Catatan Kuliah Umum Rapid Earthquake Magnitude Estimation Using Near Realtime GPS Data

oleh Hendy Irawan (http://orcid.org/0000-0002-5231-2802 (http://orcid.org/0000-0002-5231-2802)) - 9 Agustus 201

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Acara bertempat di Auditorium BMKG, pada tanggal 9 Agustus 2016, berlangsung dari jam 09:00 WIB sampai dengan jam 13:00 WIB.

Live at: http://media.bmkg.go.id/Live.bmkg?ID=2625949045519124 (http://media.bmkg.go.id/Live.bmkg?ID=2625949045519124)

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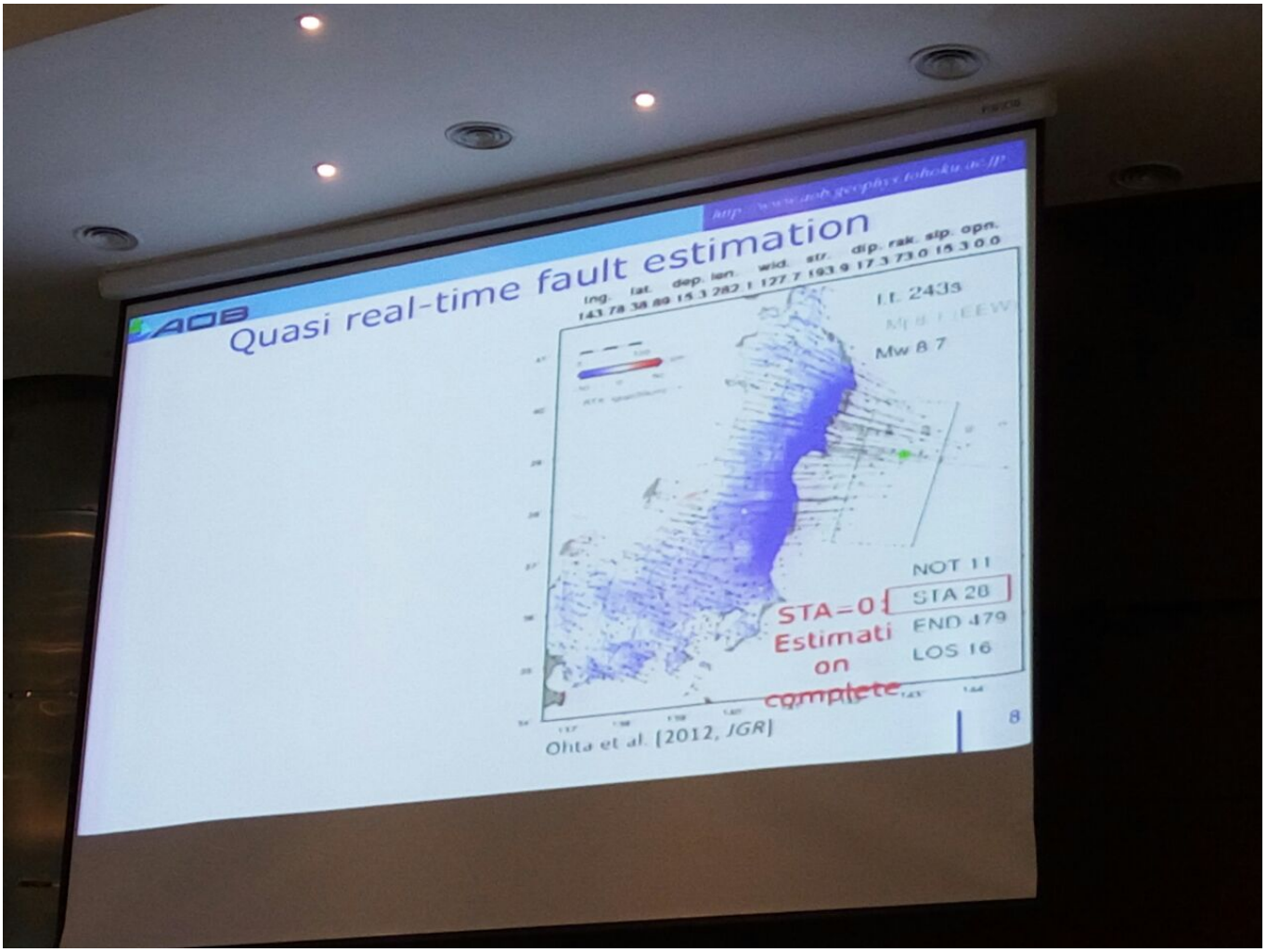
Via Dr. Rahma Hanifa, Dr. Abdul Muhari, Himpunan Mahasiswa Oseanografi ITB, Carmadi Machbub, Ary Setijadi Prihatmanto, Egi Hidayat, Astri Novianty, Irwan Meilano, Irina Rafliana

