ANALYSIS OF DISTURBANCES DUE TO ELECTRICITY DIRECT CURRENT (DC) TRAIN FIRE DATA VARIATION OF MAGNETIC FIELD MAGNETIC STATION BMKG STATION GEOPHYSICAL CLASS 1 TANGERANG

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ABSTRACT

A research has been conducted on the analysis of electric railroad disturbance effect on magnetic data recording by BMKG magnetic station Geophysics Tangerang.The purpose of this research is to find out the quality of magnetic data, calculate how big the disturbance impact,and make efforts to reduce disruption. Disturbances due to the electric rail system (DC) has greatly interferes magnetic data recording. For 24 hours of continuous recording, the disturbance was recordedfrom 04.00 WIB until 23.00 WIB,and then there is a time interval when the train passing and when there is no train passing by. Moving Average Filter with a window width of 180 seconds is applied to reduce the disturbance effect.During the observation there were other disturbances that interfered magnetic data recording, which were assumed it come from the activities of garden farmers around the magnetic station building. The difference in the results of magnetic data recording before filtering andafter filtering each day is the variation of maximum and minimum values then described as the impact of disturbance that occurs during the observation.The quality of magnetic data has much better compared to data before filtering,although the disturbanceofelectric trains cannot completely eliminated.

Keywords:*Filter Moving Average,* electrical railway system (DC), magnetic station.

ANALISIS GANGGUAN AKIBAT KERETA API LISTRIK *DIRECT CURRENT (DC)* TEHADAP DATA VARIASI MEDAN MAGNETIK STASIUN MAGNET BMKG STASIUN GEOFISIKA KELAS 1 TANGERANG

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ABSTRAK

Telah dilakukan penelitian tentang analisis pengaruh gangguan kereta api listrik terhadap perekaman data magnetik stasiun magnet BMKG stasiun Geofisika Tangerang, yang bertujuan untuk mengetahui kualitas data magnet, menghitung seberapa besar dampak gangguan, dan melakukan upaya mengurangi ganggguan.Gangguan akibat sistem kelistrikan kereta api listrik (*DC*) sangat menginterferensi perekaman data magnetik. Selama 24 jam secara *continue* gangguan terlihat pada pukul 04.00 WIB sampai dengan 23.00 WIB, dan terdapat selang waktu ketika ada dan tidak adanya kereta api yang melintas. Metode *filtering* yang digunakan untuk mengurangi gangguan yaitu dengan *Filter Moving Average* dengan lebar jendela 180 detik. Selama pengamatan terdapat gangguan lain yang menginterferensi perekaman data magnetik diasumsikan berasal dari aktifitas petani kebun disekitaran gedung stasiun magnet. Dari nilai selisih hasil pengurangan data magnetik sebelum *filtering* dengan data hasil *filtering,* didapatkan nilai maksimum dan minimum yang bervariatif setiap harinya menggambarkan besarnya gangguan yang terjadi selama pengamatan. Kualitas data magnetik jauh lebih baik jika dibandingkan sebelum dilakukan rekontruksi data, walaupun tidak sepenuhnya gangguan akibat sistem kelistrikan Kereta api listrik dapat dihilangkan.

Kata Kunci: *Filter Moving Average,* sistem kelistrikan kereta api listrik (*DC*), stasiun magnet.