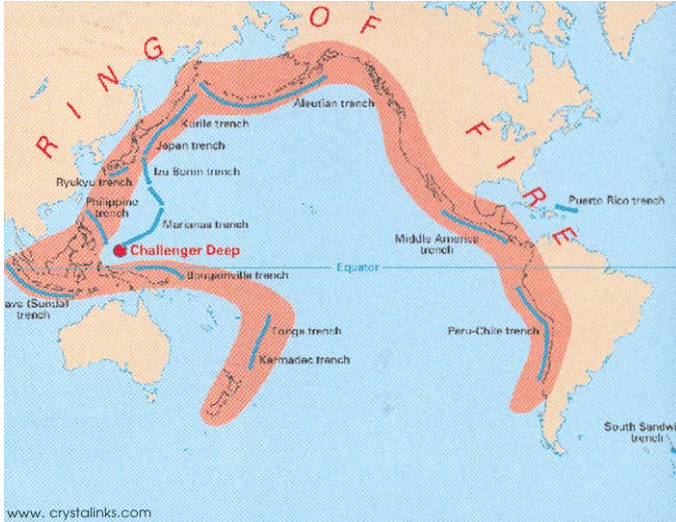


I. Background



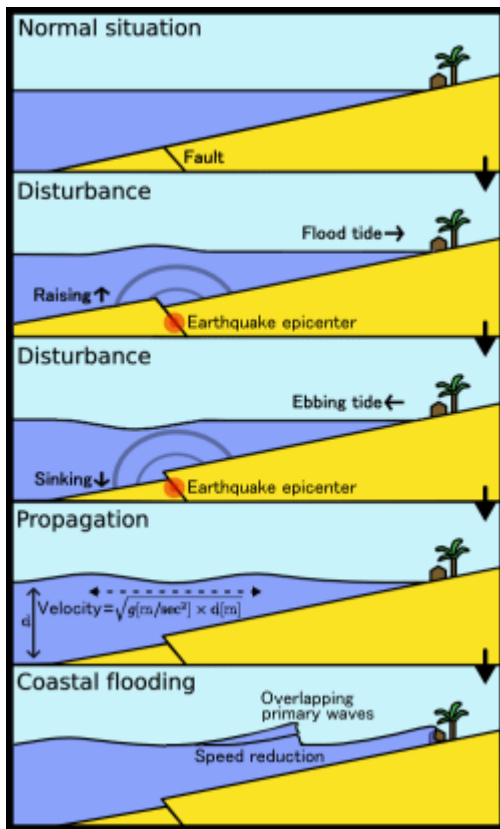
Geographically Indonesia position is very unique. It lies between two continents, two oceans and two sailing paths (*dua jalur pelayaran*). However, only few knows that the country that located in equator line is the place where several earth plates meet, hundreds of active volcanoes exists and others potential disaster could be real. Indonesia, the islands country, is

also located in the *Ring of Fire*, as shown in the Figure above. Therefore, this country is located in danger area. Disaster could happen any time

On December 26, 2004, at the end of last year, while nobody ever predicted, a huge disaster, earthquake and tsunami, stroked Indonesia, precisely at the Province of Nanggroe Aceh Darussalam (NAD) and North Sumatra. This tragedy is the horrible disaster in the century. In this tragedy, a hundred thousand people have died and thousand of building has gone, only foundations of buildings are left. Similar disaster had also occurred in 1832, 1902, and 1948. Besides earthquake and tsunami, there is also other kind of disasters occurred in Indonesia such as landslide. Sadly, Indonesian Government has never thought about the mitigation of disaster so far even though they are living in the



Ring of Fire.