Introduction

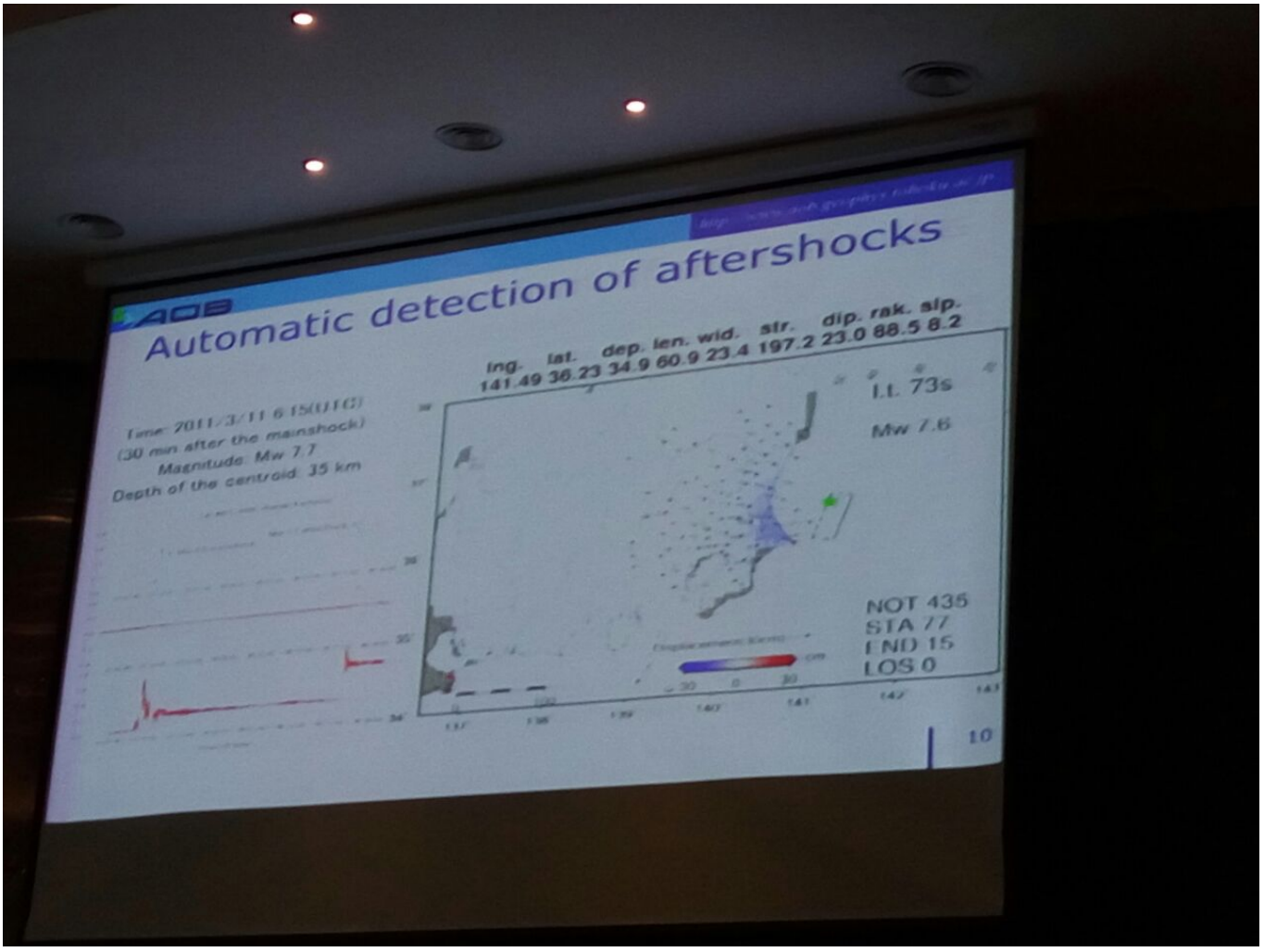


Relevansi dengan LSKK

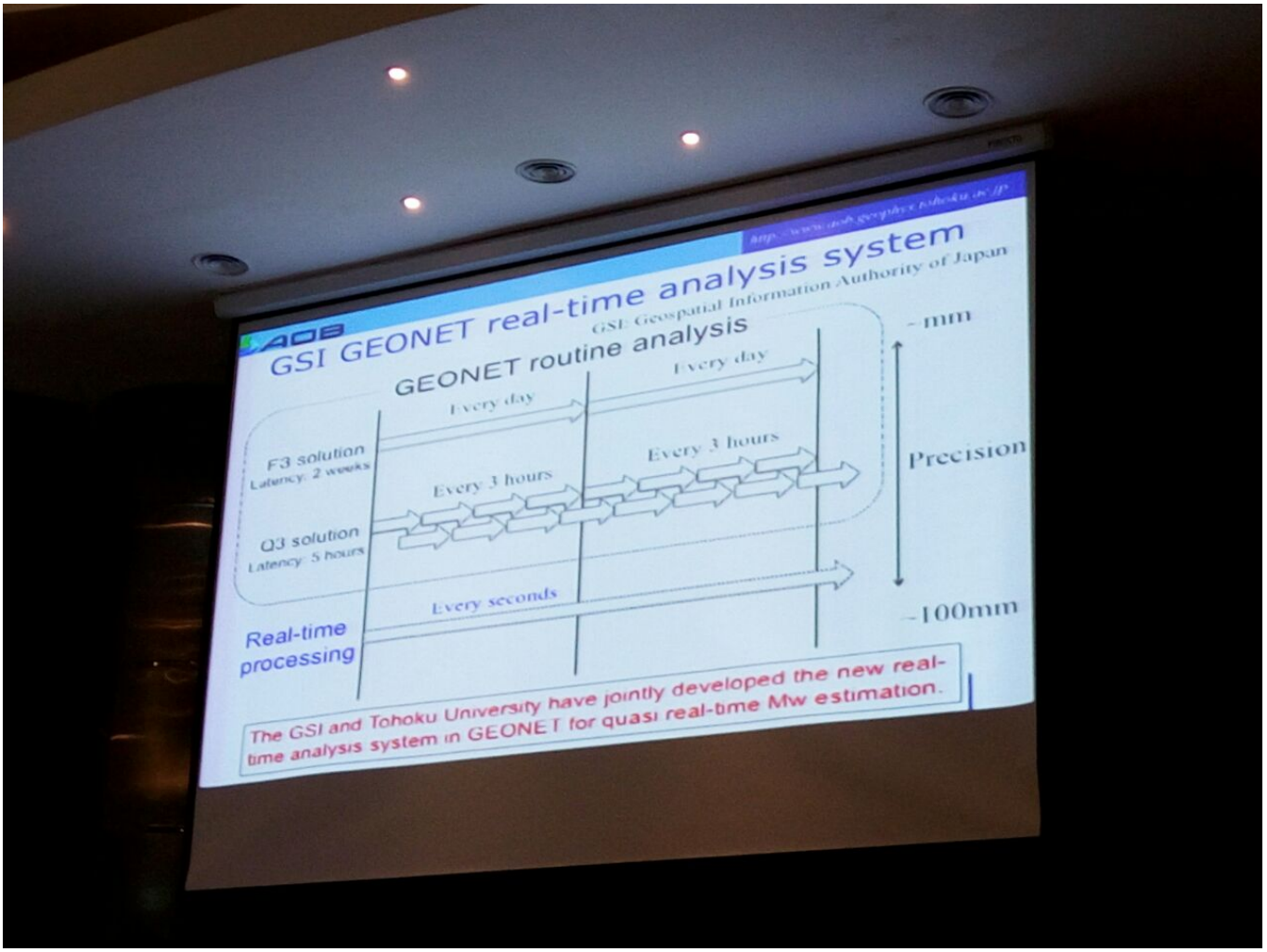
Hipotesis sementara yang relevan dengan LSKK, adalah bila Semut/ACT banyak penggunanya (terutama terkumpul di satu area), maka data GPS mereka (yang realtime) berpotensi untuk dimasukkan ke algoritma RAPiD ini untuk menghitung magnitude gempa tanpa seismograf, bahkan lebih akurat dari seismograf

Namun saya belum jelas saat konfirmasi apakah hal tersebut mungkin dilakukan (deteksi murni berbasis smartphone, tanpa geostation, tanpa seismograf). :(

