# PALEOMAGNETISM OF MARBLE BAR CHERT, PILBARA CRATON, WESTERN AUSTRALLIA

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We conducted preliminary Paleomagnetic study on the early Archean rocks in Pilbara Craton, Western Australia. A continuous 250 m thick section had been drilled by Archean Biosphere Drilling Project from the Towers Formation with U-Pb ages 3460 Ma (M. J. Van Kranendonk et al., 2001). Lithofacies of the drilled core are divided into Basalt/Dolerite Zone and various colored Chert Zone named Marble Bar Chert Member. Initial magnetic measurements of whole core by the pass-through cryogenic magnetometer and rock magnetic experiments of selected specimens by Vibrating Sample Magnetometer (VSM) indicated that black or red layers in the various colored Chert Zone are containing ferrimagnetic mineral (magnetite or titanomagnetite) and having strong Natural Remanence Magnetization (NRM). Through Alternative Field Demagnetization (AFD) and Thermal Demagnetization (ThD) treatments of a suite of discrete samples, we found that the remanent magnetization of the black or red layers apparently define two to three components: (1) a low coercivity (~10 mT) Viscous Remanent Magnetization (VRM) may caused by drilling process; (2) a mid-temperature (~450 DEG.C) component (only happens on one sample); (3) a high-temperature component (450 to 575 DEG.C). We interpret that the stable component isolated at high-temperature stage is primary magnetization. Directions of the primary magnetization are put on nearly opposite side of the hemisphere. This result suggests that the black/red colored Chert may preserve the geomagnetic reversal record at early Archean age. Furthermore, these rocks may have potential of suggesting the existence of the dynamo activity which is comparable to the present day.