Strong Ground Motions

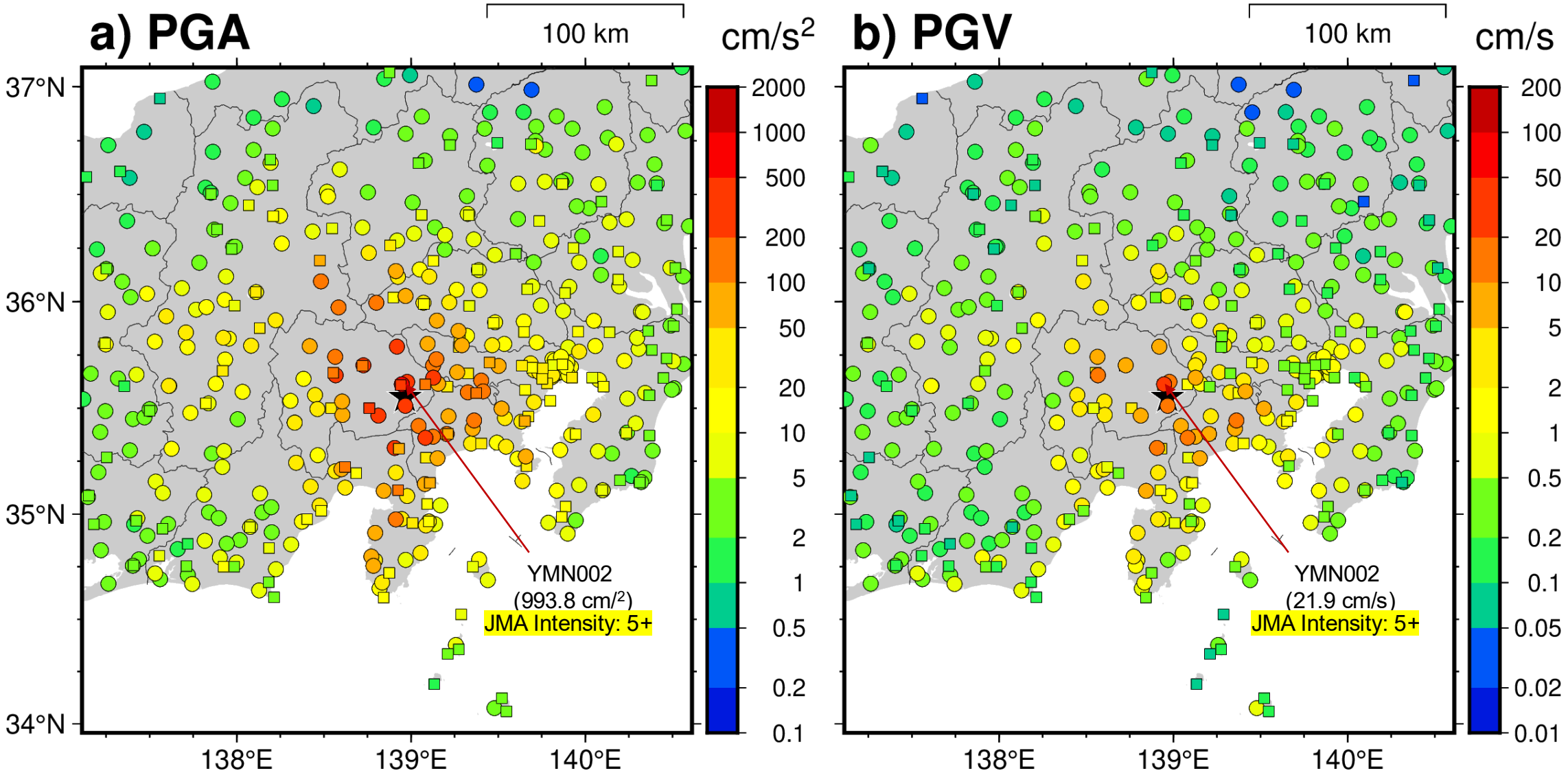
Earthquake in eastern Yamanashi on June 26, 2026 (Mw5.3*, Mj5.6)

IISEE, Building Research Institute

This report contains preliminary analysis results.