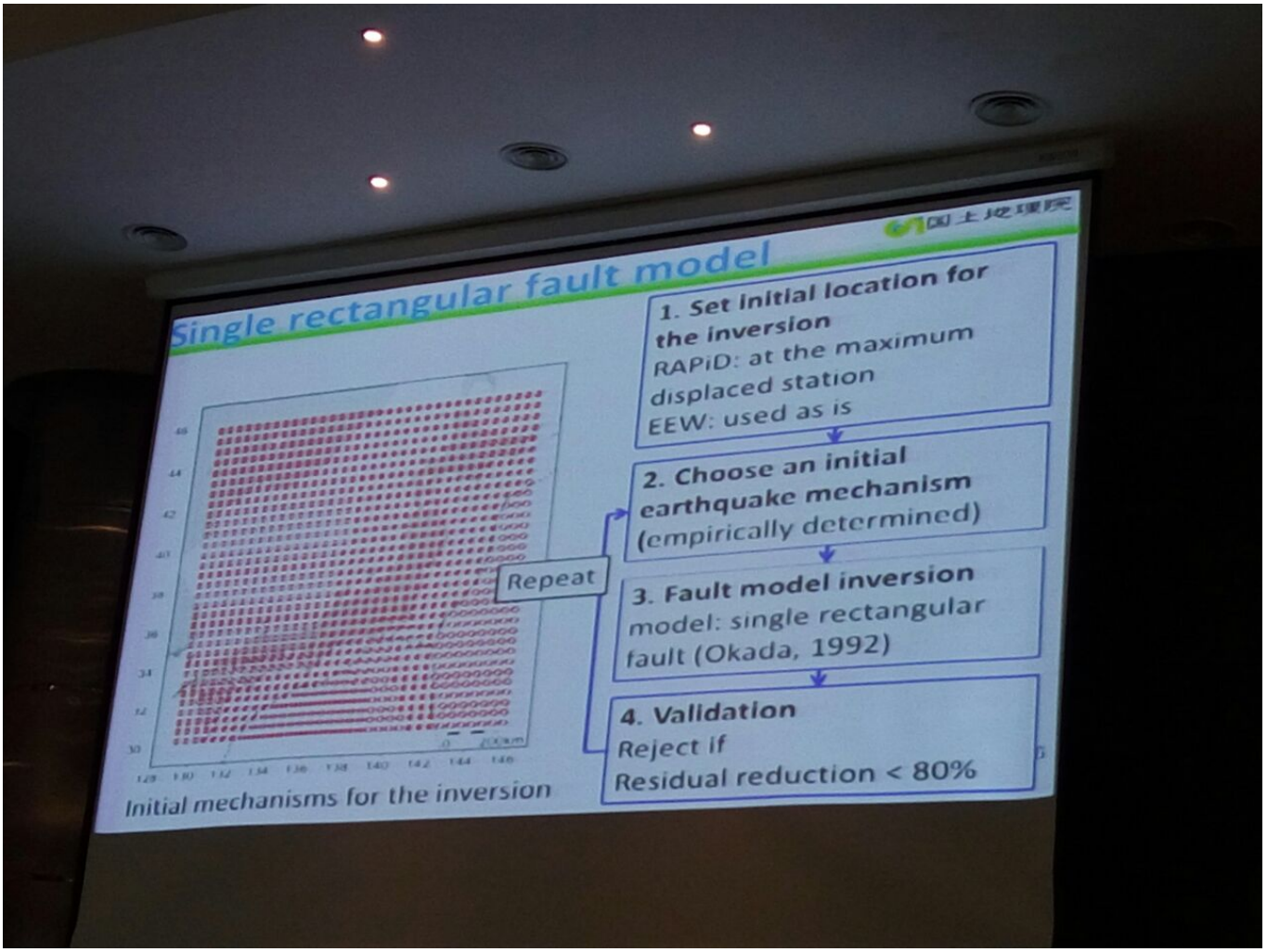
Automatic detection of aftershocks



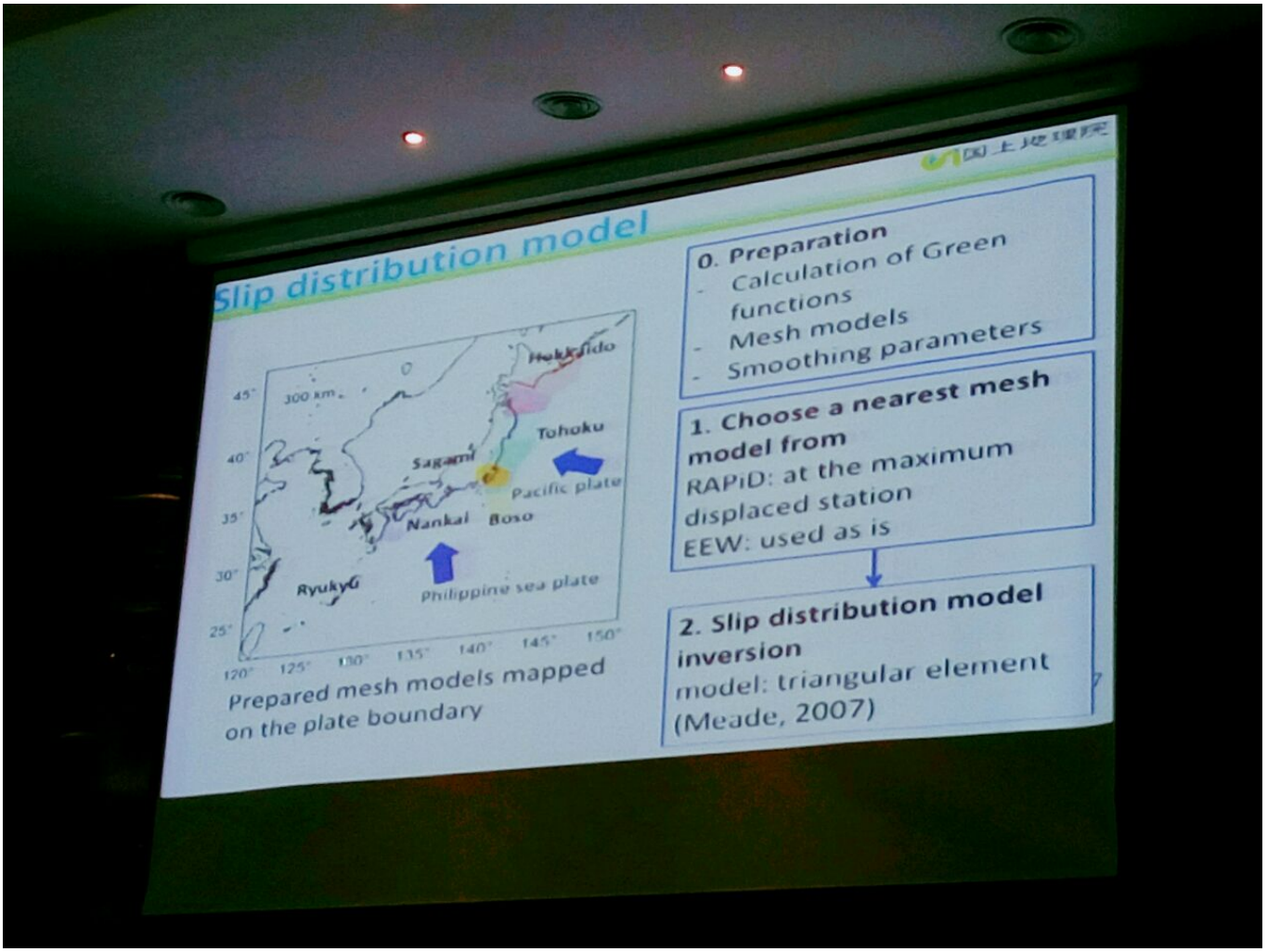
