ANALISA MEDAN LISTRIK DEKAT PADA PETIR NEGATIF *CLOUD TO GROUND*

TUGAS AKHIR

Karya Ilmiah sebagai salah satu syarat untuk menyelesaikan jenjang strata satu (S-1) di Jurusan Teknik Elektro, Fakultas Teknik, Universitas Andalas

Oleh:

Syarifel Azra

1410952046

Pembimbing:

Dr. Eng. Ariadi Hazmi

NIP: 19750314 199903 1 003

Program Studi Sarjana Teknik Elektro

Fakultas Teknik

Universitas Andalas

2018

Judul	Analisa Medan Listrik Dekat pada Petir Negatif *Cloud to Ground*	Syarifel Azra
Program Studi	Teknik Elektro	1410952046
Fakultas Teknik Universitas Andalas		

Abstrak

Penelitian ini mengamati karakteristik medan listrik dekat pada petir negatif *cloud to ground* (-CG). Penelitian dilakukan terhadap 64 data medan listrik petir -CG yang terekam pada bulan Januari hingga Maret 2018 oleh *fast* dan *slow antenna*. Analisa yang dilakukan dalam penelitian yaitu, *PB/RS* rasio, *PB-RS separation*, *pre-RS duration*, interval pulsa, dan *Initial Electric field Change* (IEC). Setelah itu, dianalisa hubungan petir -CG dengan citra satelit cuaca dan data optik petir. Nilai rata-rata PB/RS rasio, PB-RS *separation*, pre-RS *duration*, interval pulsa, dan IEC berturut-turut adalah 37.63%, 62.5 ms, 64.12 ms, 253.67 µs, dan 246.3 µs. Berdasarkan citra satelit cuaca, petir -CG yang terjadi selalu disertai dengan hujan. Lalu, medan listrik dekat pada petir −CG memiliki karakteristik IEC.

Kata Kunci: medan listrik dekat, petir negatif *cloud to ground*, *Initial Electric field Change*.

Title	Near Electric Field Analysis of Negative Cloud to Ground Lightning	Syarifel Azra
Mayor	Electrical Engineering	1410952046
Engineering Faculty Andalas University		

Abstract

This research observed the characteristic of near electric field of negative cloud to ground (-CG) lightning. The research was conducted on 64 electric field of -CG lightning data and the electric fields recorded during January to March 2018 by both fast and slow antenna. The analysis conducted in this research are PB/RS ratio, PB-RS separation, pre-RS duration, pulse interval, and Initial Electric field Change (IEC). After that, it was analyzed the correlation between -CG lightning and weather satellite imagery, also between −CG lightning and lightning optical data. This research was analyzed average values of PB/RS ratio, PB-RS separation, pre-RS duration, pulse interval, and IEC were 37.63%, 62.5 ms, 64.12 ms, 253.67 μs, and 246.3 μs respectively. Based on weather satellite imagery, -CG lightning always accompanied by rain. Then, near electric field of -CG lightning has IEC characteristics.

Keywords: *near electric field, negative cloud to ground lightning, Initial Electric field Change*