Magnetic Field Affect on Streaming Current Measurements Flowing through the Pores of Rock Core Samples

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When liquid flowing through the pores of sedimentary rocks it will generate what it called streaming current. The measurements of streaming current can provide a crucial information on the flow behavior within the rock narrow pores and can describe the reservoir physics occurring during oil production. In this study we investigate the effect of magnetic field on the streaming current flowing through the rock pores. It's was observed that the measurements of streaming current flowing through the rock pores increased linearly as the frequency of the applied magnetic field increased. We have notes that the streaming current measurements continued to increase as the magnetic current field increased until it reached to its maximum value and then the streaming current flowing through the pores start to decrease as the frequency of the magnetic field increases. This phenomenon was due to the increased of the streaming current volume passing through the pores cross sectional area.