KARAKTERISTIK MEDAN MAGNET PADA INISIASI PETIR *NEGATIVE CLOUD TO GROUND* (-CG)

TUGAS AKHIR

Karya Ilmiah sebagai salah satu syarat untuk menyelesaikan Program Strata-1
Jurusan Teknik Elektro Fakultas Teknik Universitas Andalas

OLEH :

NOPRY YANTI ASTUTI

NO. BP : 1610953018

DOSEN PEMBIMBING :

PROF. DR. ENG. ARIADI HAZMI

NIP. 19750314 199903 1 003

Program Studi Sarjana Teknik Elektro

Fakultas Teknik

Universitas Andalas

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Judul	KARAKTERISTIK MEDAN MAGNET PADA INISIASI PETIR *NEGATIVE CLOUD TO GROUND* (-CG)	Nopry Yanti Astuti
Program Studi	**Teknik Elektro**	**1610953018**
Fakultas Teknik **Universitas Andalas**		

Abstrak

Penelitian ini mengamati karakteristik medan magnet pada inisiasi petir *Negative Cloud To Ground* (-CG) yaitu melihat apakah *Initial Megnetic Field Changes* (IMC) terjadi simultan dengan *Initial Electric Field Changes* (IEC) atau terjadi sebelum IEC serta melihat hubungan antara IEC dan IMC berdasarkan karakteristik *Zero Crossing Time* (ZC) dan rasio amplitudo. IMC merupakan variabel baru yang ditambahkan dalam menentukan inisiasi petir –CG. Perekaman kejadian petir dilakukan pada bulan Februari dan April 2019. Dari 28 data petir –CG dekat didapatkan rata-rata durasi IEC 0.099 ms. Nilai rata-rata ZC medan magnet mendahului IEC yaitu 22.33 ms dan medan magnet simultan IEC yaitu 31.31 ms. Nilai rata-rata rasio medan magnet mendahului IEC yaitu 0.63 dan medan magnet simultan IEC yaitu 0.52. IMC terjadi simultan dengan IEC, namun pada penelitian ini ditemukan IMC yang terjadi sebelum IEC hal ini dikarenakan perbedaan bandwidth dan sensitivitas pada sensor medan listrik dan medan magnet. Perbedaan nilai ZC dan rasio pada medan magnet mendahului dan simultan IEC dikarenakan adanya perbedaan jarak sensor terhadap medan pada kejadian petir –CG dekat.

Kata Kunci **:** Petir –CG dekat, *Initial Electric Field Change* (IEC), *Zero Crossing Time* (ZC), rasio dan *Initial Magnetic Field Changes* (IMC).

Title	***CHARACTERISTICS OF MAGNETIC FIELDS AT THE INITIATION OF NEGATIVE CLOUD TO GROUND LIGHTNING (-CG)***	**Nopry Yanti Astuti**
Mayor	***Electrical Engineering***	**1610953018**
Engineering Faculty ***Andalas University***		

Abstract

This research observes the characteristics of magnetic field at the initiation of Negative Cloud to Ground (-CG) lightning which is to see whether the Initial Magnetic Field Changes (IMC) simultaneously with Initial Electeric Field Changes (IEC) or occur before the IEC. Moreover, to see the relationship between IEC and IMC based on Zero Crossing Time (ZC) and amplitude ratio. IMC are new variables added in determining the lightning –CG initiation. Recording of lightning events carried out in February and April 2019. From 28 close lightning –CG data obtained an average duration of 0.099 ms IEC. The average value oF ZC magnetic field precedes the IEC is 22.33 ms and the magnetic field simultaneously the IEC is 31.31 ms. The average value of the magnetic field ratio precedes the IEC is 0.63 and the magnetic field simultaneously with IEC is 0.52. IMC occur simultaneously with IEC. Otherwise, this research finds that the IMC occurred before the IEC was due to differences in bandwidth and sensitivity in the electric field and magnetc field sensors. The difference in the ZC value and the ratio in the magnetic field precedes and along with IEC due to differences in the distance of the sensor to the field in the close lightning –CG event.

Keywords: Lightning –CG close, Initial Electric Field Change (IEC), Zero Crossing Time(ZC), ratio and Initial Magnetic Field Changes (IMC).