

**Peak Current Analysis of Negative Flashes Detected by E-fast Antenna and  
BrasilDat Lightning Location System**  
TopicLightning Detection Technologies

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This work is a preliminary study about peak current from negative flashes detected by lightning location system and from e-fast antenna.

The BrasilDat network is composed by EarthNetworks Total Lightning System and detects intracloud and cloud-to-ground discharges operating in a wide frequency range (from 1Hz to 12MHz). This network provides us the whole waveform from all events detected which could be compared with waveform from e-fast field antenna.

A flat-plate antenna with bandwidth ranging from 306Hz to 1.5MHz connected to the integrator/amplifier module senses the electric field converting its variations into current. The circuit responsible for measuring the electric field of a flash output the voltage in time-varying. After the integrate/amplifier module, the signal was acquired by a computer with an interface model NI PCI-6110 from National Instruments in added a GPS interface model 170 by Meinberg company for synchronization of data. The acquisition module stores data in a microcomputer that interfaces to the user using DataViewer 1.4.

All those waveform were GPS time synchronized and could be compared in order to obtain the behavior of the radiation propagated in a different way. This work has shown us the influence of propagation in the peak current amplitude. It could be used to implement to the model to correct the propagation of the field and also evaluate the performance of the BrasilDat network.