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

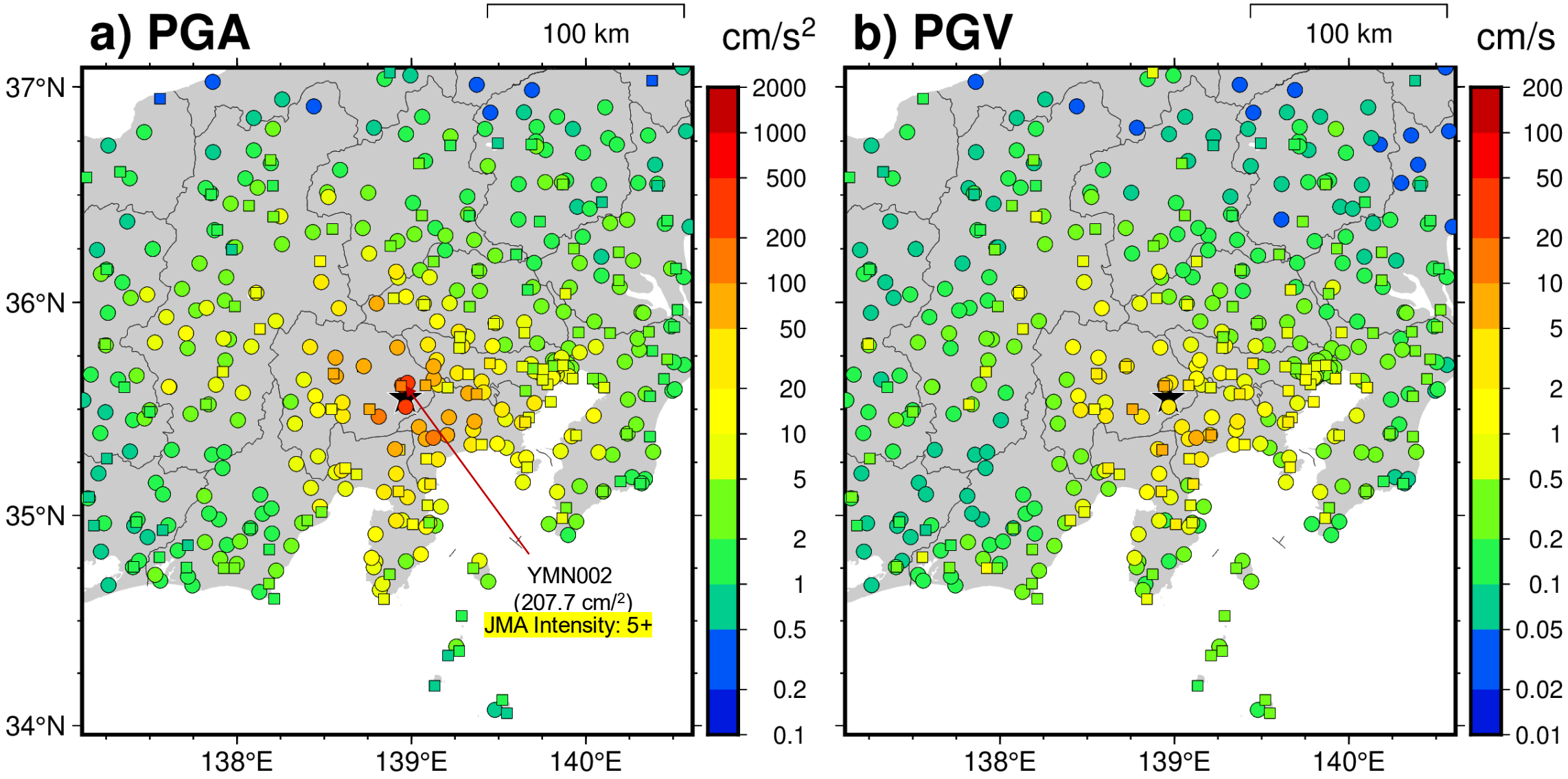
Observed PGAs/PGVs (Horizontal comp.)



