly arrived, sniffling; what is it with these old guys? [PK]

**21st February 2018, Wednesday**

**On-site: NW, JC, LR, MJ, DJ, DK, PK**

**Microbio: CG, JS, EK, KR**

**Trainees: Zainab, Hooriyah, Safiah (PAM)**

**LSOS: Jude Coggon / Peter Kelemen**

Arrived on site: 07:15

Rig started:

Rotation started: already started

Summary of the day:

POOH to change bit [after 64Z on deck at 15:34]. Changed bit at 16:10

16:20 started to RIH

Still mostly dunite. Started to see sulphides in core and on serpentine vein surfaces. Still many gabbroic veins, mostly highly altered.

**22nd February 2018, Thursday**

**On-site: NW, JC, LR, MJ, DJ, DK, PK, WB**

**Microbio: JS, CG, EK, KR**

**Trainees: Zainab, Hooriyah, Safiah (PAM)**

**LSOS: Jude Coggon / Peter Kelemen**

Arrived on site: 07:20

Rig started:

Rotation started: already started and almost ready to trip for first core!

Summary of the day:

Harzburgites more abundant today but section still mostly dunite. Many multi-textured gabbro veins, many altered to rhodingite. Also sulphides (pyrrhotite?), especially on vein surfaces.

My last day on site. Beautiful rocks, lovely country and wonderful people. Thanks to all!!!

Ps. Will miss the camels on road to work in France! [LR]

**24th February 2018, Saturday**

**On-site: NW, JC, PK, WB, MJ, DK, TX, ND, AA**

**Microbio: JS, CG, EK, KR**

**LSOS: Jude Coggon / Peter Kelemen**

Arrived on site: 07:20

Rig started:

Rotation started: already started

Summary of the day:

Visit today from the Geological Society of Oman who took great interest in the core scanner and drilling and a smaller group from the US embassy. Blustery and dusty, hot at the core scanner! [ND]

**25th February 2018, Sunday**

**On-site: NW, JC, WB, MJ, DK, TX, ND, AA**

**Microbio: JS, CG, EK, KR**

**Trainees: Maqbool (MRMWR) and Said (PAM)**

**LSOS: Jude Coggon**

Arrived on site: 07:25

Rig started:

Rotation started: already started

Summary of the day:

15:15 trainees left for the day

Cooler and windier than yesterday. Abundance of flies increasing? Was a great relief to ND to sleep last night [ND]

**26th February 2018, Monday**

**On-site: NW, JC, WB, MJ, DK, TX, ND, AA, WZ**

**Microbio: JS, CG, EK, KR**

**Trainees: Maqbool (MRMWR) and Said (PAM)**

**LSOS: Jude Coggon**

Arrived on site: 07:16

Rig started:

Rotation started: already started

Summary of the day:

8am Delphine went to Police Station to renew her visa. Anne Line drove her.

91Z-1 pc 1e, 81-86 cm bag blew away and sample was lost.

**27th February 2018, Tuesday**

**On-site: NW, JC, WB, MJ, DK, TX, ND, AA, WZ**

**Microbio: JS, CG, EK, KR**

**Trainees: Maqbool (MRMWR) and Said (PAM)**

**LSOS: Jude Coggon**

Arrived on site: 07:15

Rig started:

Rotation started: already started

Summary of the day:

Scanner stopped working – many solutions trued but none successful – JC drafted email to Ronald, after trying to call but getting no answer. Tool multiple images of microbio sample sections of Jude’s phone using scanner mirror and rollers then used Max’s camera for box images. Other core sections not scanned. Will scan tomorrow if scanner can be fixed overnight – suspect software problem.

**28th February 2018, Wednesday**

**On-site: NW, JC, WB, MJ, DK, TX, ND, AA, WZ**

**Microbio: JS, CG, EK, KR**

**Trainees: Maqbool (MRMWR) and Said (PAM)**

**LSOS: Jude Coggon**

Arrived on site: 07:19

Rig started:

Rotation started: already started

Summary of the day:

No news from Potsdam about scanner… will try to start as normal, otherwise continue as yesterday.

-Prescan possible, but then comms error – continued with Plan B.

09:41 Final core of OmanDP Phase II on deck! Final depth = 302.70 m

10:00 Core boxes being loaded onto flatbed lorry w/ crane.

10:50 Boxes 1 to 100 loaded and being taken to Mubailla. Final 3 boxes will be taken by pickup/ other truck.

11:00 Drillers starting to POOH

12:00 Finished POOHing

12:05 Rig ready to move after derick down!