Strong Ground Motions

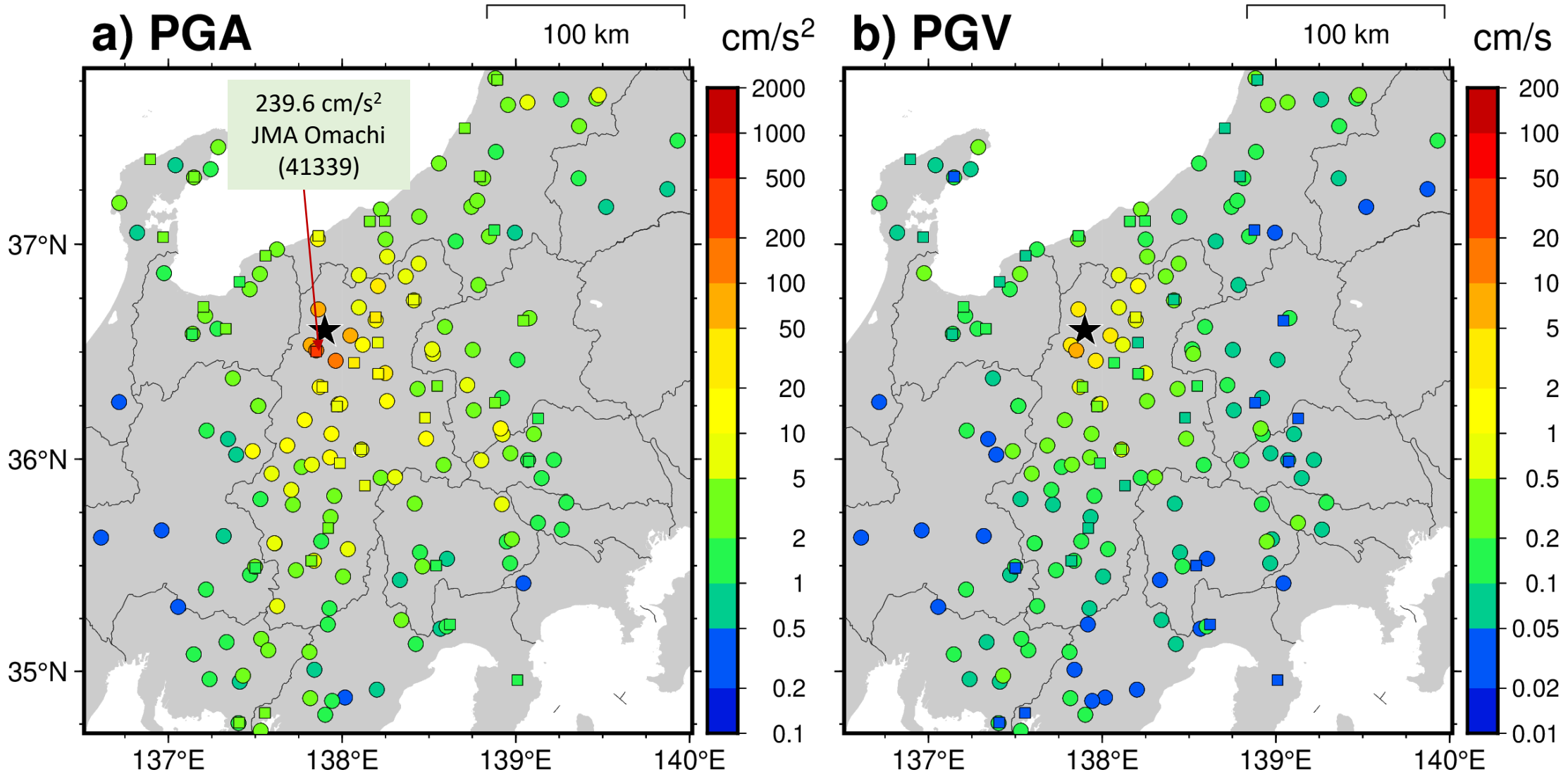
Earthquake in Northern Nagano Pref. on April 18, 2026 (Mw*4.9, Mj5.0)

IISEE, Building Research Institute

This report contains preliminary analysis results.

*The moment magnitude (Mw) was adopted from the estimate provided by NIED F-net.

