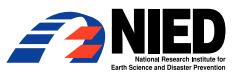


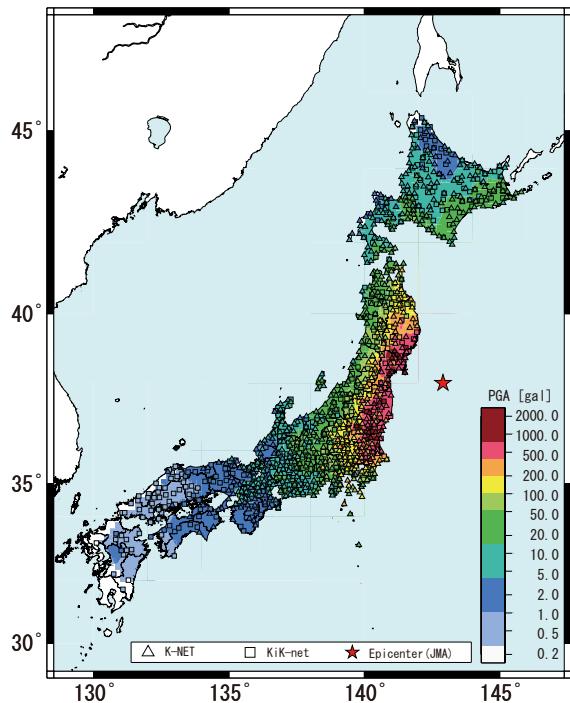
2011 Off the Pacific Coast of Tohoku earthquake, Strong Ground Motion



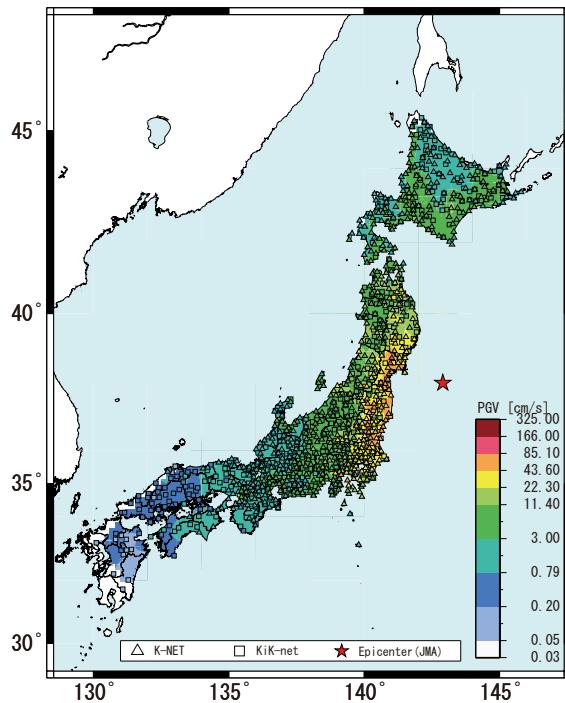
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2011/3/11 14:46, Depth 24km, M9.0 (JMA)