GSI GEONET real-time analysis system



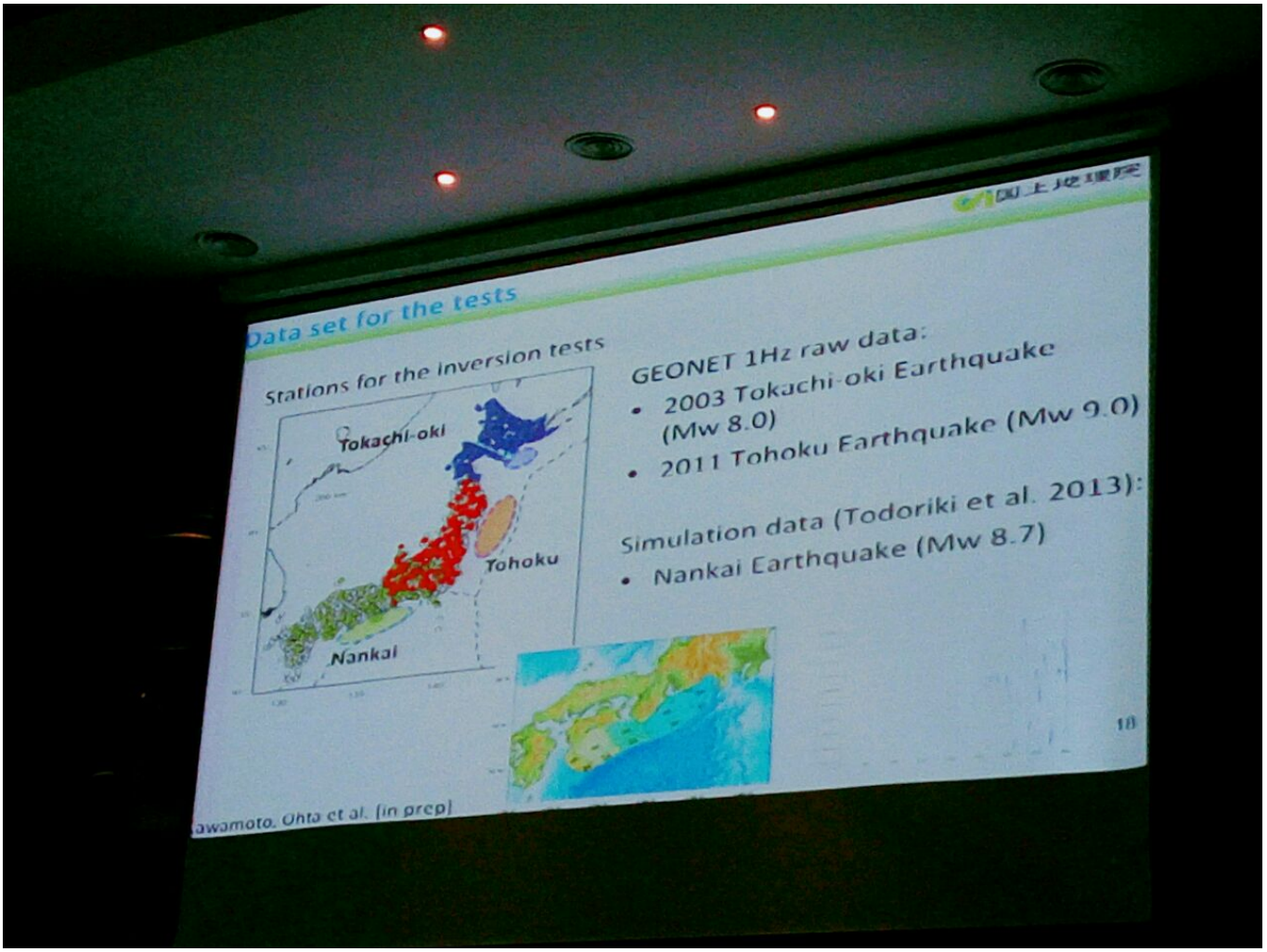
Single rectangular fault model