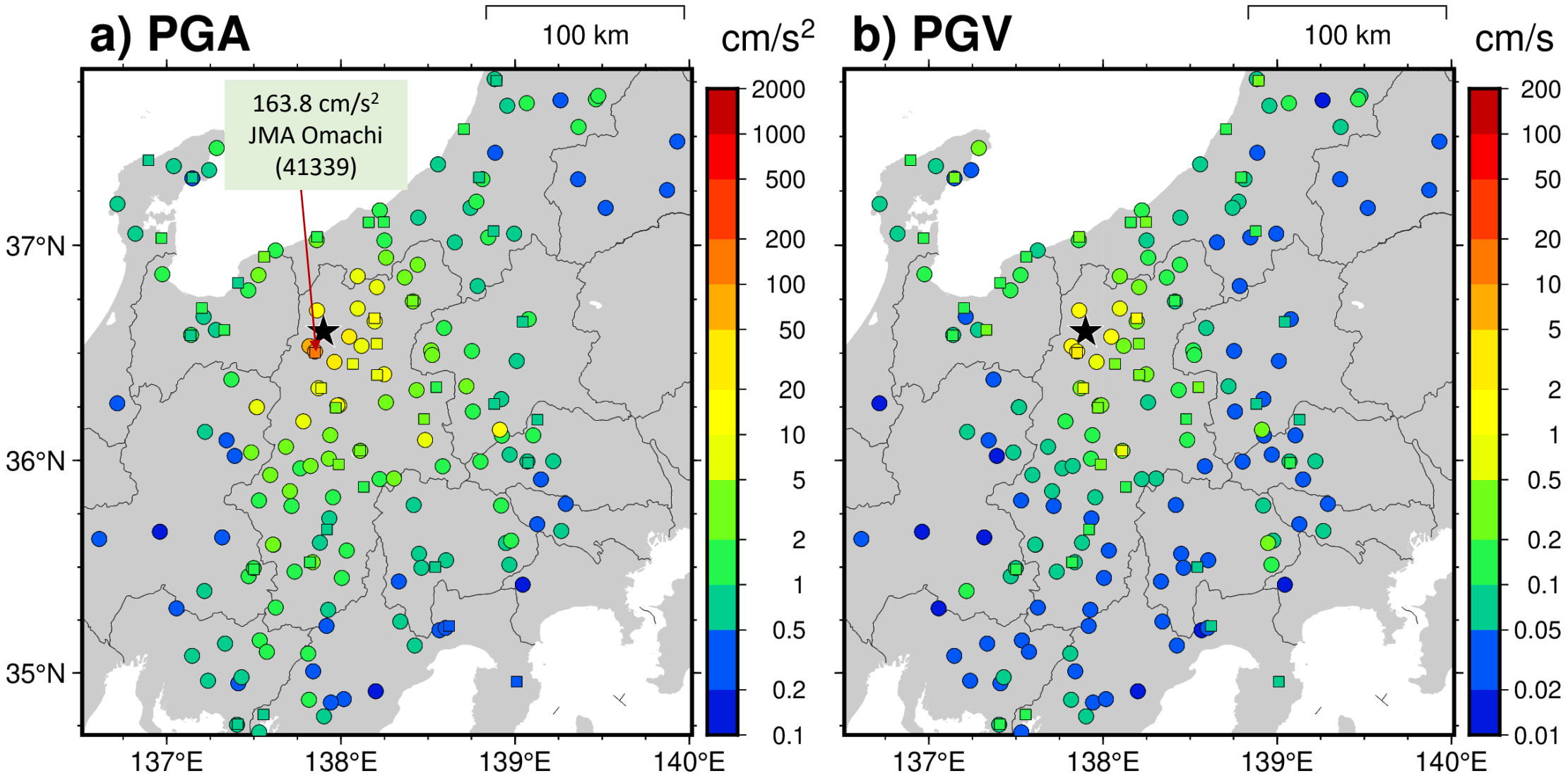
Observed PGAs/PGVs (Horizontal comp.)



○: NIED stations, □: JMA seismic intensity stations

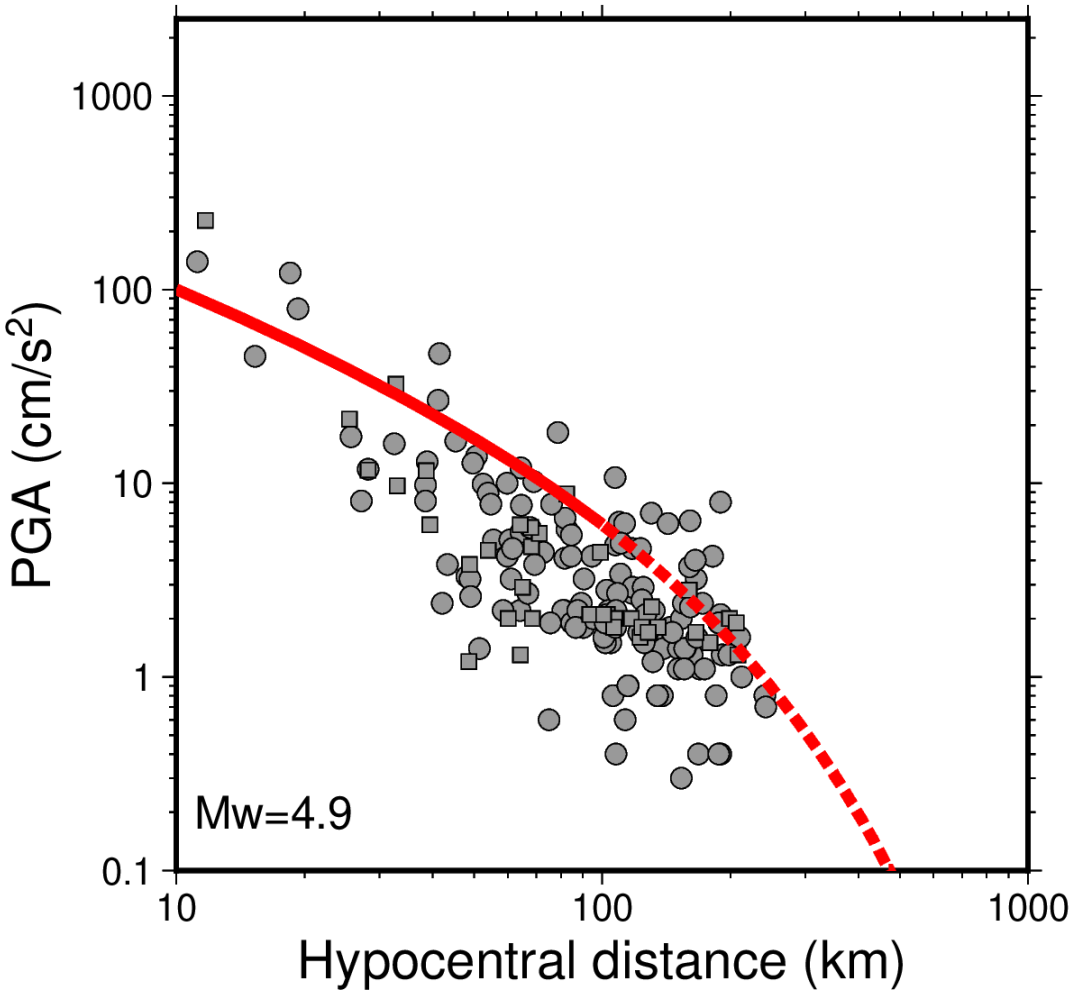
※ PGA and PGV are the maximum values of vector summation in the horizontal components.

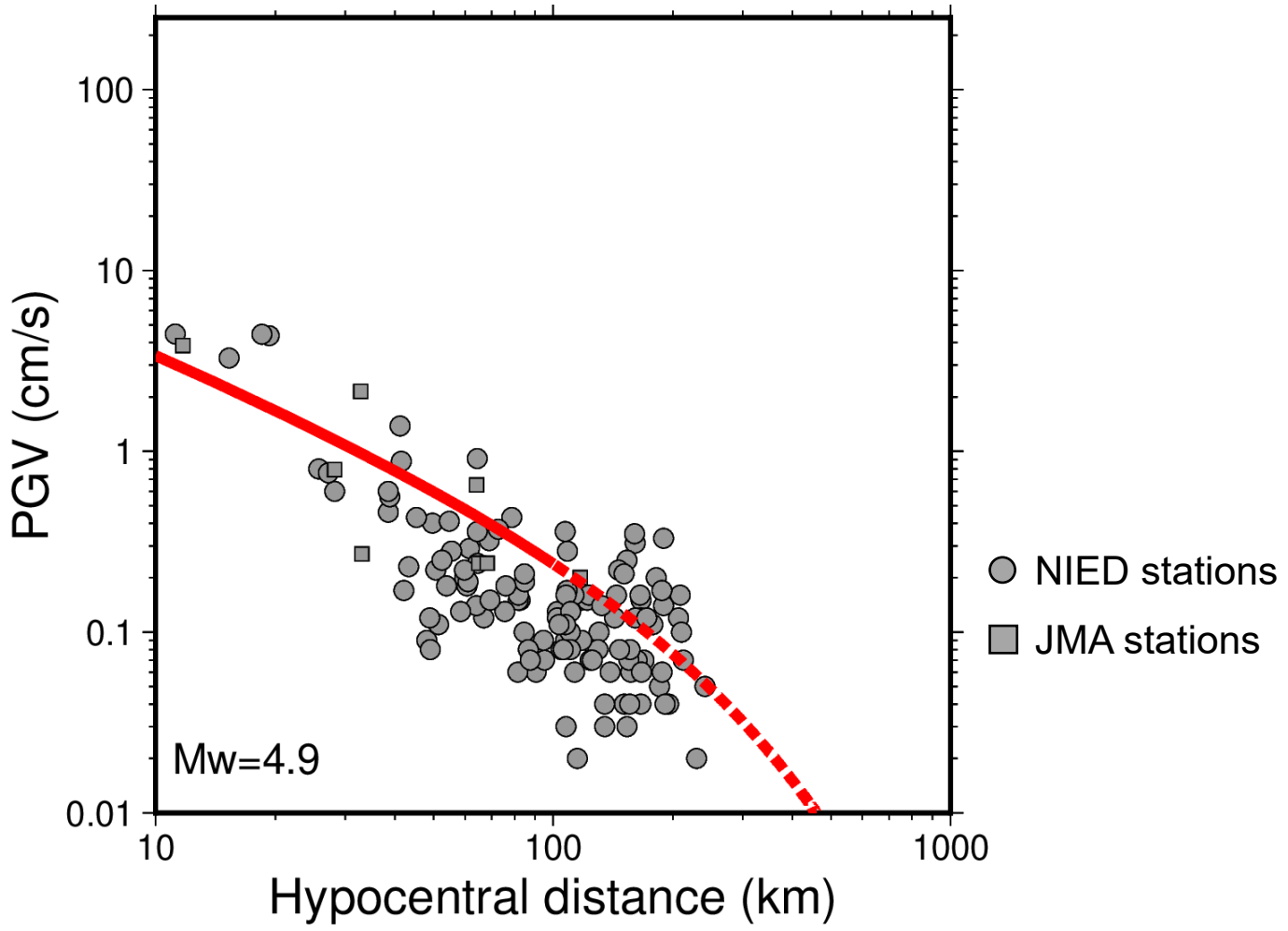
Observed PGAs/PGVs (Vertical comp.)



○: NIED stations, □: JMA seismic intensity stations

Observed PGAs/PGVs vs GMPE (Si & Midorikawa, 1999)

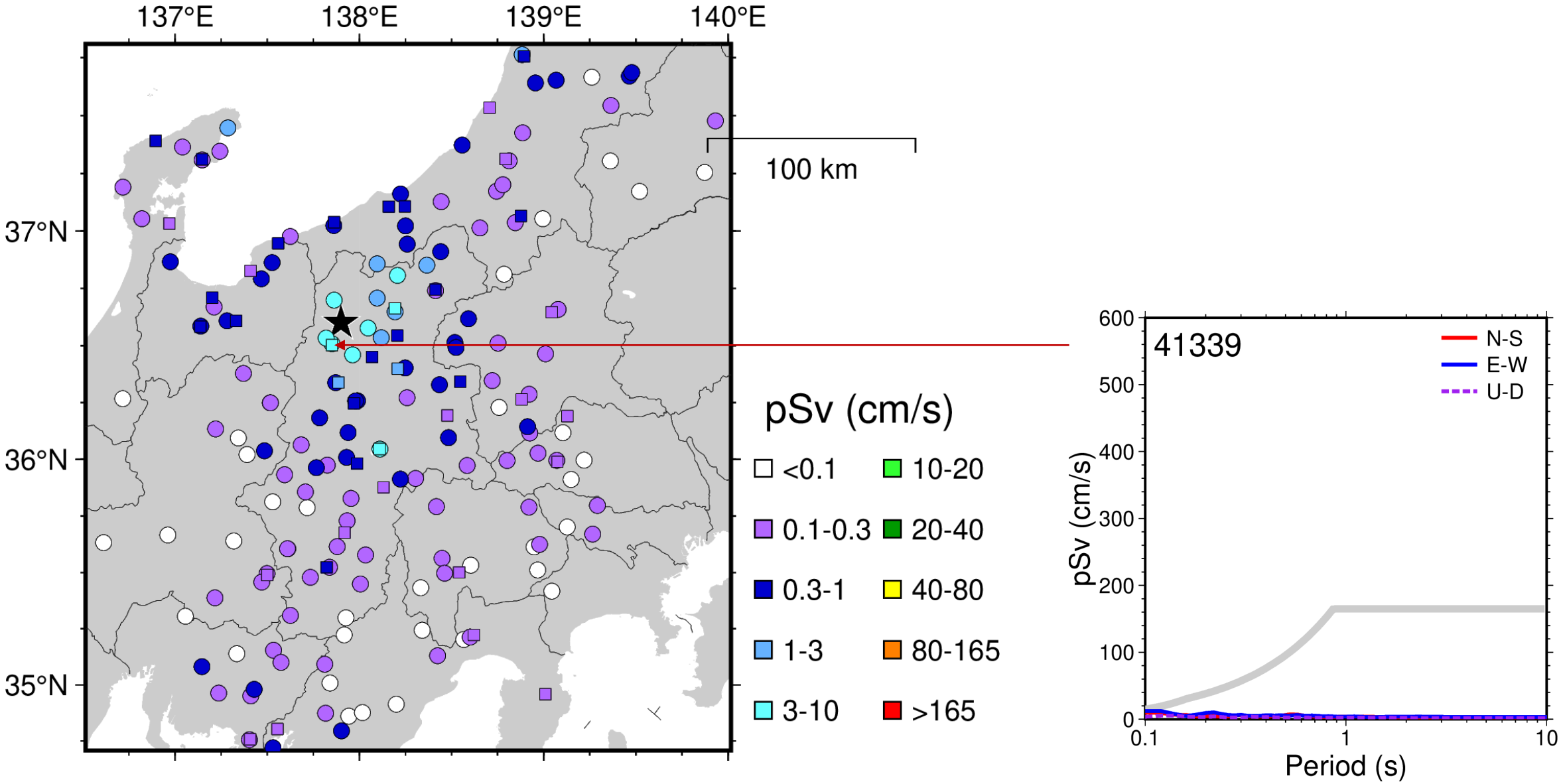




※ Horizontal axis is NOT the “shortest distance to the fault”.
※ PGA/PGV values are the larger of the maximum values of NS and EW components.
※ Crustal earthquake (depth=7.8 km) is assumed for the estimation.
※ Estimated values beyond 100 km (dashed line) are shown as reference values.