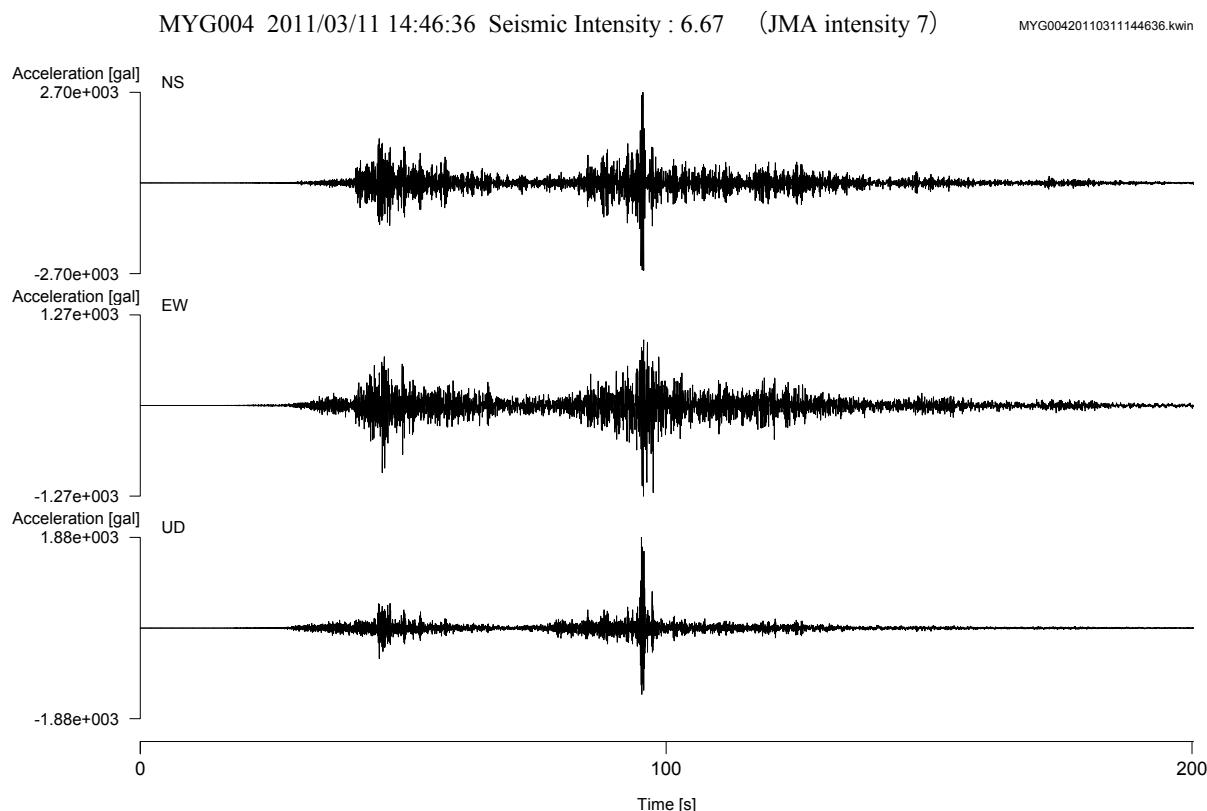
Peak Ground Acceleration (surface)



Peak Ground Velocity (surface)



The largest peak ground acceleration among K-NET and KiK-net sites was recorded at MYG004 K-NET station (waveforms displayed below), reaching 2933 gals (3 components vector summation).



2011 Off the Pacific Coast of Tohoku earthquake, Strong Ground Motion

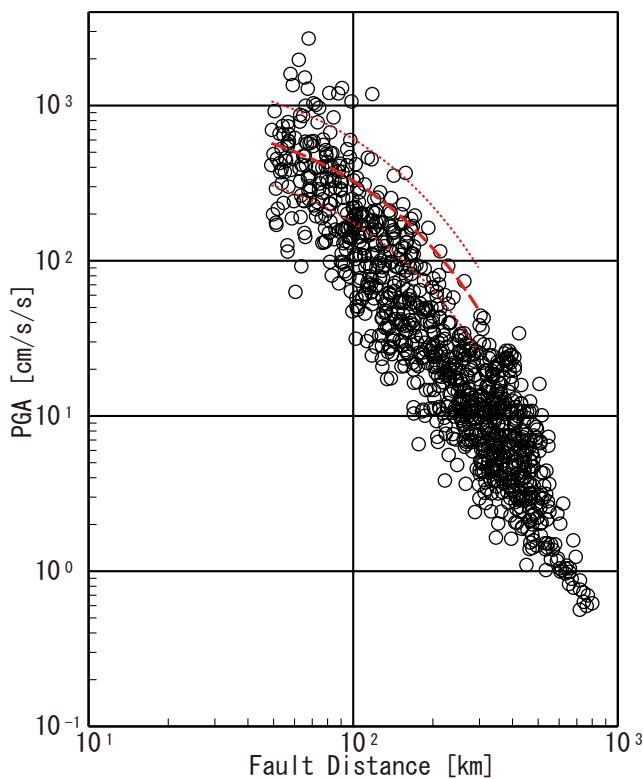


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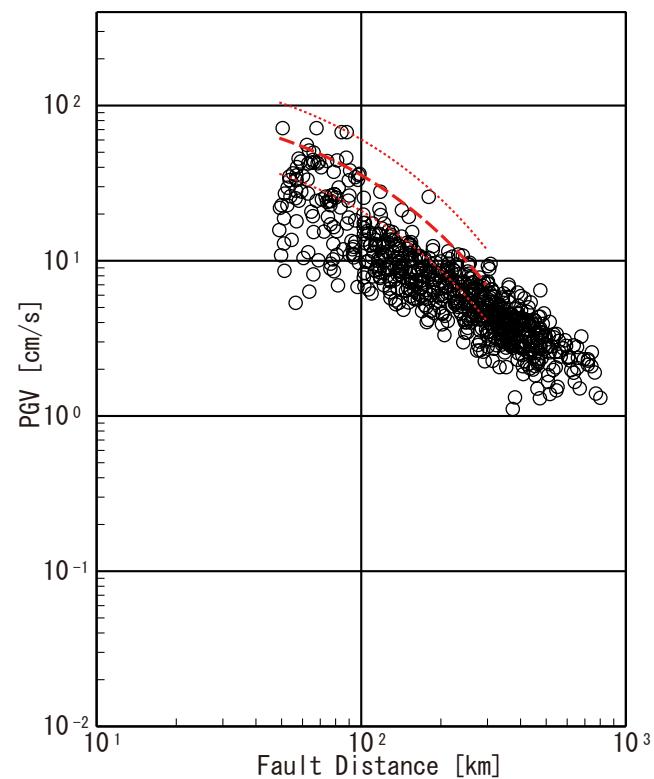
Comparison of observed values of PGA and PGV with ground motion empirical attenuation laws (preliminary)

2011/03/11 14:46 Depth=24km(JMA), Mw=9.0

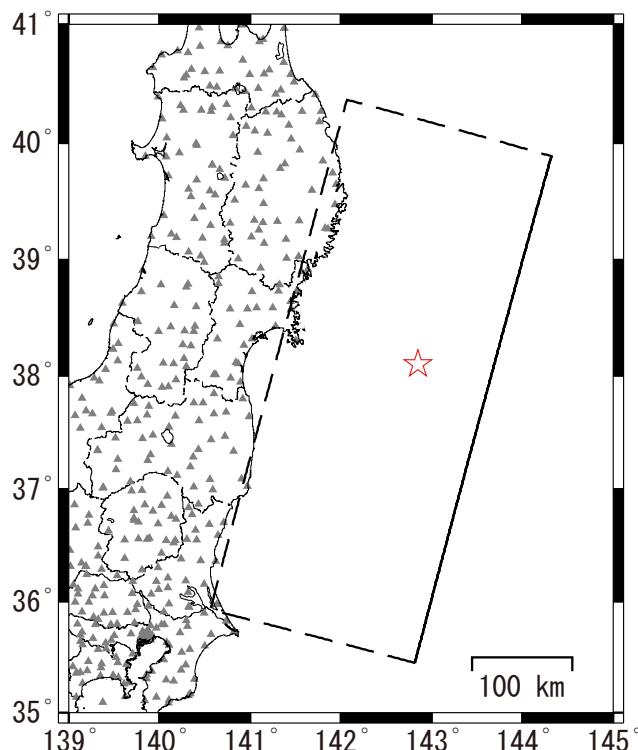
— Si & Midorikawa (1999) inter-plate



Peak Ground Acceleration (PGA)



Peak Ground Velocity (PGV)



- PGA and PGV were obtained as the maximum values between horizontal components.
 - Observed PGV values were corrected to a $V_s=600\text{m/s}$, by removing the amplification at every station from boring information.
- ※ The Mw9.0 is beyond the range of applicability of the empirical attenuation laws (Shi and Midorikawa, 1999)
- ※ The fault model used is preliminary

Assumed fault model

2011 Tohoku Chihou Taiheiyou oki earthquake, Strong Ground Motion



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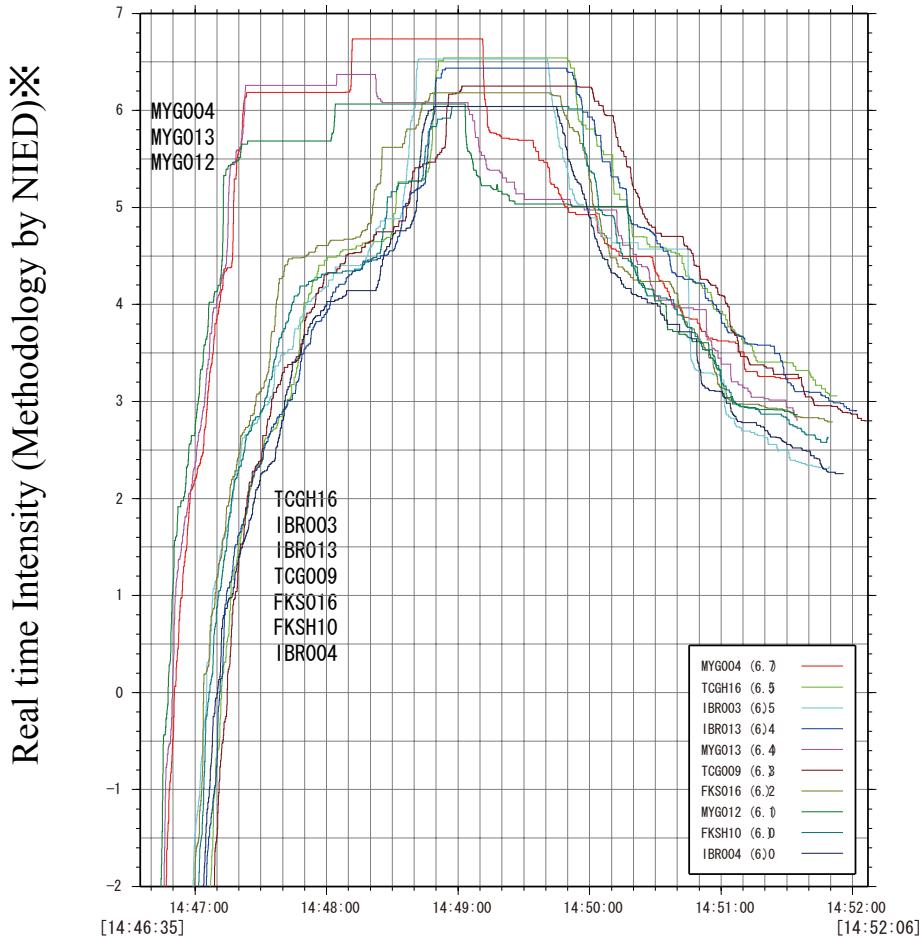
List of 10 largest Observed Peak Ground Accelerations

	Station name	PGA	JMA intensity※
1	MYG004	2933gal	6.6
2	MYG012	2019gal	6.0
3	IBR003	1845gal	6.4
4	MYG013	1808gal	6.3
5	IBR013	1762gal	6.4
6	TCG009	1444gal	6.2
7	FKS016	1425gal	6.1
8	FKSH10	1335gal	6.0
9	IBR004	1312gal	6.0
10	TCGH16	1305gal	6.5

※JMA Instrumental intensity

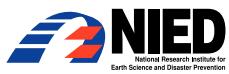
This list is based on information obtained by March 24, from 693 K-NET and 496 KiK-net sites.

Evolution of intensity values in time



※Kunugi et al. (2008)

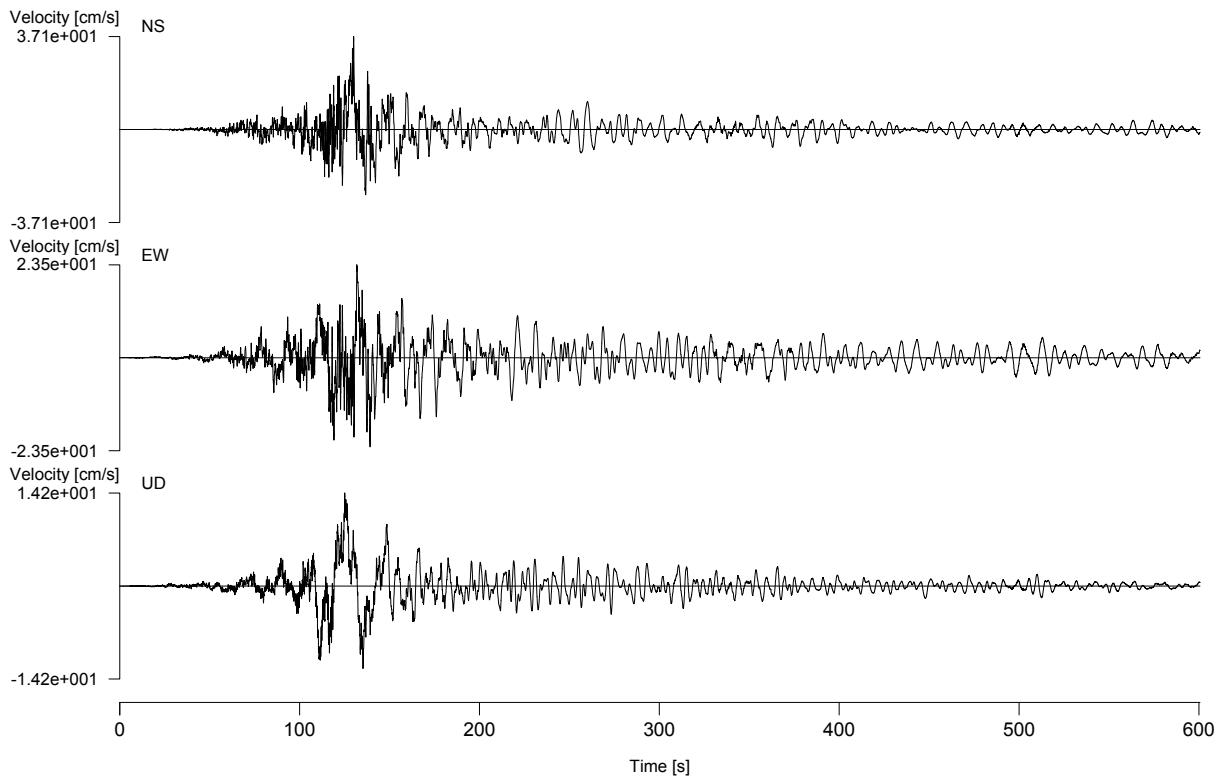
2011 Off the Pacific Coast of Tohoku earthquake, Strong Ground Motion



