

Understanding After Effect Along West Coast of Northern Sumatra: **Tracing The Tail of Giant Thrust Earthquake After Effect**

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Summary

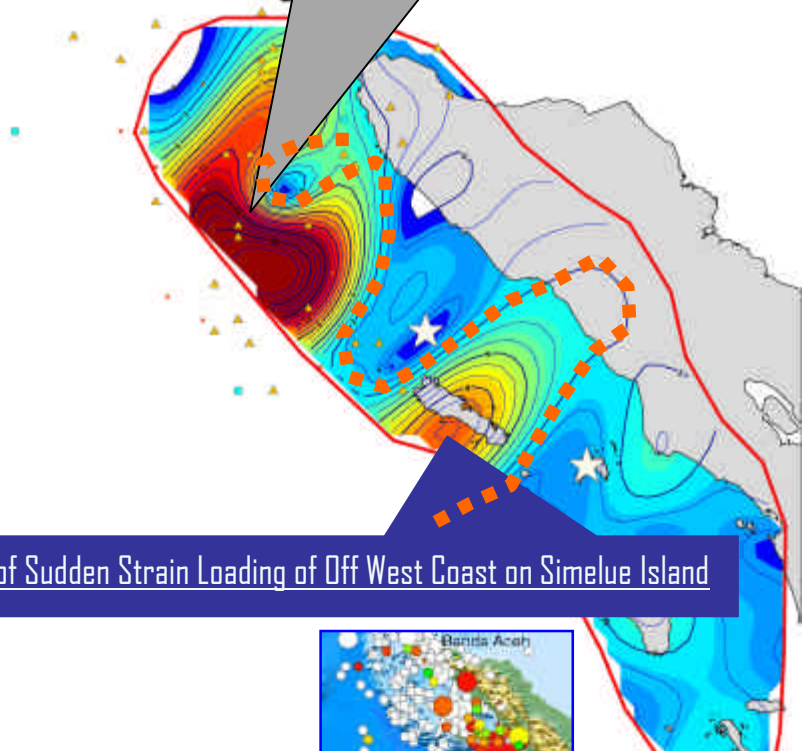
When Giant Earthquake was happened, another important that we need to consider is the area of where possibility of aftershock will take a place. The most common method on how to estimate the above area of aftershock distribution could be deduced by understanding the pattern of static stress changing area using Coulomb Failure Function (CFF). Here I try to use a simple method on how to forecast the most probable the aftershock distribution area by means Static Strain Changing (SSC). It is simple approach of subtraction of predicted maximum shear strain with predicted dilatation. Day by day considering the agreement of present day aftershock and predicted by model, it seems that the above method to be good enough. On the basis of the above result, I suggest that hazard after main shock study needs to be considered more especially when we have a dramatic series of Giant event. Thus understanding long lasting after effect is necessary to be put as another important subject in seismic hazard study and analysis.

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Static Strain Changing of Nias Giant Thrust

Area Where Most of After Effect Earthquake took a place

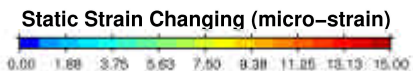
Static Strain Changing West Coast Giant Thrust