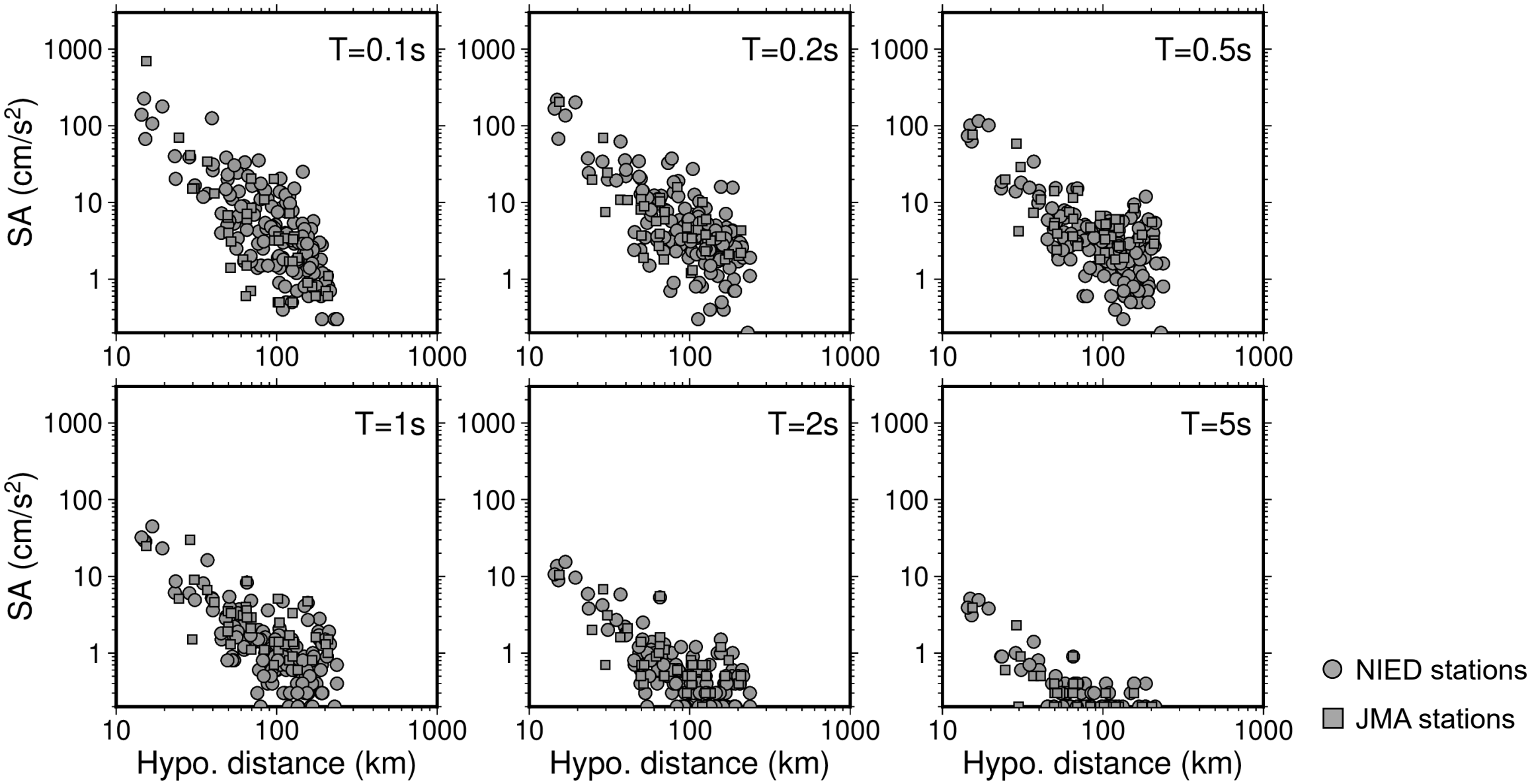
Pseudo-velocity response

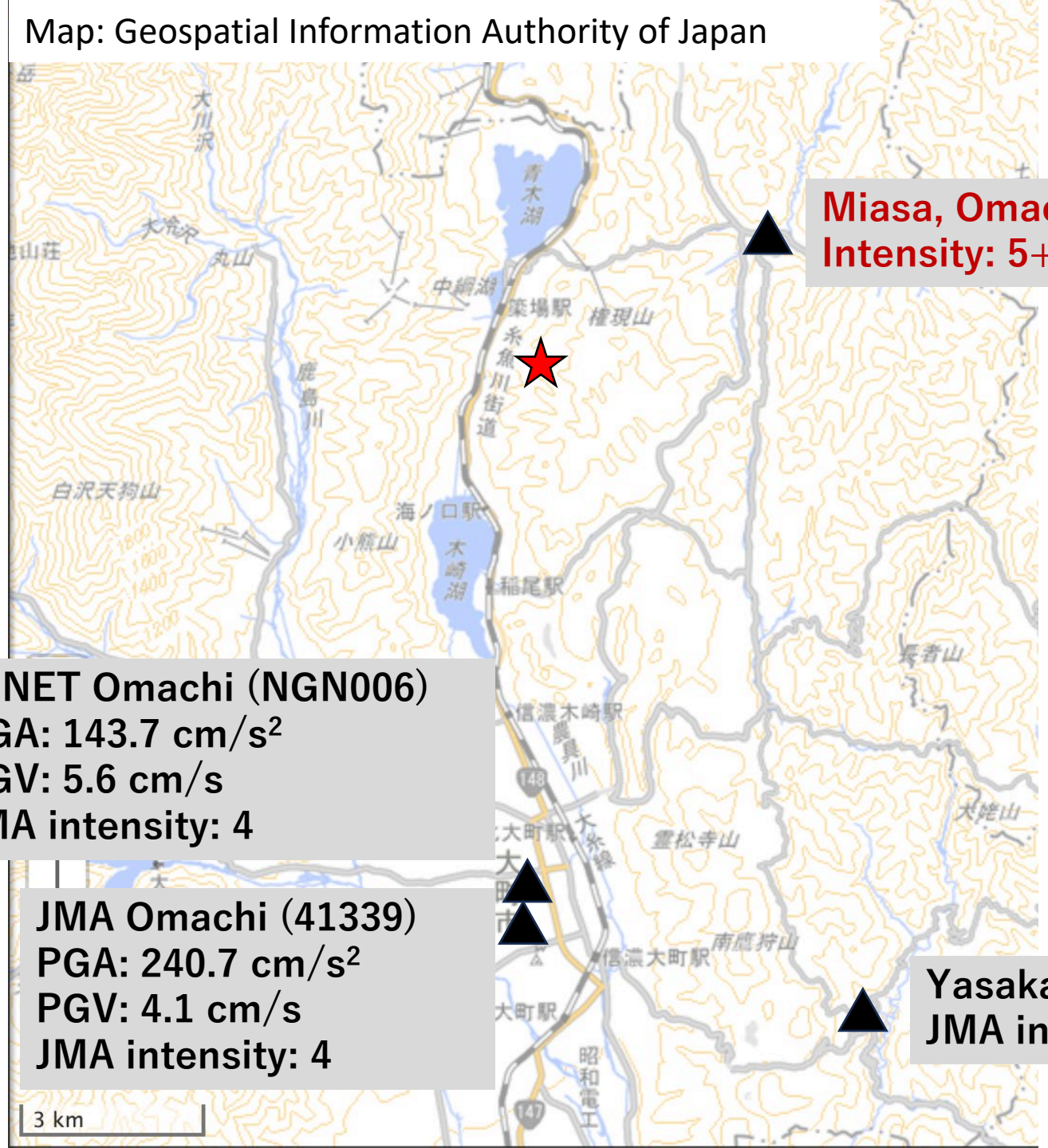
(pSv: maximum value for periods of 1–2 s, 5% damping)



Attenuation characteristics of response spectra (Sa)

5% damping




Map: Geospatial Information Authority of Japan
Miasa, Omachi（大町市美麻）
Intensity: 5+
K-NET Omachi (NGN006)
PGA: 143.7 cm/s²
PGV: 5.6 cm/s
JMA intensity: 4
JMA Omachi (41339)
PGA: 240.7 cm/s²
PGV: 4.1 cm/s
JMA intensity: 4
Yasaka, Omachi (大町市八坂)
JMA intensity: 4
3 km

Summary

- The maximum seismic intensity of 5+ for this earthquake was recorded at the seismic intensity station Miasa, located close to the epicenter (data not yet available).

- JMA seismic intensities measured at stations operated by NIED (K-NET) and JMA in Omachi City were 4, lower than Miasa.

Acknowledgments

We used K-NET and KiK-net strong-motion data provided by the National Research Institute for Earth Science and Disaster Resilience; NIED), Japan (https://www.doi.org/10.17598/NIED.0004)
We used strong motion data provided by NIED (K-NET and KiK-net), JMA, and RTRI for past strong motion in Japan.
Figures were prepared using Generic Mapping Tools (GMT: Wessel and Smith, 1998).