In principal, all disasters are related to the nature phenomena. Scientists have tried to learn this relation. For example, tsunamis can be generated when the sea floor abruptly deforms and vertically displaces the overlying water. Tectonic earthquakes are a particular kind of earthquake that are associated with the earth's crustal deformation; when these earthquakes occur beneath the sea, the water above the deformed area is displaced from its equilibrium position. Waves are formed as the displaced water mass, which acts under the influence of gravity, attempts to regain its equilibrium. When large areas of the sea floor elevate or subside, a tsunami can be created. Large vertical movements of the earth's crust can occur at plate boundaries. Plates interact along these

boundaries called faults. Around the margins of the Pacific Ocean, for example, denser oceanic plates slip under continental plates in a process known as subduction. Subduction earthquakes are particularly effective in generating tsunamis. Tsunami actually represents a double uncertainty, because they depend on essentially unknowable factors such as the exact topography of the seabed at the epicenter of a quake. Tsunami is among the rarest of natural disasters, and the stealthiest, hiding the energy of a hydrogen bomb in an almost invisible swell. Similar to other disasters, they are usually to predict. Therefore, it is mandatory to prevent the impact of disasters by mitigation.

Theoretical and numerical-simulation have played an important rule in the research areas. By using numerical-simulation, scientists have been able to predict models where their accuracies are excellent. These models could apply directly to a real life. One of the very interesting researches in the theoretical and numerical-simulation area is the application of theoretical and computational physics on mitigation disaster and environment, which will be the topic in the regional seminar this year (2005) held at the Physics Department, Syiah Kuala University, Banda Aceh, Indonesia. The scope of this seminar is numerical analysis, modeling, and visualization for mitigation disaster and environment. The results of this seminar will be very useful in order to reduce the impact of

disaster to human life and environment, especially for Indonesian Government and for other countries located in *the Ring of Fire* in general.

II. Key Note Speakers

The Key Note Speakers in this seminar will be the following:

- Prof. Masataka Ando (Keynote speaker, Nagoya University, Japan)
- Prof. Fumiaki Kimata (Keynote speaker, Nagoya University, Japan)
- Prof. Dr. Lilik Hendrajaya, M. Sc. (Keynote speaker, RISTEK-Indonesia)
- Prof. Ibrahim Komoo, Ph. D. (University of Kebangsaan Malaysia, Malaysia)

Besides Key Note Speaker, other researches from other institutions such as universities, industries, and national laboratories will be asked to contribute in this seminar. All papers will be reviewed by our editors and the paper that fulfill criteria will be published in the proceeding.

III. Schedule and Place

This National seminar will be held on August 29 – 30, 2005 at the Syiah Kuala University, Banda Aceh, Indonesia.

IV. Organizing Committee

Steering Committee:

Chairman : Ismail AB, Ph. D. (Syiah Kuala University)

Members : Dr. Hizir (Syiah Kuala University)

Dr. Ir. Adi Rahwanto, M. Eng. Sc. (Syiah Kuala University)

Dr. Ari Syahrrial (BPPT)

Muksin, M. Si. (Syiah Kuala University)

Editors:

1. Prof. Dr. Syamsul Rizal (Syiah Kuala University)
2. Dr. T. A. Sanny (Bandung Institute of Technology)
3. Dr. Zaki Su'ud (Bandung Institute of Technology)
4. Ismail A.B, Ph. D. (Syiah Kuala University)

Operational Committee:

Chairman : Dr. Syahrudin Nur, M.Si

Secretary : Didik Sugiyanto, MT

Members : Bukhari, MT

Fauzi, M.Si

Marwan, MT

Nasrullah, M.Si

Nurvita, A.Md

Ari Dian Sari, A.Md

Fitria Ramadhani, A.Md

Adista Amaliyah

V. CLOSING

National Seminar of TCPG-3 with theme *Application Computational Physics in Disaster Mitigation and Environment* has a strategic meaning. First, the theme has strong correlation to recent condition of Nanggroe Aceh Darussalam and North Sumatra that just stroked by huge disaster. Secondly, the impact of disaster should be reduced if there are comprehensive planning and accurate prediction to disaster safety system. In this connection, computational Physics plays important role in making simulation of natural phenomena so that a disaster safety system could be designed well.

Regarding to the important of National seminar of TCPG-3, the success of this seminar is really determined by supporting all of elements of society.

Banda Aceh, June 2005