The Paleoproterozoic Era experienced one of the most rapid environmental change during Earth history when the earth surface environment was affected by formation of continents and increasing atmospheric oxygen levels. Early continents started divergence and collisions accompanied by major oxidation of the atmosphere-oceanic system, known as the Great Oxidation Event (GOE) (eg. Holland, 2006; Condie, 2001; Lyons et al., 2014). The nature of deep sea environments at this time is still unknown, because deep sea sequences have not been clearly identified and oceanic sediments are mostly involved in subduction. Hence, Proterozoic deep oceanic sedimentary sequences usually occur within accreted oceanic complexes. The Paleoproterozoic Birimian Greenstone Belt is a good example of an ophiolitic volcaniclastic sequence in Ghana, with depositional age of over 2.2 Ga (Petersson et al., 2016). Detail research was conducted at the southernmost part of the Ashanti (Axim-Konongo) Belt of the Birimian Greenstone Belt along the coast near Cape Three Points area. Very thick volcaniclastic and organic-rich sedimentary rocks, which we now refer to as the Cape Three Points Group, crop out in the lower part of the Birimian Greenstone Belt. Structurally, this region preserves a $S_1$ cleavage and an asymmetrical synform with west vergence and $S_0$ younging to the east. Stratigraphically, the lower portion contains thick vesicular volcaniclastic rocks probably of sub-aerial origin. The middle portion is made up of an alternation of well-laminated volcaniclastics and black shale with the upper portion dominated by much fine laminated volcaniclastics with more black shale sequence. Continuous core drilling from Dec 3-12th 2015 of the upper part of the Cape Three Points Group intersected saprolite to a depth of 30m and fresh, well preserved stratigraphy with graded bedding and lamination to a depth of 195m.

New SHRIMP age data from a porphyry intrusion into this sequence indicate an age of 2250 Ma, which is much younger than the age of sedimentation and volcanic activit. The fining-upward nature of the sequence and REE data suggest shallow to deep sea depositional conditions in an oceanic island arc setting. Preliminary carbon isotope analysis shows $\delta^{13}C = -43 \rightarrow -37\%$ for black shale of upper part of
the section with the very light isotope values suggesting euxinic condition similar to some modern environments such as the Black Sea.

References: