

Study of the electric field of the Earth

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This paper deals with the electric field of the Earth. Special attention will be paid to the core electric signal that is related to the toroidal magnetic field variation near the core surface. Runcorn (1964) proposed to try to detect such signal, which might be possible by using a long submarine cable. In 1990's, several submarine cables of old analogue system retired from telecommunications services and transferred to the science community, and long term monitoring of electric potential variations were started. Further continuation of these measurements will enable us to contribute to the knowledge of the electric field of the Earth, at least by answering the question on its detectability. So far as we use retired telecommunications cables, observation locations are restricted to the cable route only where it is available. To overcome this limitation, we are developing a new observation system which will enable us to make measurements where it is necessary.