

# **EARTHQUAKE SEISMIC NETWORK AND ITS APPLICATION IN BMKG, INDONESIA**

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# ABSTRACT

Indonesia Tsunami Early Warning System was designed in 2005 after the great tsunami of Aceh on 26 December 2004 devastated the shores of Sumatra , killing  $\pm 200.000$  people.

The first criteria of Tsunami Early Warning System Indonesia are specified to be able to produce the first message of tsunami warning within five minutes after the earthquake's origin time. The other criteria, should be able to accomplish includes monitoring of parameters in order to produce a timely tsunami warning. Components of Tsunami early Warning System include Monitoring to produce data, processing to produce information, dissemination for communication and the last is preparedness such as education and evacuation.

This project in cooperation with foreign countries, domestic and international institutions.

# 1. INTRODUCTION

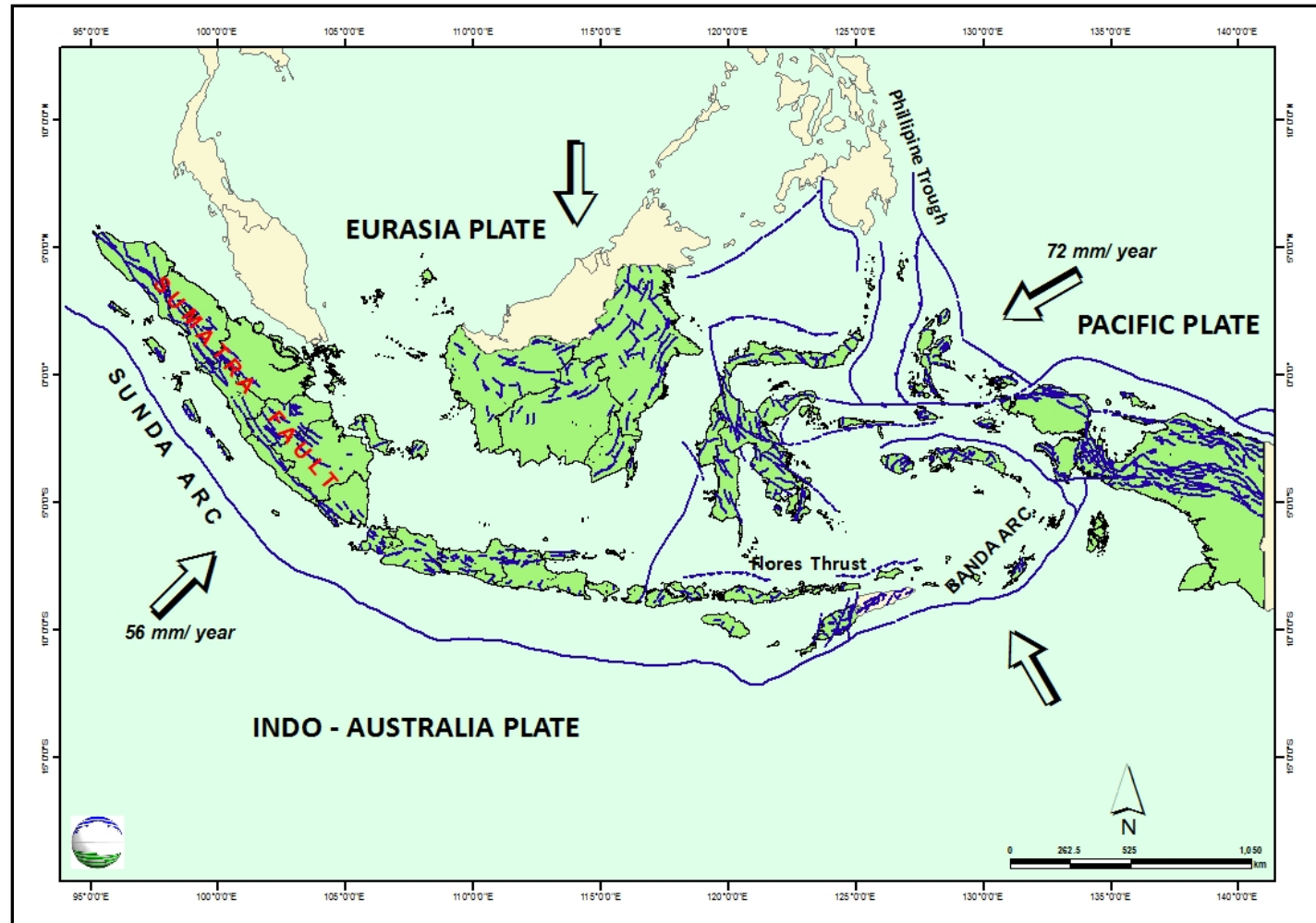


Figure 1. Tectonic setting of Indonesia. Indonesia surrounded many plates and the movement of the plates

