

Relokasi Hiposenter dengan Metode *Double Difference* Menggunakan Data Gempa Bumi di Wilayah Provinsi Lampung hingga Jawa Barat

Putri Ambarsari 12113007

Pembimbing Dr. Tedi Yudistira M.Si & Maria Rosalita P. Sudibyo, S.Si, M.Sc

ABSTRAK

Indonesia memiliki kondisi geologi yang kompleks terbukti dengan adanya interaksi tiga lempeng aktif yaitu lempeng Eurasia, lempeng Indo-Australia dan lempeng Pasifik. Dalam penentuan hiposenter gempabumi perlu adanya data waktu tiba gelombang P dan S untuk mendapatkan letak hiposenter yang lebih tepat dan akurat. Salah satu metode yang digunakan dalam relokasi hiposenter yaitu metode *double difference*. Penelitian menggunakan data katalog gempa bumi BMKG dengan periode waktu 15 april 2009 hingga 2 mei 2018. Jumlah gempa bumi yang terelokasi adalah 3139 dari 3346 gempa bumi dengan stasiun pencatat 33 stasiun. Nilainya rms mendekati nol sebesar 0,1 dari data tersebut sehingga dapat dikatakan baik. Terdapat daerah yang curam terdiri dari materil slab lempeng yang berat dan berumur tua yang ditunjukkan pada pola penampang A-A', C-C' dan D-D'. Sedangkan pola penampang B-B' terlihat landai karena materialnya bersifat ringan dan slab berumur muda.

Kata Kunci : Relokasi hiposenter, *Double Difference*, Gempa bumi

Hypocenter Relocation by *Double Difference* Method Using Earthquake Data in Lampung Province until West Java

Putri Ambarsari 12113007

Advisor Dr. Tedi Yudistira M.Si, Maria Rosalita P. Sudibyo , S.Si, M.Sc

ABSTRACT

Indonesia has geological complex conditions proven by the interaction of three active plates, the Eurasian plate, the Indo-Australian plate and the Pacific plate. Interaction of three plates frequently causes the movement of colliding plates called earthquakes. Sumatera and Java Island are arc regions that has overly active tectonic activity, with the result that the area often encounter earthquakes. In earthquake hypocenter determination, necessary needs arrival time data of P and S waves to gain precise and accurate hypocenter location. *Double difference* method that used with assumption that the distance between two earthquakes are smaller than distance between earthquake and station, accordingly considered to have the same wave. The study used BMKG earthquake catalog data between 15th April 2009 until 2nd May 2018. Total of earthquakes that relocated was 3139 out of 3346 earthquakes with 33 station recording stations. The value of rms is zero at 0.1 of the data so that it can be received properly. The results between before relocation and after relocation have hypocenter shift as indicated by taking slabs section A-A', B-B', C-C', D-D'. Cross section slabs also analyze subduction patterns that be found in Lampung research area up to West Java study area, namely steep and sloping.

Keywords: Hypocenter relocation, *Double Difference* , Earthquake