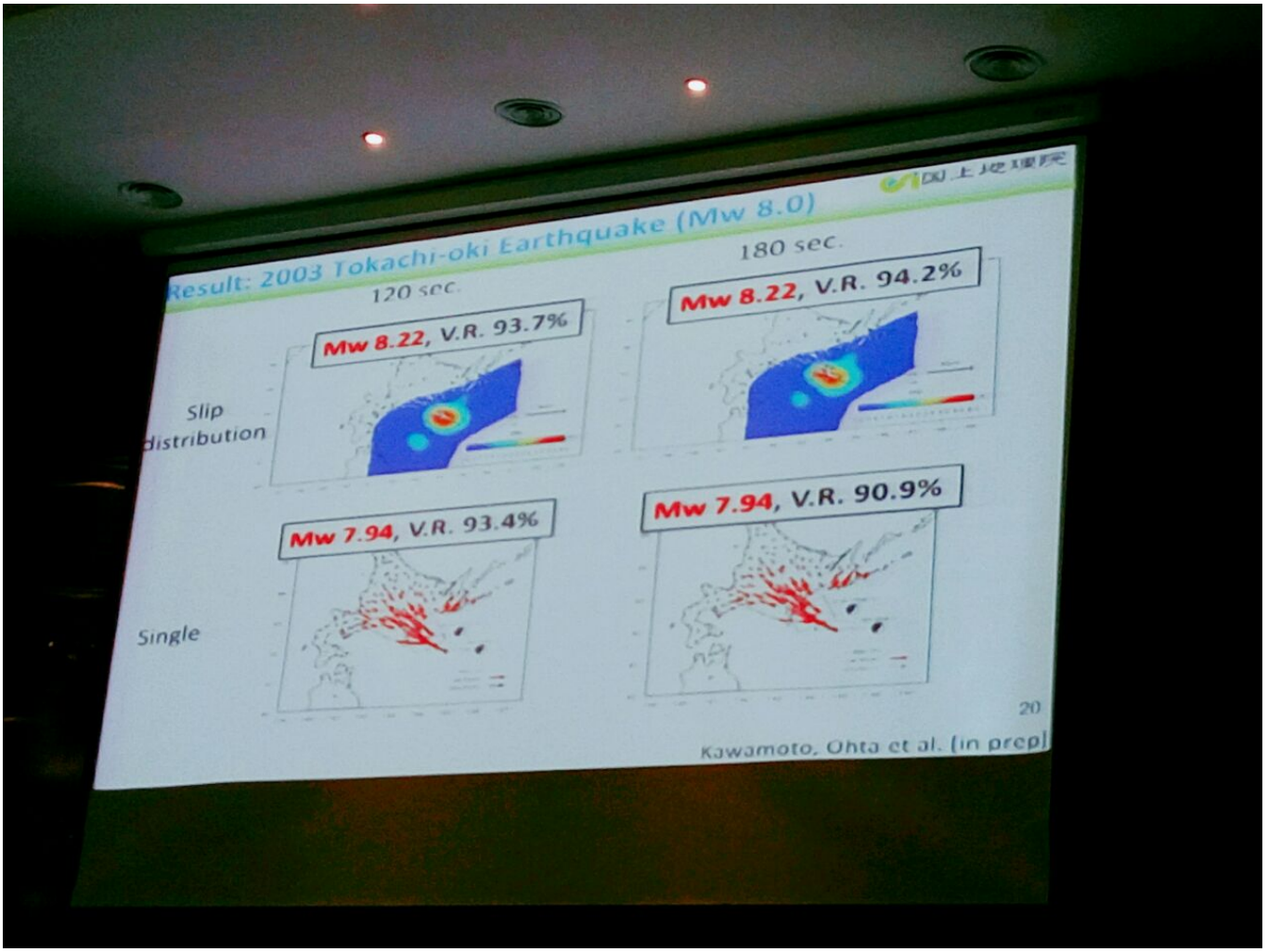
Slip distribution model



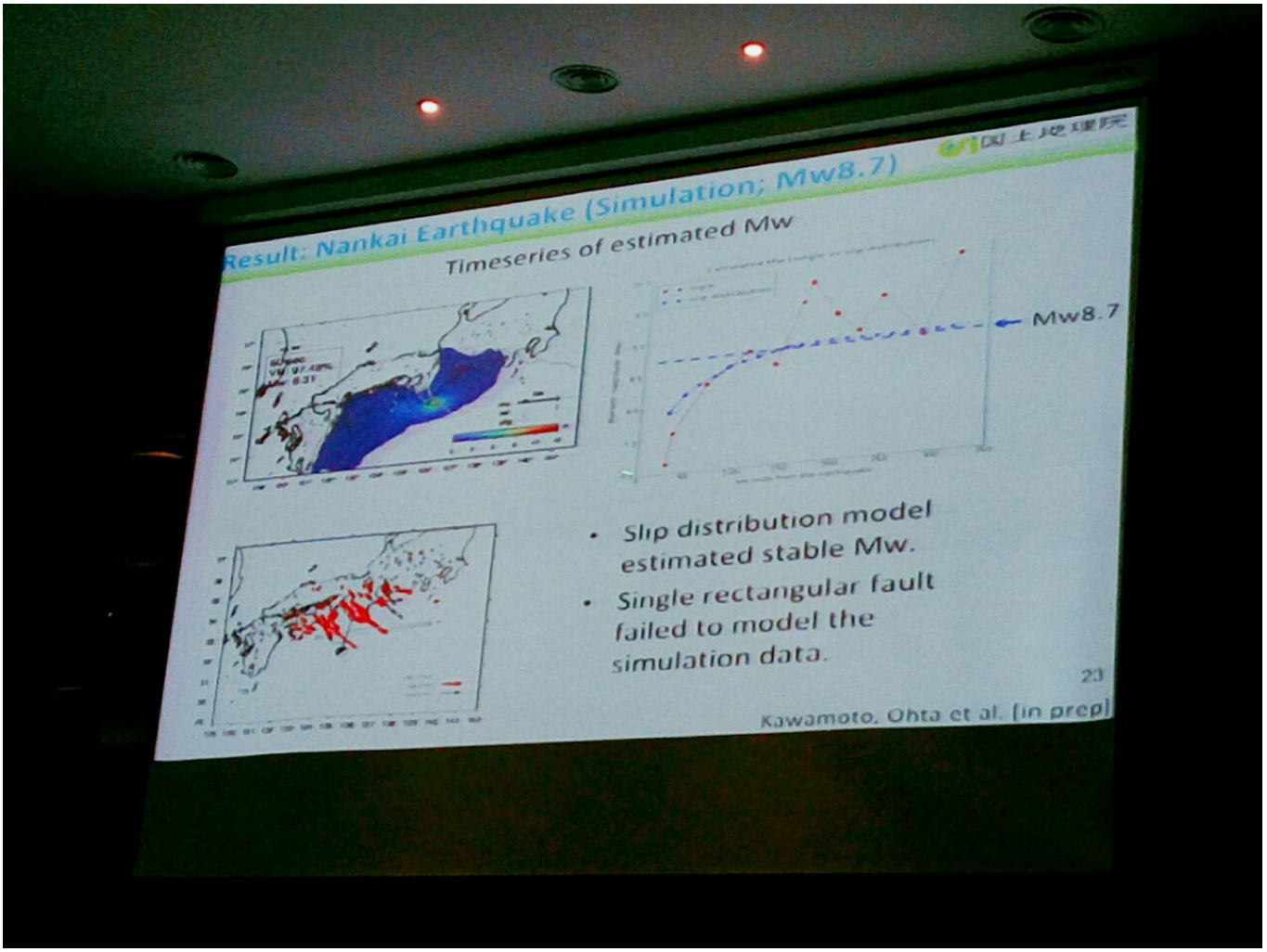
Data set for the tests