## 2. SEISMIC NETWORK

SEISMOGRAPH	TYPE	DIGITIZER
	Trilium-120, Nanometrics	Trident
	BBVS-120, Geodevices	Trident
	STS 2	Europa

ACCELEROGRAPH	TYPE	DIGITIZER
	TSA 100s	Trident
	BBAS	Trident
	TSA 100s	Taurus

## 2. SEISMIC NETWORK

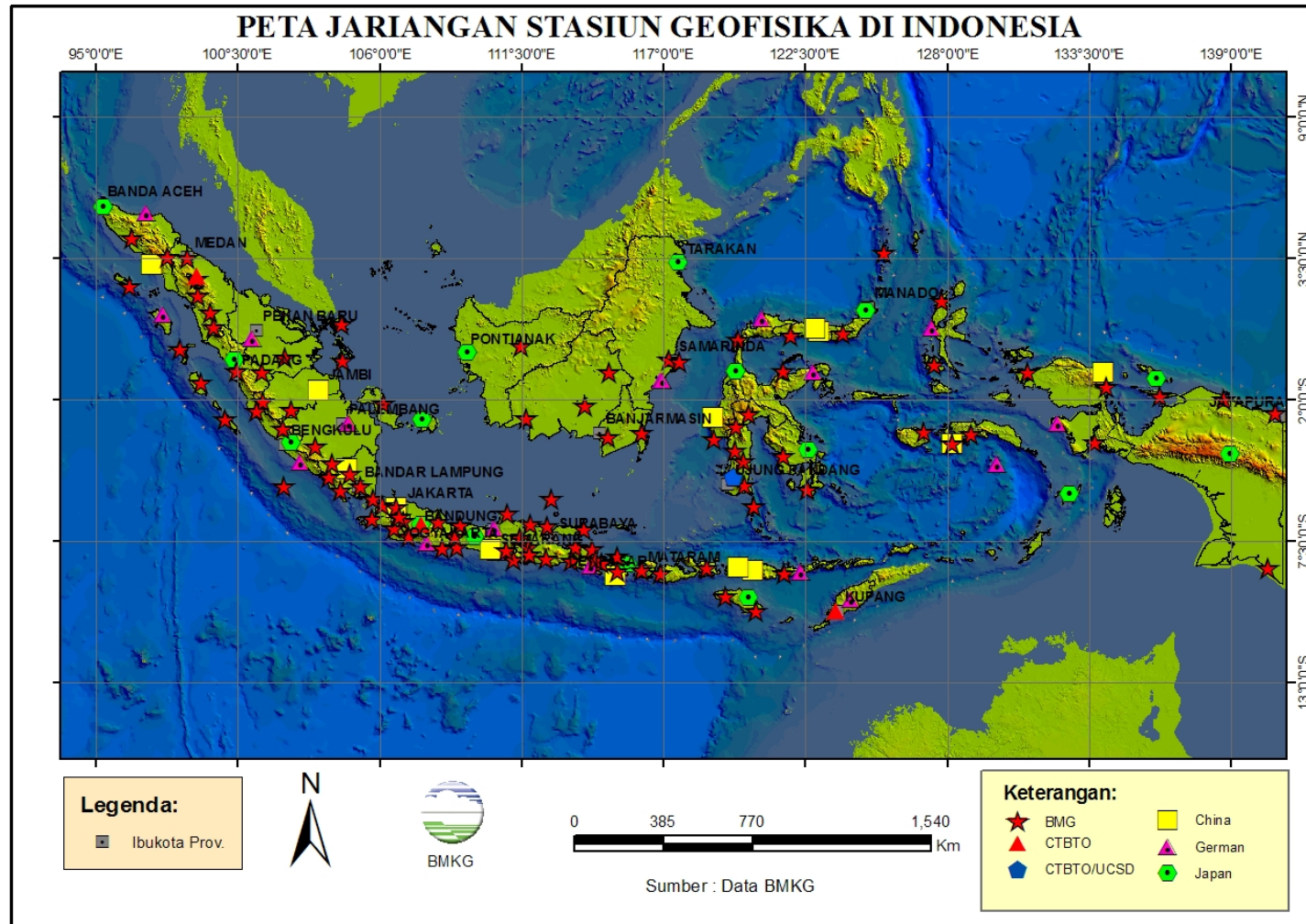


