Report on a field season to the Goboboseb Mountains of Namibia

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The physical volcanology of the quartz latite units of north-west Namibia have long been a contentious issue. Field relationships and textural evidence indicates that the QLs (Quartz Latites) have features associated with both lava flows and ignimbrites, therefore posing an enigma with respect to emplacement mechanisms. Previous work has proposed a rheoignimbrite origin in favour of a lava flow; however more definitive evidence is required. The importance of this cannot be underestimated, as it has ramifications upon our understanding of emplacements mechanisms, and environmental impacts of large volume eruptions. The Goboboseb units comprise a volume of 2320km^3, whilst the other two silicic flows consist of 6340km^3 (Springbok unit) and 3775km^3 (Grootberg unit). If indeed the Etendeka (Namibia) – Paraná (Brazil) province have been emplaced as rheoignimbrites then the explosive activity associated with the eruptives could have the energy to loft large levels of ash into the stratosphere.

I received financial assistance from the Mineralogical Society in order to help cover field costs for a 5 week field season around the Tafelkop region of the Goboboseb Mountains in Namibia. This allowed me to conduct detailed field observations and log the relationships of the QLs present as well as construct a small scale map outlining the regions of the QLs. This field season also allowed detailed sampling with 79 samples collected enabling further laboratory analysis to be conducted at Durham. This analysis includes the study of crystal populations to see if there is any difference through progressive eruptive units, fluid inclusions, and occurrence of apatite to indicate any environmental impact. This is because apatite can be used to access whether the magmas may have been sulphur rich. We also plan to try and locate any micro-scale textures within the units that may help constrain the eruptive style of these units.

Throughout the field season we have already seen some interesting features associated with the QL units. Topography filling units (*Figure 1*) which appeared to cool differently depending upon whether they where in topographic 'lows' or 'highs' where observed. Quartzite clasts were present within the units, these quartzites are presumed to have been erupted from the vent of the eruptive centre, and where found a considerable distance from the proposed source, and this is presumably evidence for a violent and sustained eruptive package. Sheared amygdales were present (*Figure 2*) and there appears to be a difference in the bipolar direction of shearing from a more east-west lineation to a distinctly north-south trend, this may reflect a change in eruptive source or a change in topography.

I would like to take this opportunity to thank the Mineralogical Society for their contribution to this project which has benefited this project immensely, already the support from this funding are apparent through the data collected, and this will ultimately help us answer the question how were the Etendeka Quartz Latites erupted? Many thanks to all at the Mineralogical Society.

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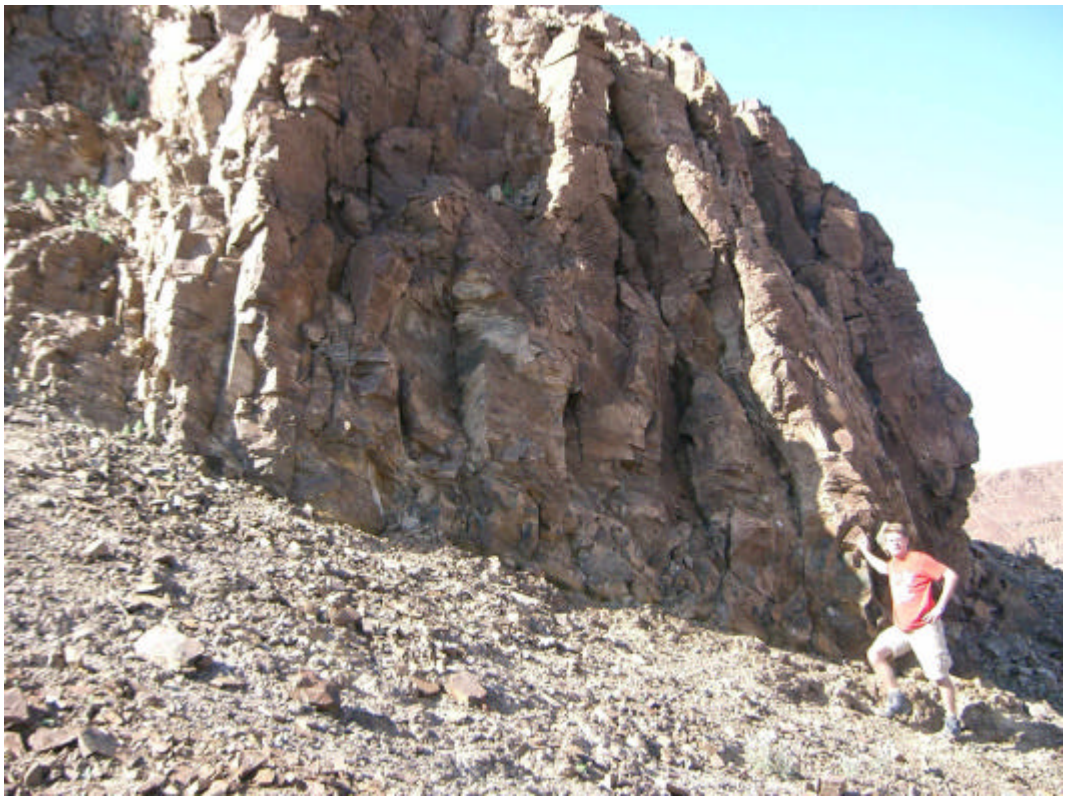

Fig. 1. Undulating nature of basal contact of the QL units with basaltic units. This appears to be a topographically controlled feature with joints possibly caused by cooling illustrating a relationship with the topography (Michael Mawby for scale)

Fig.2. Amygdale rich horizon, with Compass-Clinometer depicting a NE-SW trend present

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