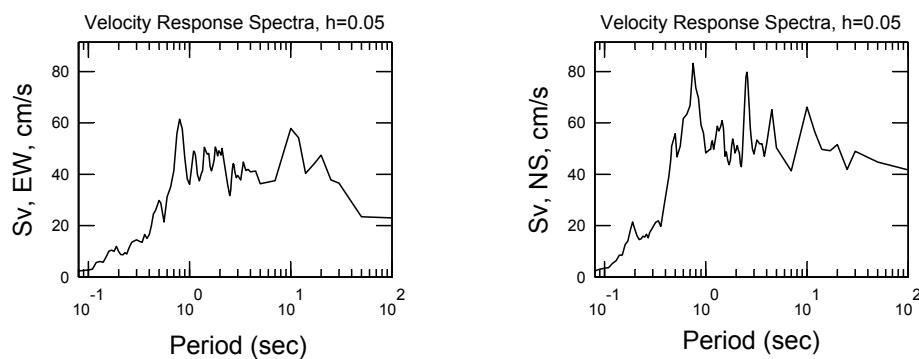
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Long Period Ground Motion recorded at K-NET, Chiba station (CHB009)

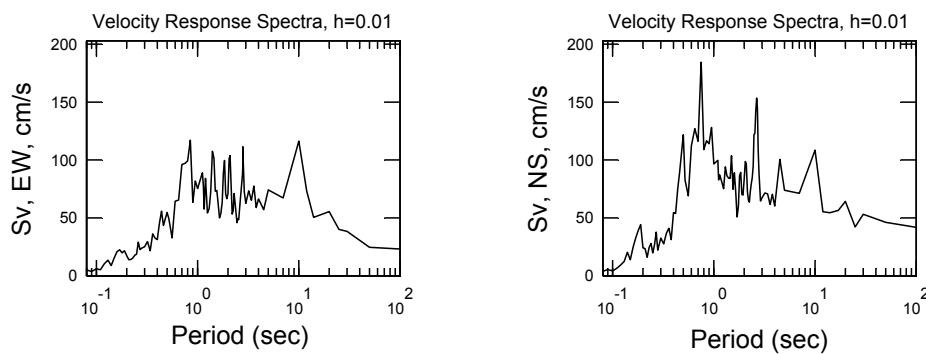
CHB009 2011/03/11 14:47:09



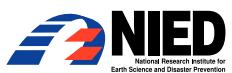
Velocity Response Spectra (5% damping)



Velocity Response Spectra (1% damping)