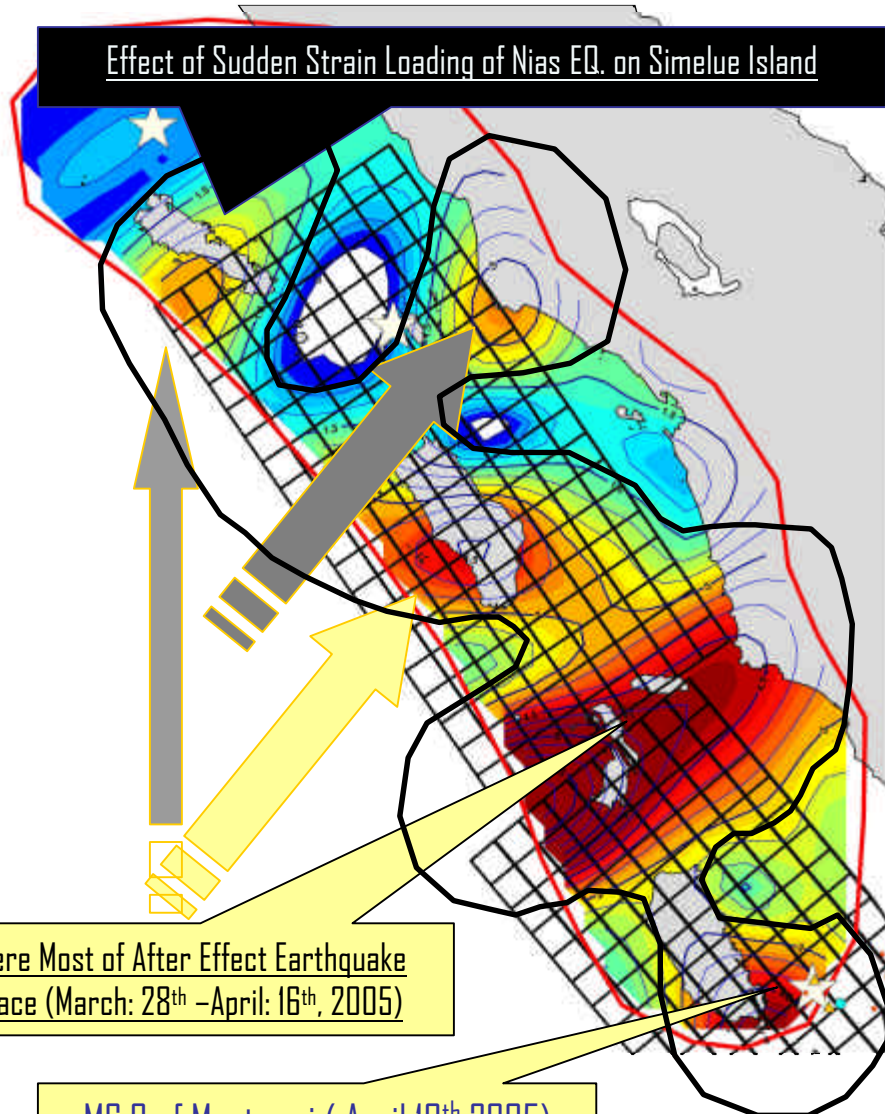
Effect of Sudden Strain Loading of Off West Coast on Simelue Island



After EMSC

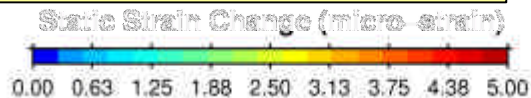


Effect of Sudden Strain Loading of Nias EQ. on Simelue Island



Area Where Most of After Effect Earthquake took a place (March: 28th - April: 16th, 2005)

M6.8 of Mentawai (April 10th 2005)



All figures are produced by GeoSeis. Ver.2 (WT-2003, 2004,2005)

