The early Proterozoic (Rhyanian) greenstone belts of South America and West Africa show widespread evidence for subduction and contain rare ultramafic mafic rocks. The significance of these young greenstone belts in global models for crustal growth remains unclear. Here we studied two contrasting ultramafic complexes from the Guiana Shield in Suriname, that formed during the Trans-Amazonian Orogeny (ca. 2.18-1.95 Ga)\(^3,5\).

The Bemau Ultramafic Complex (BUC; Fig. 1, 2A) is part of the Marowijne Greenstone Belt (MGB) and is associated with partially pillowed metabasalts of the Paramaka Formation. The Borgia Hill Chromite Complex (BHCC; Fig. 1, 2B) outcrops in an isolated greenstone enclave in a large granitoid terrain further south\(^4\).

Both BUC and BHCC show plutonic cumulates and altered ultramafic schists (Fig. 3, 4).

They show variable associations (Fig. 3, 4), alteration textures (Fig. 5) & geochemistry (Fig. 6, 7).

The BUC ultramafic schists were derived from a primitive mantle source (Fig. 6C) and plot as oceanic plateau basalts (Fig. 6D). They are probably of komatiitic origin (Fig. 7).

The nature of the emplacement of the BUC and BHCC ultramafic rocks are still not understood. Are they arc related? Or did the cumulates intrude into older ultramafic rocks? What, if any, is the relation between BUC and BHCC?

**Problem statement**

**Geological setting**

- The oldest rock types in the MGB are ultramafic schists from the BUC, tholeiitic ocean-floor metabasalts\(^3\) of the Paramaka Formation (<2.16–2.14 Ga; Fig. 1) followed by maﬁc-ultramafic rocks, including the BUC cumulates.
- The BUC consists of ultramafic schists, partly serpentinitised cumulate dunites, wehrlites, clinopyroxenites, wehrlite and gabbros intercalated with cumulate textured ultramafic schists (Fig. 3, 5)\(^6,7\), intruded by TTG plutons around 2.18-2.13 Ga.
- The BHCC lies in the centre of Suriname (Fig. 28) and contains chromite bodies\(^8\) associated with talc-tremolite schists, tremolite and anthophyllite rocks, all of petrogenic origin (Fig. 3-5).

**Conclusions**

Although no spinifex textures are found in the BUC ultramafic schists, these rocks are geochemically classified as komatitic rocks with oceanic plateau basalt affinity. The protoliths of these rocks were derived from a primitive mantle source and were probably brought to surface during the first phase of the Trans Amazonian Orogeny. The cumulates are arc related rocks, which most-likely intruded during the second phase. The BHCC also show arc affinities, however with different rock associations compared to the BUC cumulates.

**References**