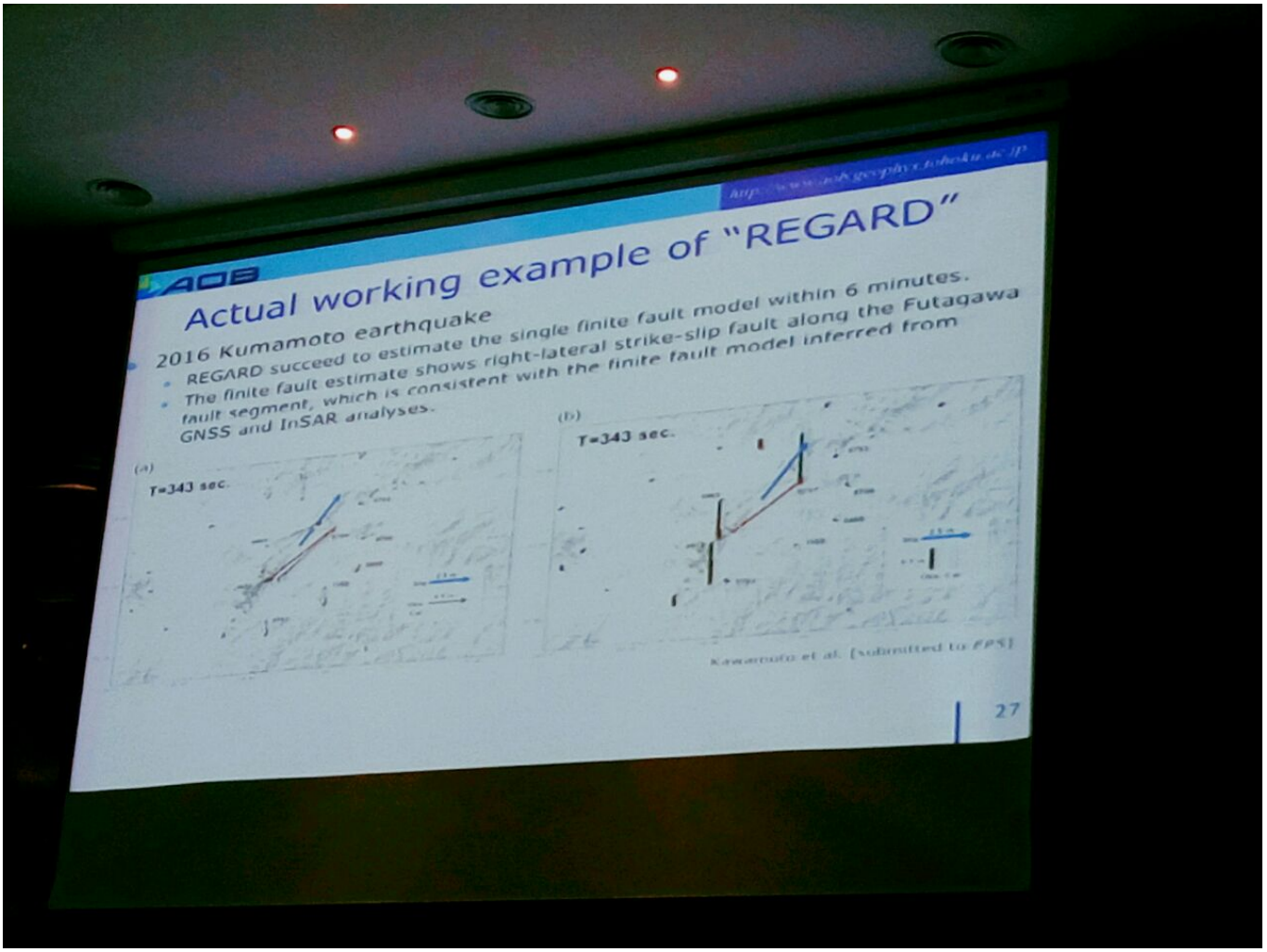
Result 2003 Tokachi-oki Earthquake (Mw 8.0)



Result: Nankai Earthquake (Simulation: Mw 8.2)