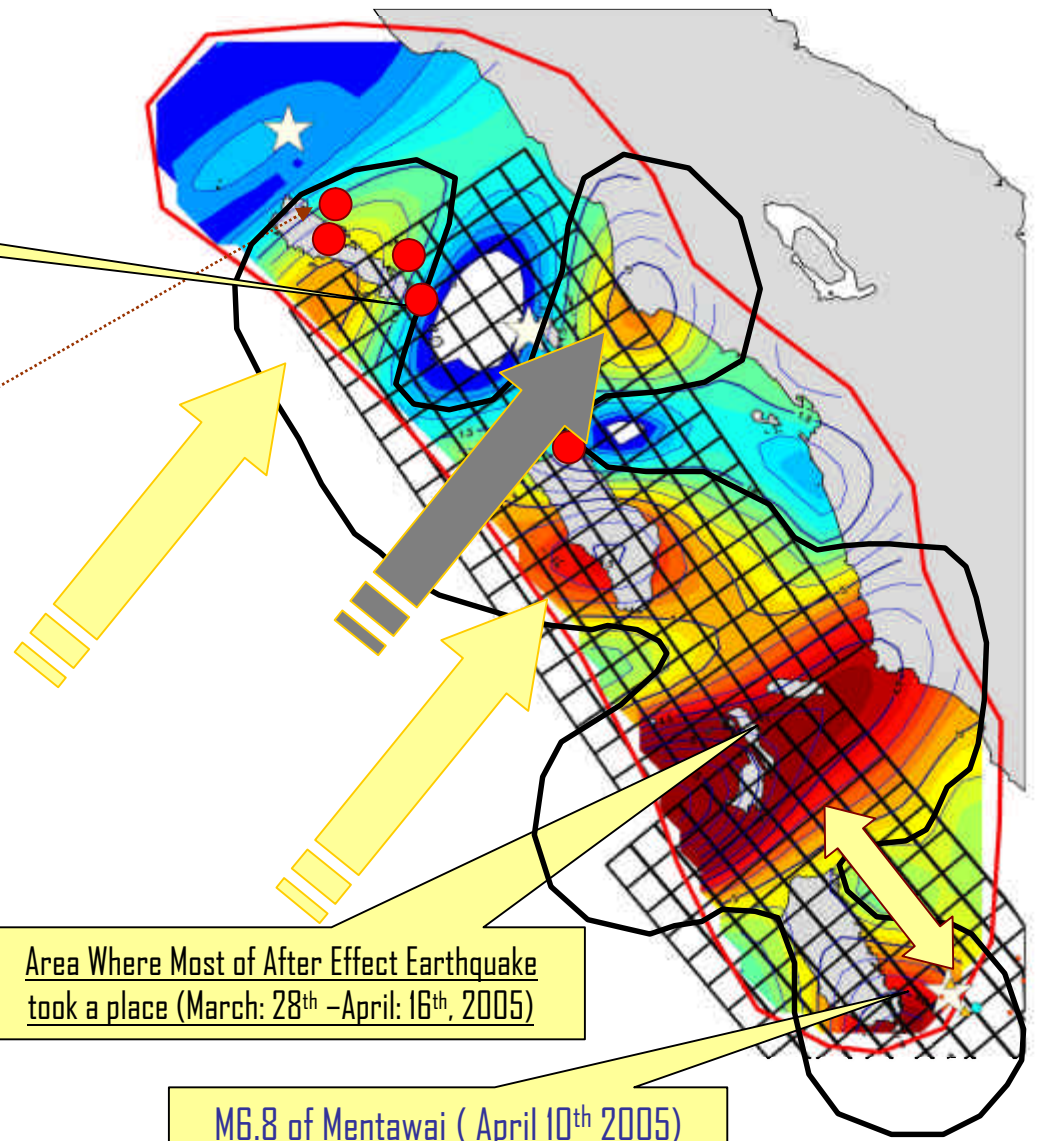
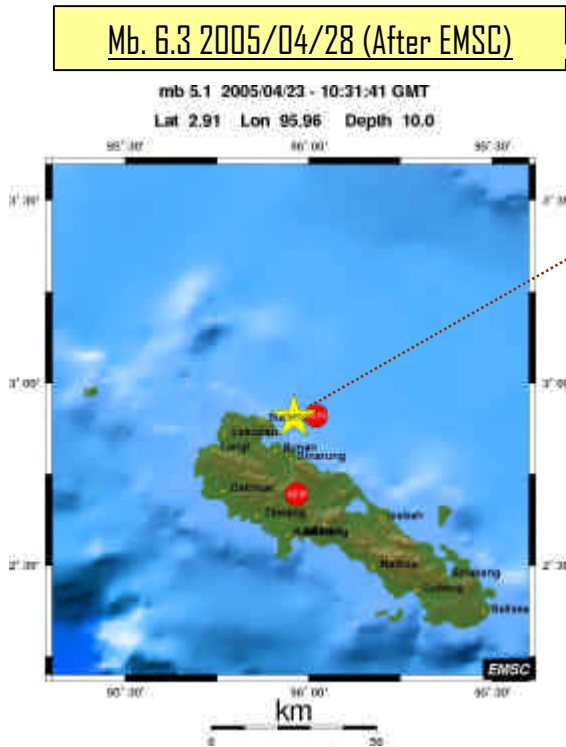
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(W. Triyoso, April, 2005)