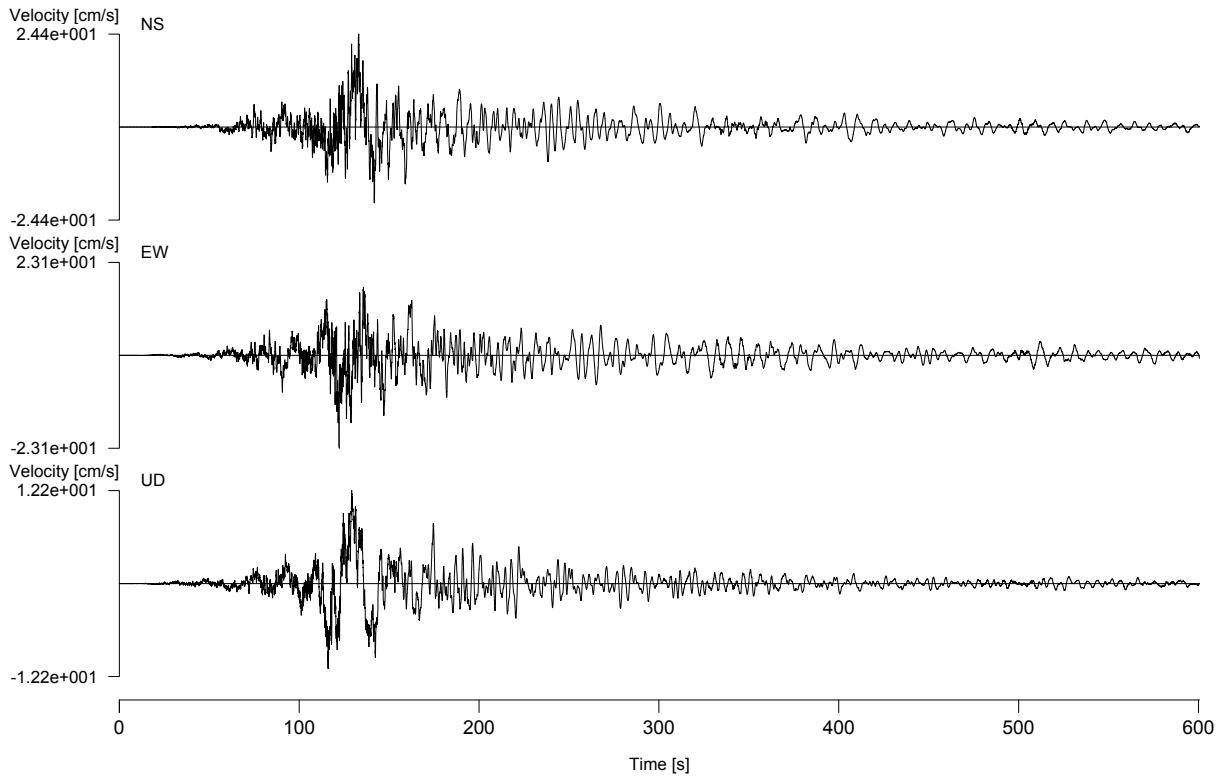
2011 Off the Pacific Coast of Tohoku earthquake, Strong Ground Motion



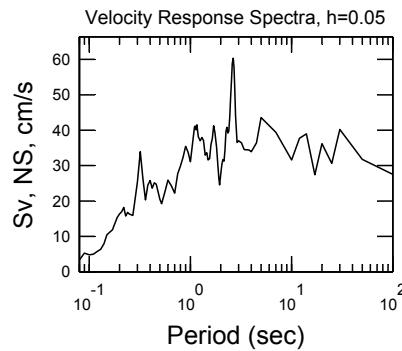
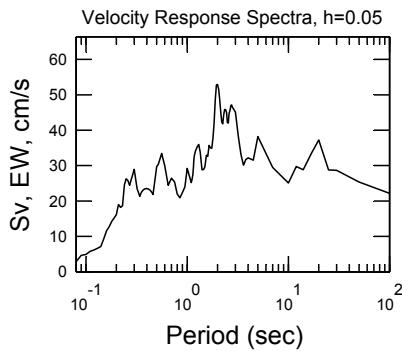
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Long Period Ground Motion recorded at K-NET, Shinjuku station (TKY007)

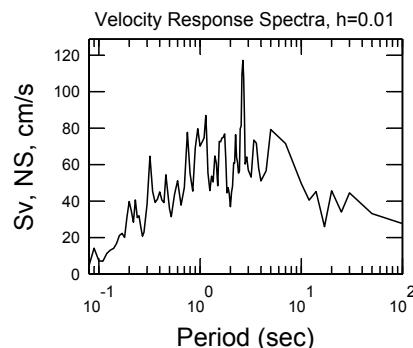
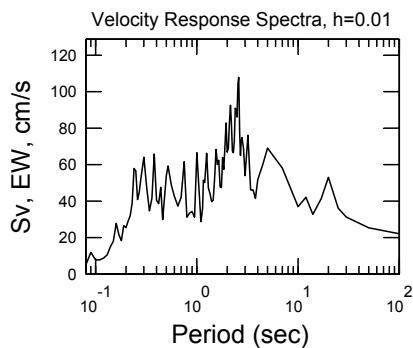
TKY007 2011/03/11 14:47:09



