

Lightning as a source of electricity: Atmospheric modeling of electromagnetic fields

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Abstrak

A weather- influenced Maxwell's electromagnetic model for lightning activities has been considered. Three governing equations were stated for further analysis. The charge dynamics, lightning branches and atmospheric factors were analyzed. The model was validated by analyzing ground data from the Davis-Pro weather station. The data collected was targeted for the month with the highest lightning activity. It was discovered that lightning occurs at the upper pressure level (under certain conditions that are stated in the thesis) while the low pressure level initiates an updraft, i.e. air rises and condenses into a cumulonimbus cloud. These findings present the keys to considering a lightning system as a source of alternative energy.