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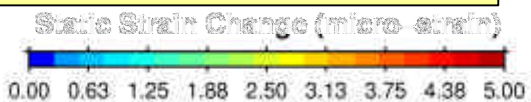
Static Strain Changing of Nias Giant Thrust



Seismicity Gap with Low Strain Loading

Area Where Most of After Effect Earthquake took a place (March: 28th - April: 16th, 2005)

M6.8 of Mentawai (April 10th 2005)



(W. Triyoso, April, 2005)

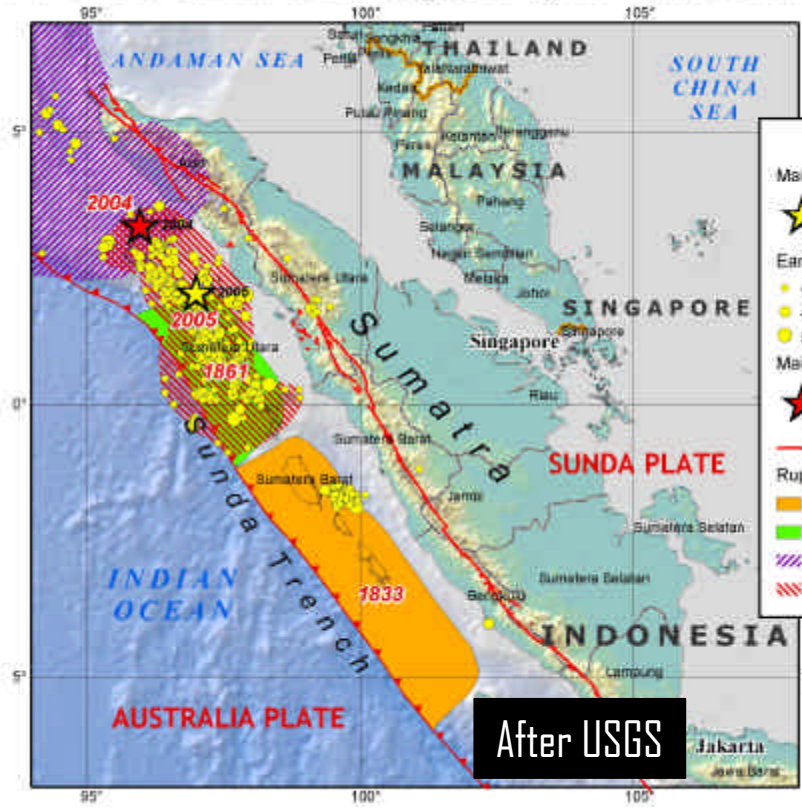
Simelue Island is hit by Giant Thrust twice, it seems to me that most long lasting earthquake after effect will take a place around that island (W. Triyoso, April, 2005)

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Present day of Most After Effect seems to be took a place (April 25th 2005)