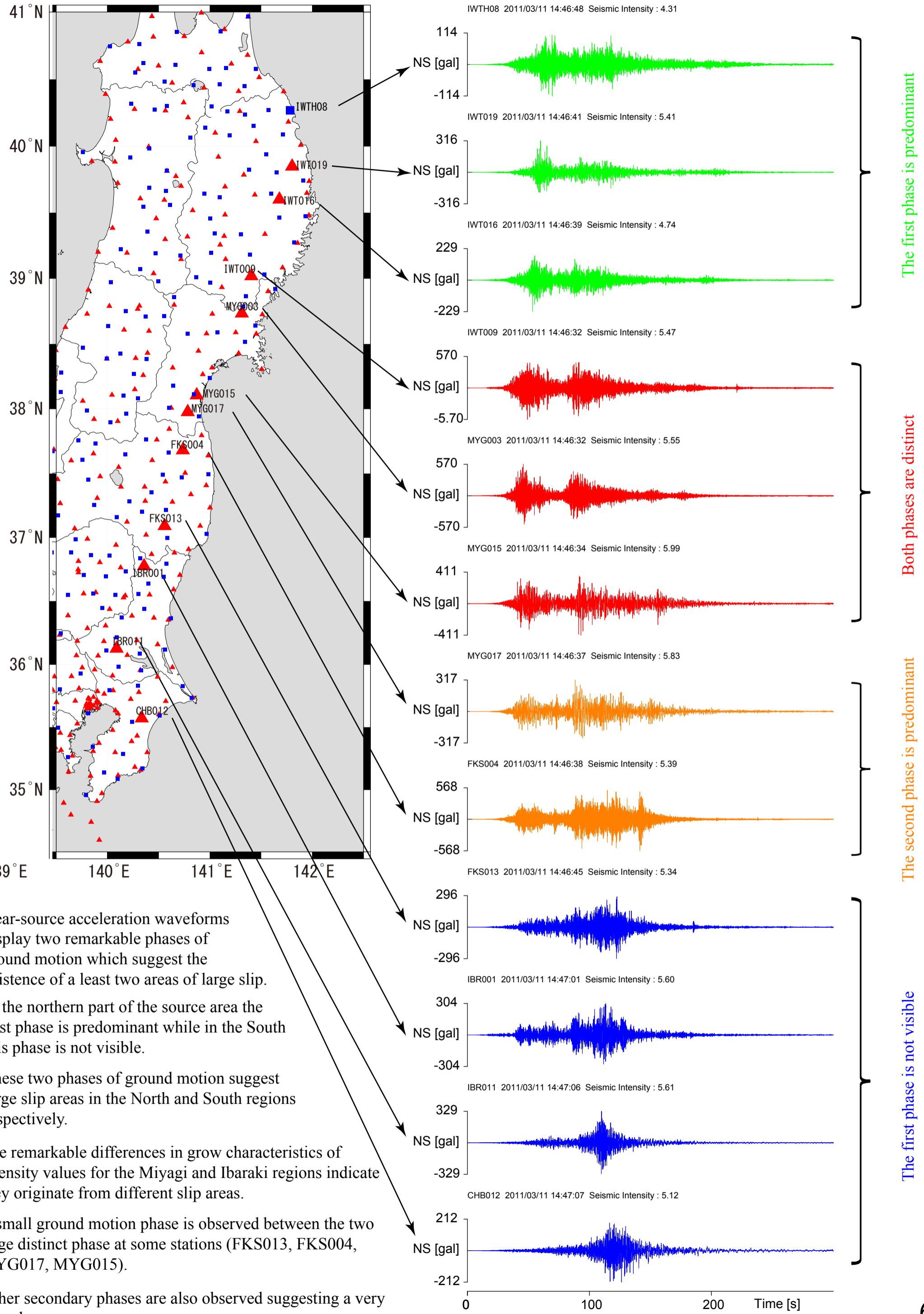
Velocity Response Spectra (5% damping)



Velocity Response Spectra (1% damping)



Characteristics of near-source ground motions



Source Process of the 2011 Off the Pacific Coast of Tohoku earthquake based on Strong Ground Motions (Preliminary)

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- Fault Model
 - Strike : 195 degrees
 - Dip : 13 degrees
 - Size : 510km×210km

- Results
 - $M_0 : 3.28 \times 10^{23} \text{Nm}$ (Mw8.9)
 - Largest slip : 23m
- This is a preliminary result and it will be updated

Figure 1 : Stations used for inversion (Red: K-NET stations, Blue: KiK-net borehole stations) and slip distribution. A red arrow displays the epicenter.