Figure 2. Design of Seismic Network in Indonesia (2010), some of them are contributed by foreign countries / institutions



## 2. SEISMIC NETWORK

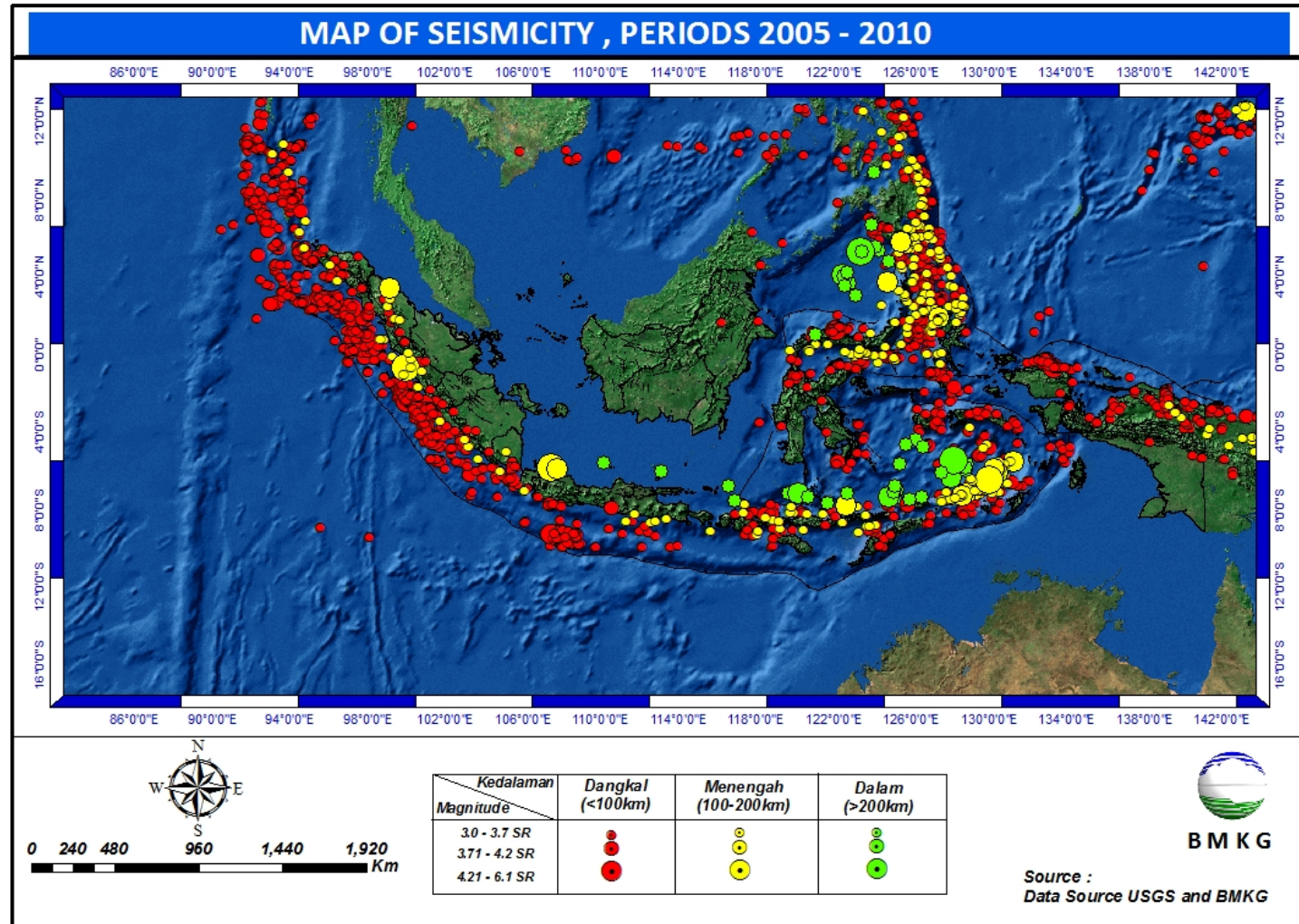


Figure 3. The Indonesia seismicity (2005 – 2010), the magnitude of earthquake from  $M \geq 3.0$  RS