Northern Sumatra Earthquake of 28 March 2005



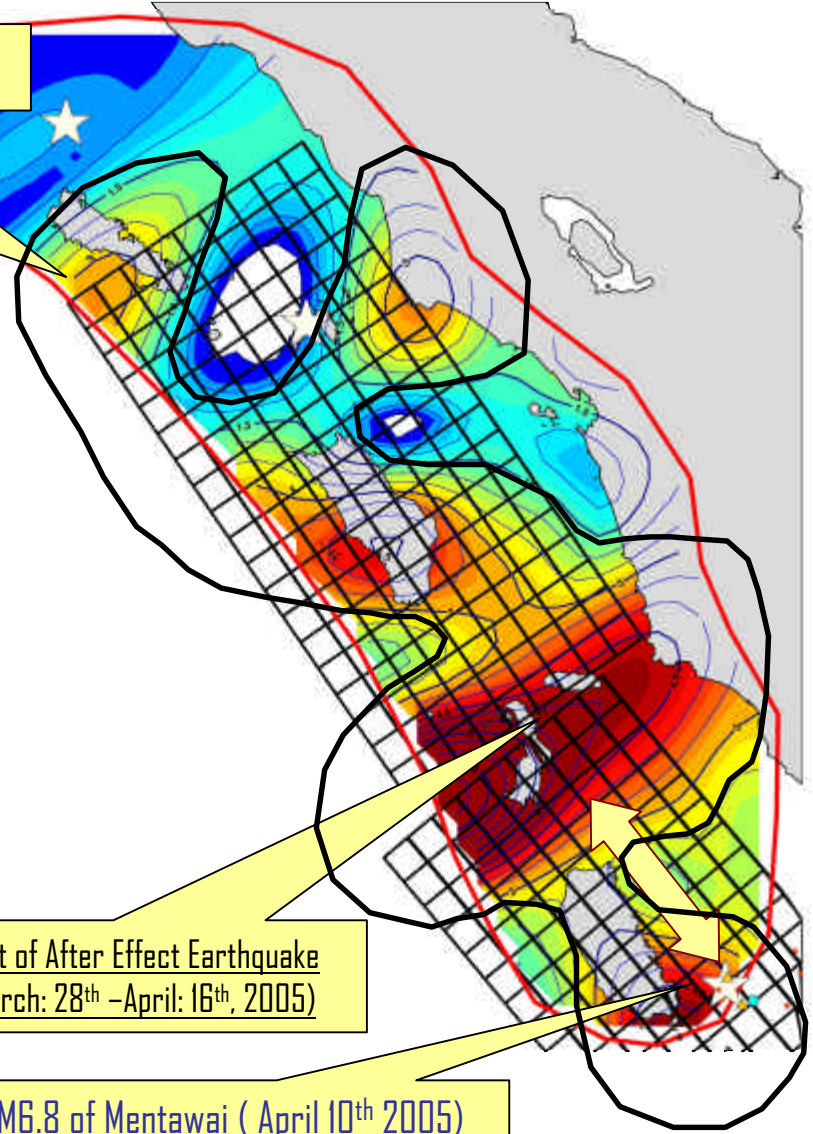
EXPLANATION

- Main Shock
 - ★ 28 March 2005
- Earthquakes 28 Mar - 16 Apr 2005
 - 4.00 - 4.90
 - 4.91 - 5.90
 - 5.91 - 7.00
- Main Shock
 - ★ 26 December 2004
- Great Sumatran Fault
 -
- Rupture Zones
 - 1833
 - 1861
- Aftershocks
 - ▨ 2004 Aftershocks
 - ▨ 2005 Aftershocks

Area Where Most of After Effect Earthquake took a place (March: 28th -April: 16th, 2005)

M6.8 of Mentawai (April 10th 2005)

Seismicity Gap with Low Strain Loading



(W. Triyoso, April, 2005)

References

1. Ross S. Stein, *Earthquake Conversations Contrary to prevailing wisdom*, *Science Magazine Content* [January 2003 issue](#)
2. W. Triyoso, 2003,2004, 2005, *GeoSeis_Tool, Earthquake-Fault Mechanics and Seismic Hazard Tool for Education and Teaching*, Geoph & Met Dept. FIKTM-ITB Bandung-Indonesia.
3. W. Triyoso, 2005, Understanding the potency of Giant Thrust Earthquake along Sumatra Subduction zone: *The Effect of Sudden Stress/Strain Loading*, <http://emsc-csem.org/>