

Physical and chemical processes of coniferous tree ignition by ground lightning discharge research

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Keywords: *ignition, pine, ground lightning discharge, chemical reaction.*

Abstract

The present paper is devoted to simulation of coniferous tree gas-phase ignition by ground lightning discharge. Pine tree is under consideration. Oxidation of carbon monoxide by oxygen is the main chemical reaction. The problem is solved in one-dimensional statement in cylindrical system of coordinates. Parametric investigation of volt-ampere characteristics influence on stem ignition process has been carried out for negative and positive ground lightning discharges. Times of ignition delay in a typical range of influence parameters change have been established.