### 3. PROCESSING SYSTEM

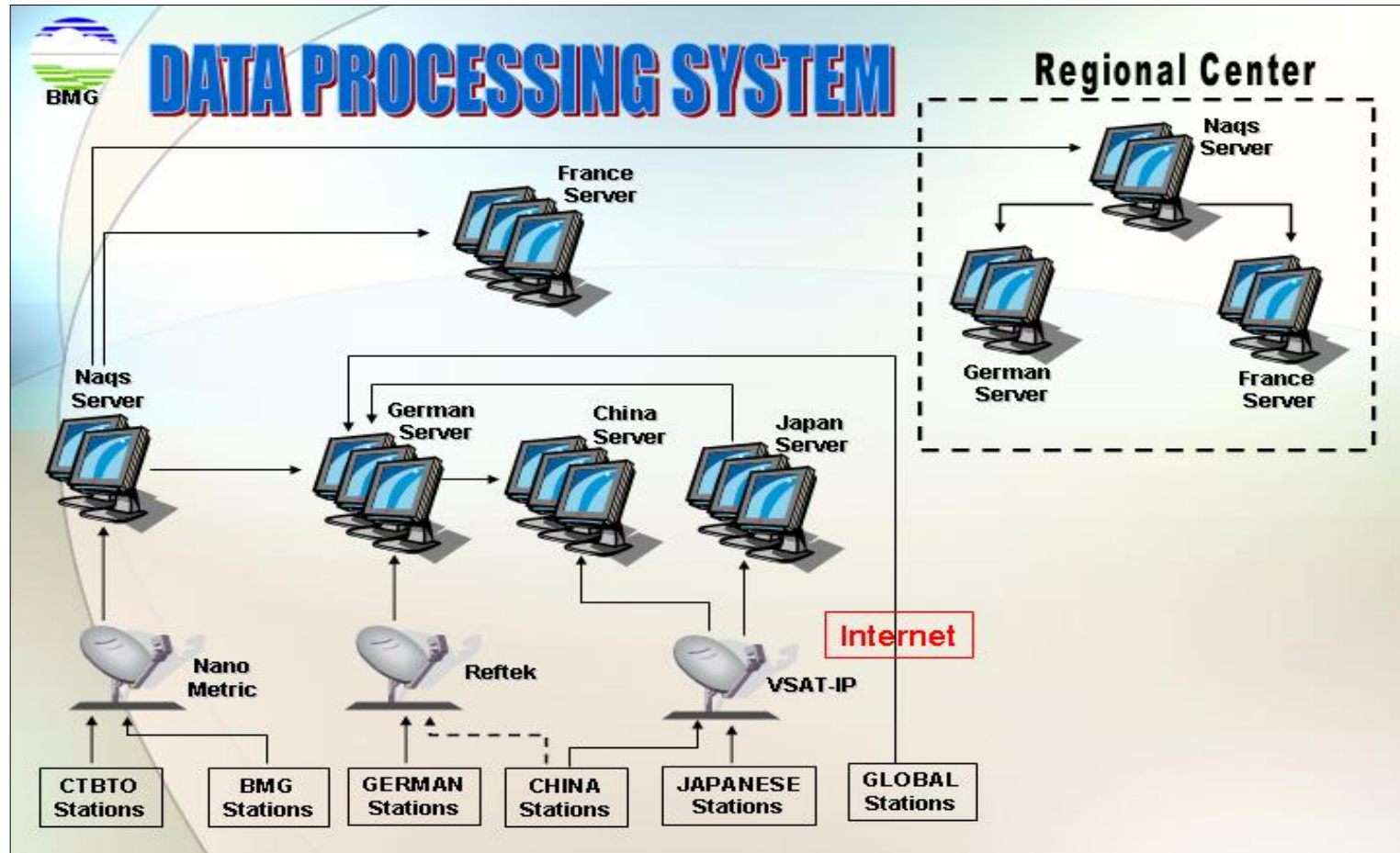


Figure 4. Processing System in BMKG