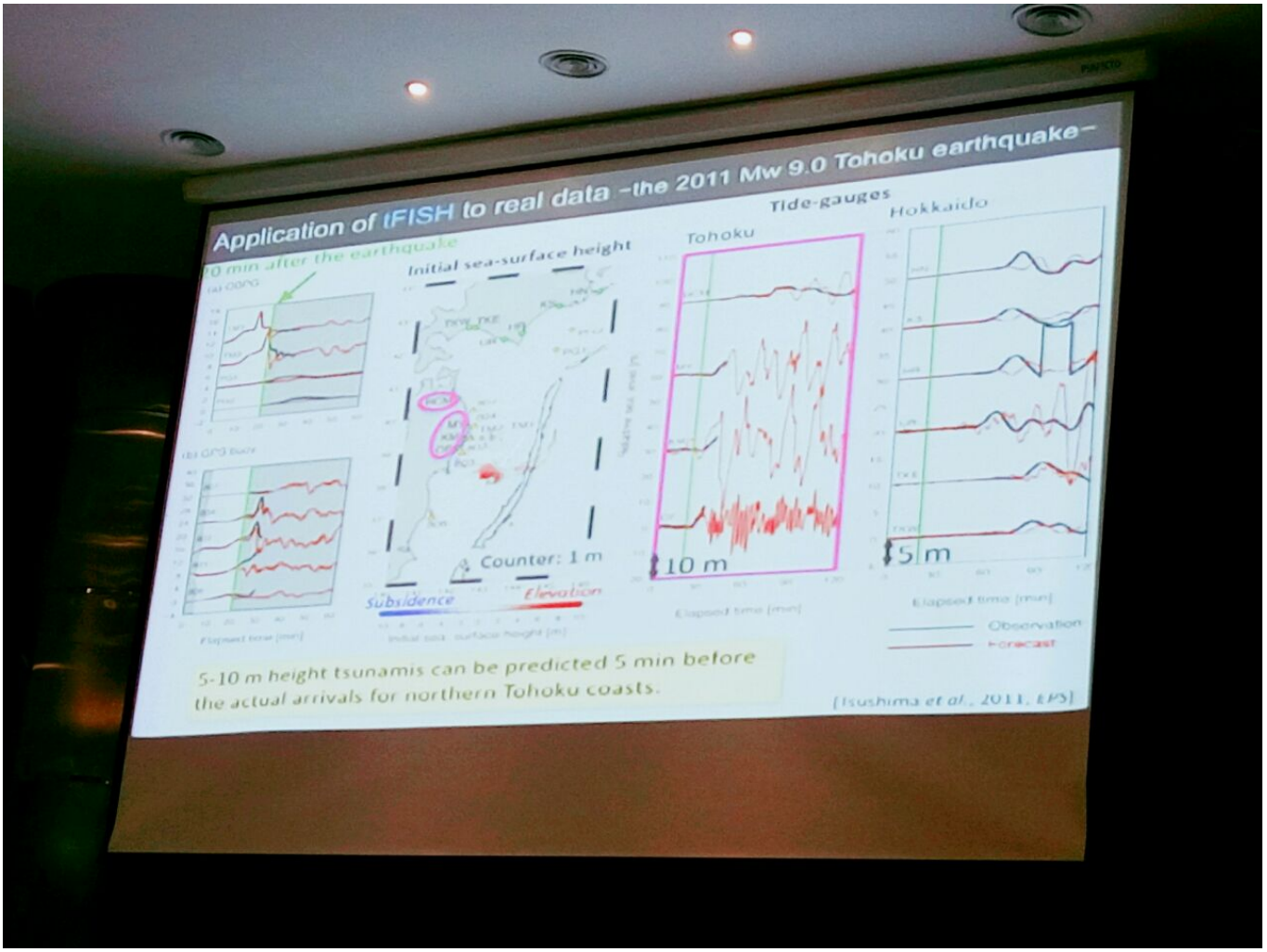


Actual working example of REGARD

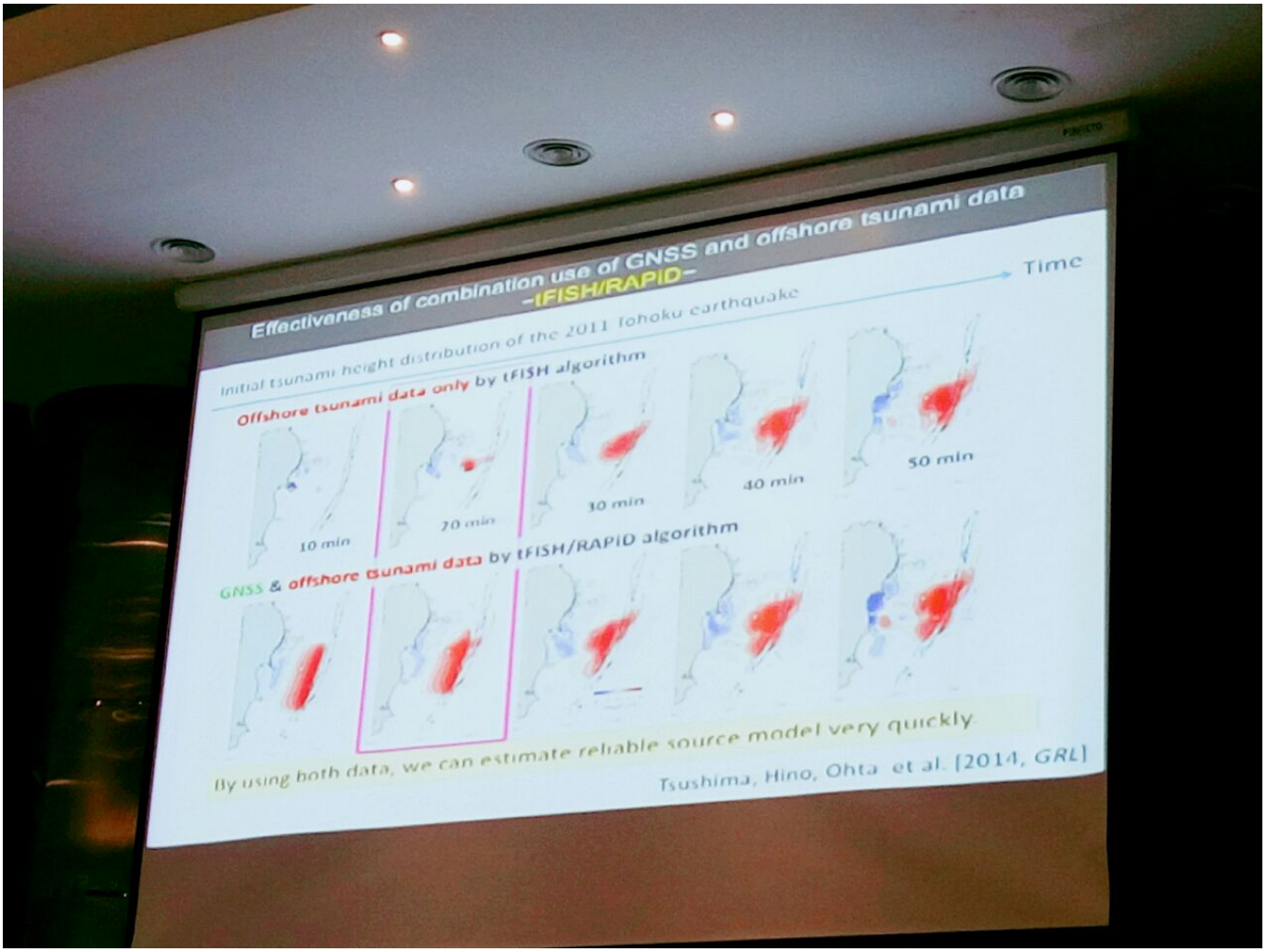


Algoritma REGARD dapat memperkirakan single finite fault model dalam waktu 6 menit.