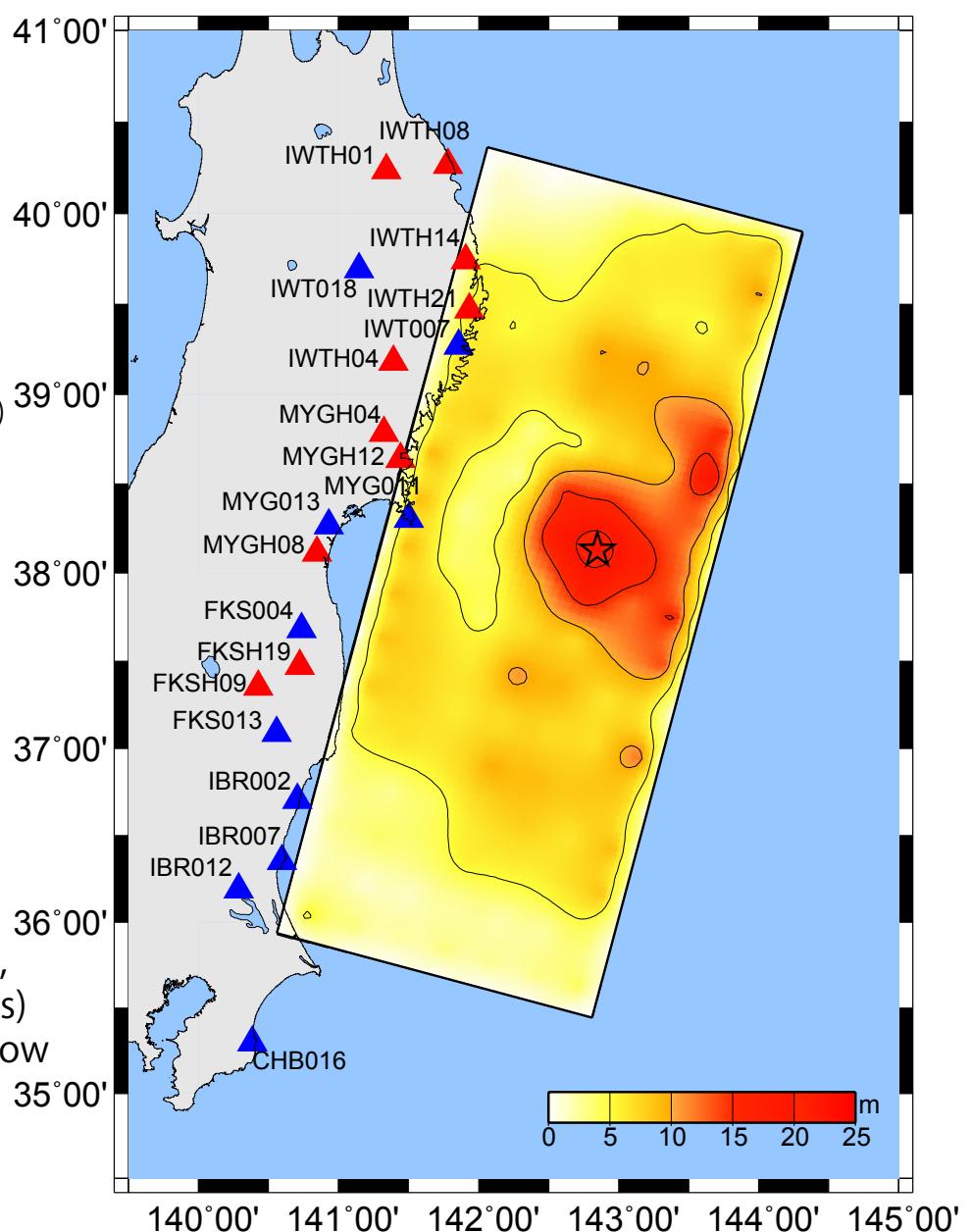


Figure 2 : Slip distribution. Contour lines of slip every 5 m are displayed. The arrows show the slip directions and amplitudes of the hanging wall.