## 4. PROCESSING SYSTEM

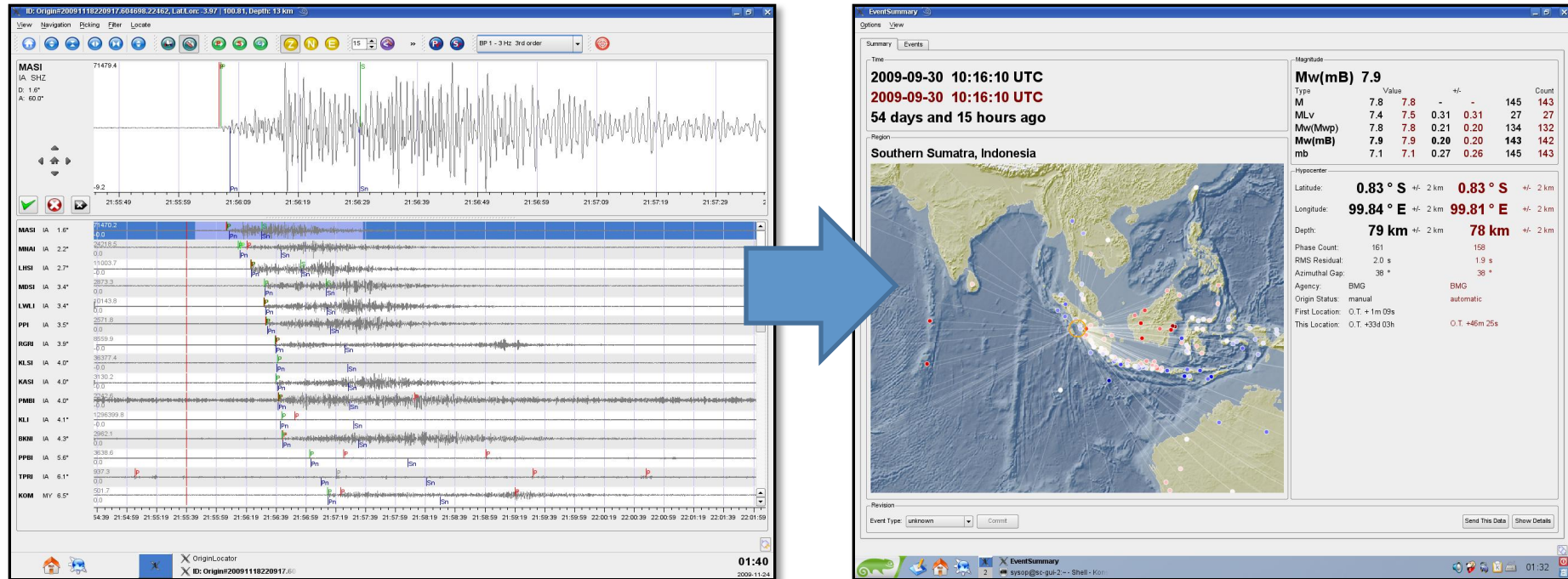
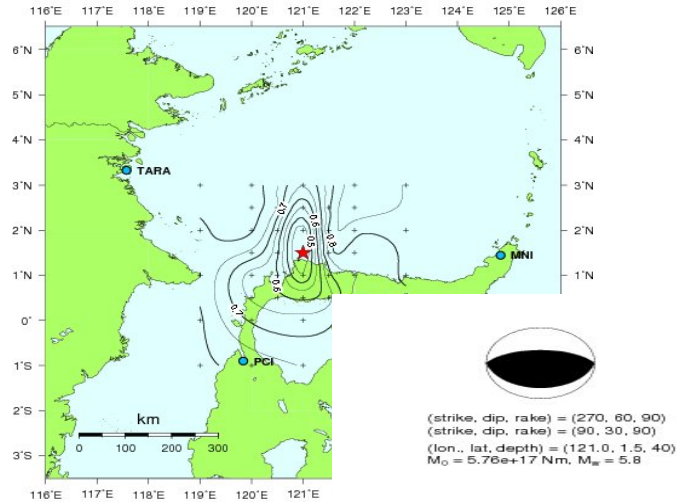


