

## **Improved algorithm for evaluation of lightning current using measured field at far distances from lightning channel**

### **ABSTRACT**

In this paper, the effect of radiation component of electric field on the total electric field at different distances with respect to lightning channel is considered. Results showed by approximating the total electric field with the radiation component at far and intermediate distances, some percentages of electric fields at different time periods will be neglected and this percentage will be higher when decreasing the distance from lightning channel. Whilst the most common inverse procedure algorithms are based on field's radiation component and the total field as input data, this paper proposed the same procedure that based on measured field with the consideration on the effect of radiation component on the total field in the calculations. The results on the prediction of channel base current illustrated that the proposed method is in very good agreement with real lightning channel base current compared to the corresponding predicted current based on existing methods.

**Keyword:** Electric field; Far distances; Inverse procedure algorithm; Lightning channel