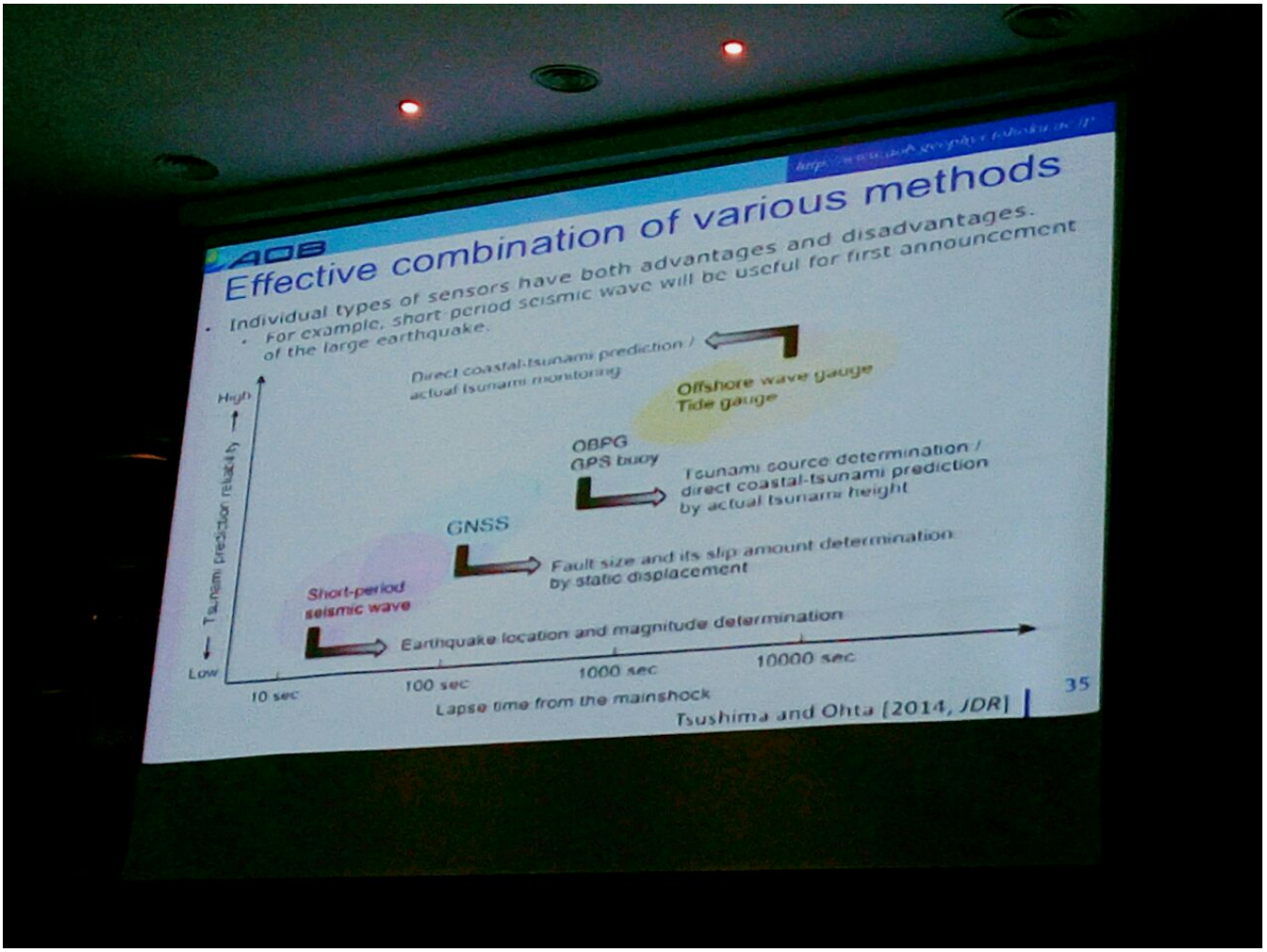
Application of tFISH to real data



Effectiveness of combination use of GNSS and offshore tsunami data tFISH-RAPID



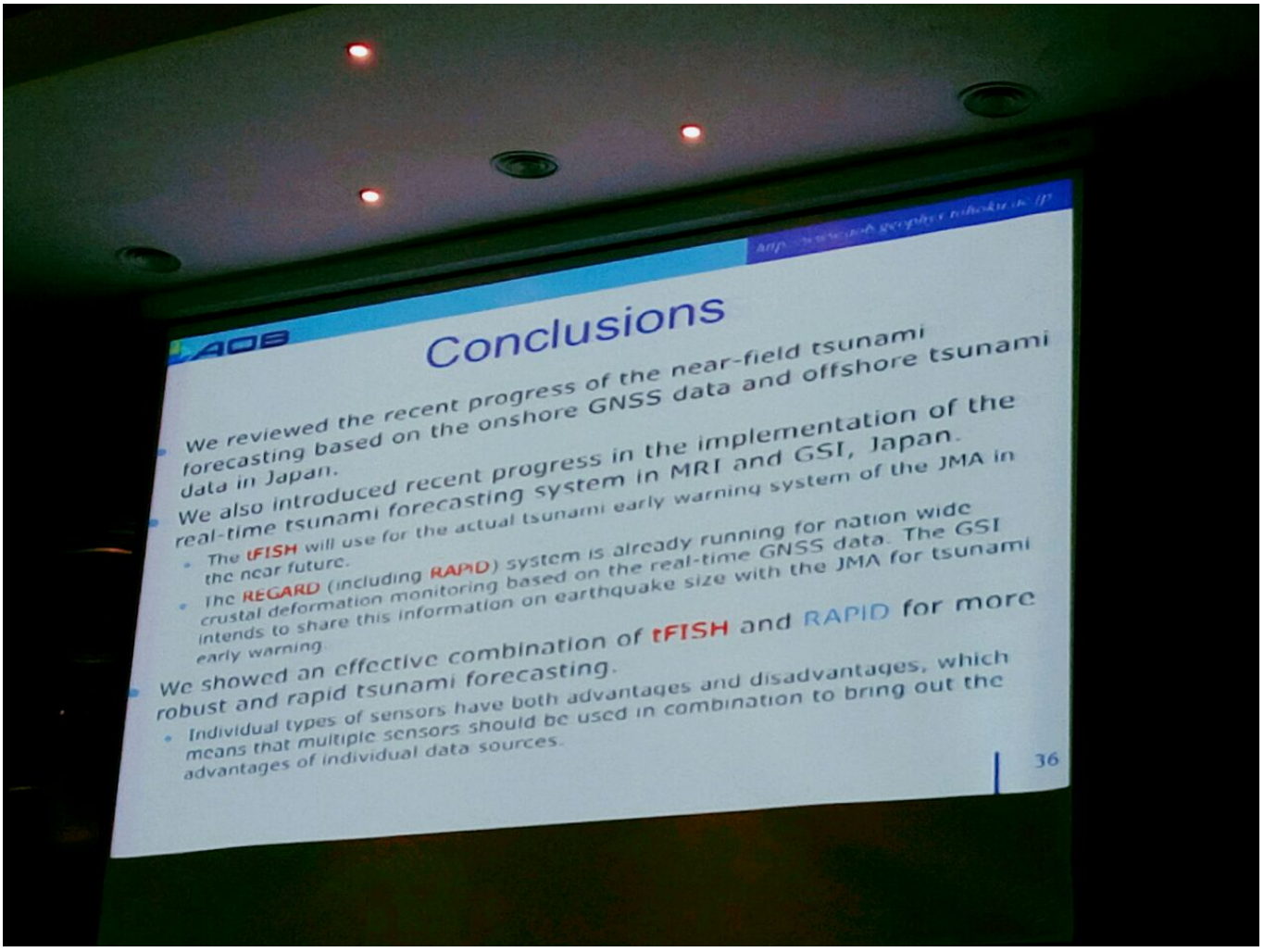
Effective combination of various methods



Agar lebih efektif dan akurat, 4 teknik perlu dikombinasikan:

1. Short-period seismic wave
2. GNSS
3. OBPG; GPS buoy
4. Offshore wave gauge; Tide gauge

Conclusions



Hendy's Questions

Konichiwa, Yusaku Ohta sensei. Hendy to moshimas. Bandung kooka daigaku kara mairimashita. Senko wa Denki kougakudes.

1. What is the difference between tFISH, RAPID, and REGARD?
2. What are the sensors support by this technique? Is it possible to use regular GPS/accelerometer/gyro sensors in multiple smartphones? If so, how many sensors/users are needed to have accurate estimation.

Douzo yoroshiku onegaishimas. Arigatou gozaimasu.

Answer:

1. tFISH -> only waterfloor -- not coseismic model RAPID is from seismic wave -- can generate coseismic model
2. Using GNSS, GLONASS, etc. in geostation