Figure 5. SeiscomP System has 4 observation and processing monitor. This figure describe of Locator View Display to Summary Event Display



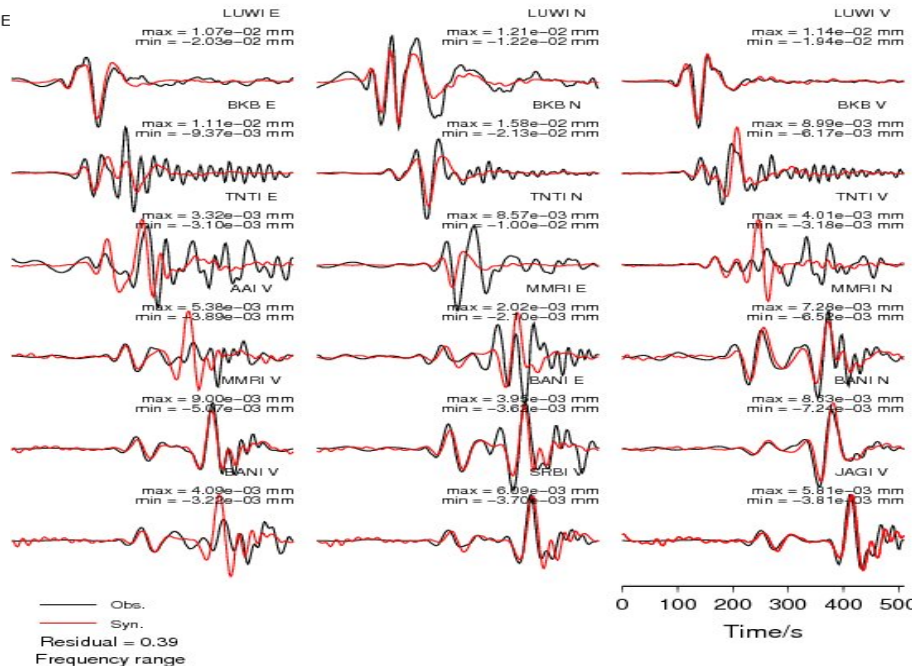
# 3. PROCESSING SYSTEM

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(a)



(c)

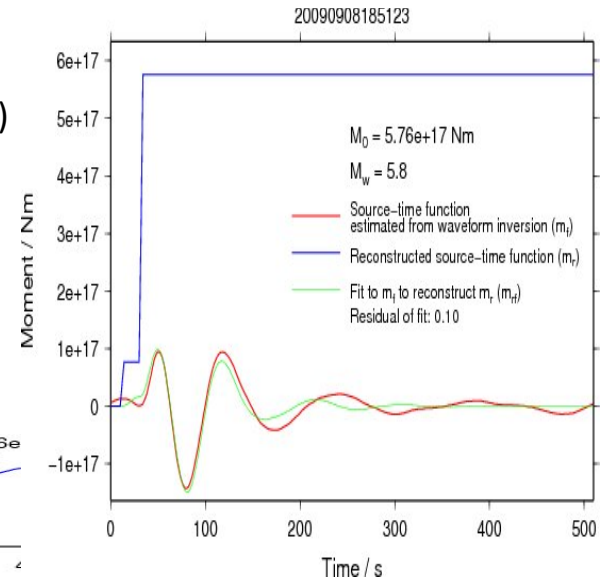


Figure 6. (a) hypocenter using SWIFT System, (b) result of source time function, and (c) fitting waveform from observed waveform and syntetic waveform

## 4. DISCUSSION

- 4.1 Indonesia has 160 seismograph, which is BMKG can receive data in real time data
- 4.2 Indonesia has SeiscomP and Jopens System as Processing System and SWIFT
- 4.3 Indonesia need more application (system) that help Indonesia to get know better about Indonesia tectonic setting
- 4.4 Some ongoing projects in Indonesia may need collaboration with other countries/ institutions
- 4.5 Indonesia need collaboration with another countries / institutions to increase human resources in BMKG