○: NIED stations, □: JMA seismic intensity stations

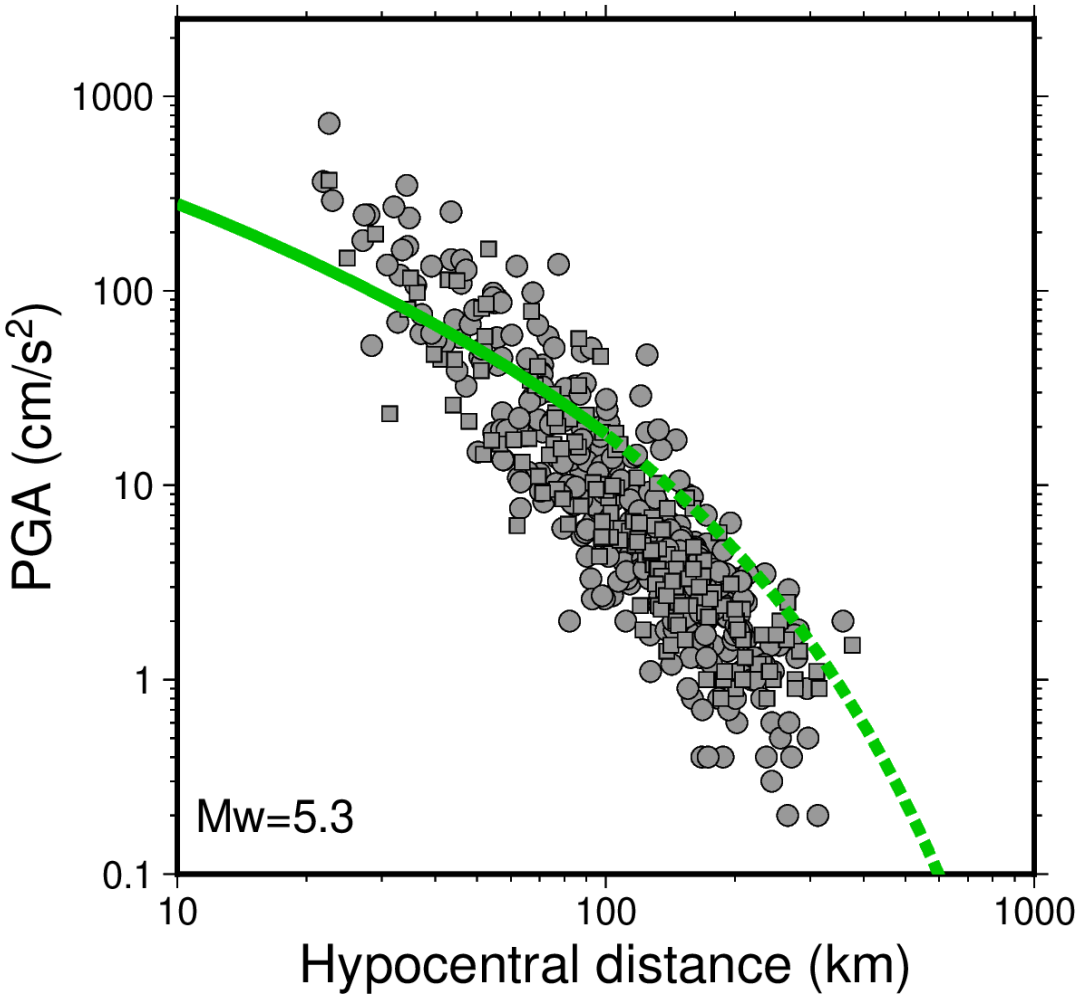
※ PGA and PGV are the maximum values of vector summation in the horizontal components.

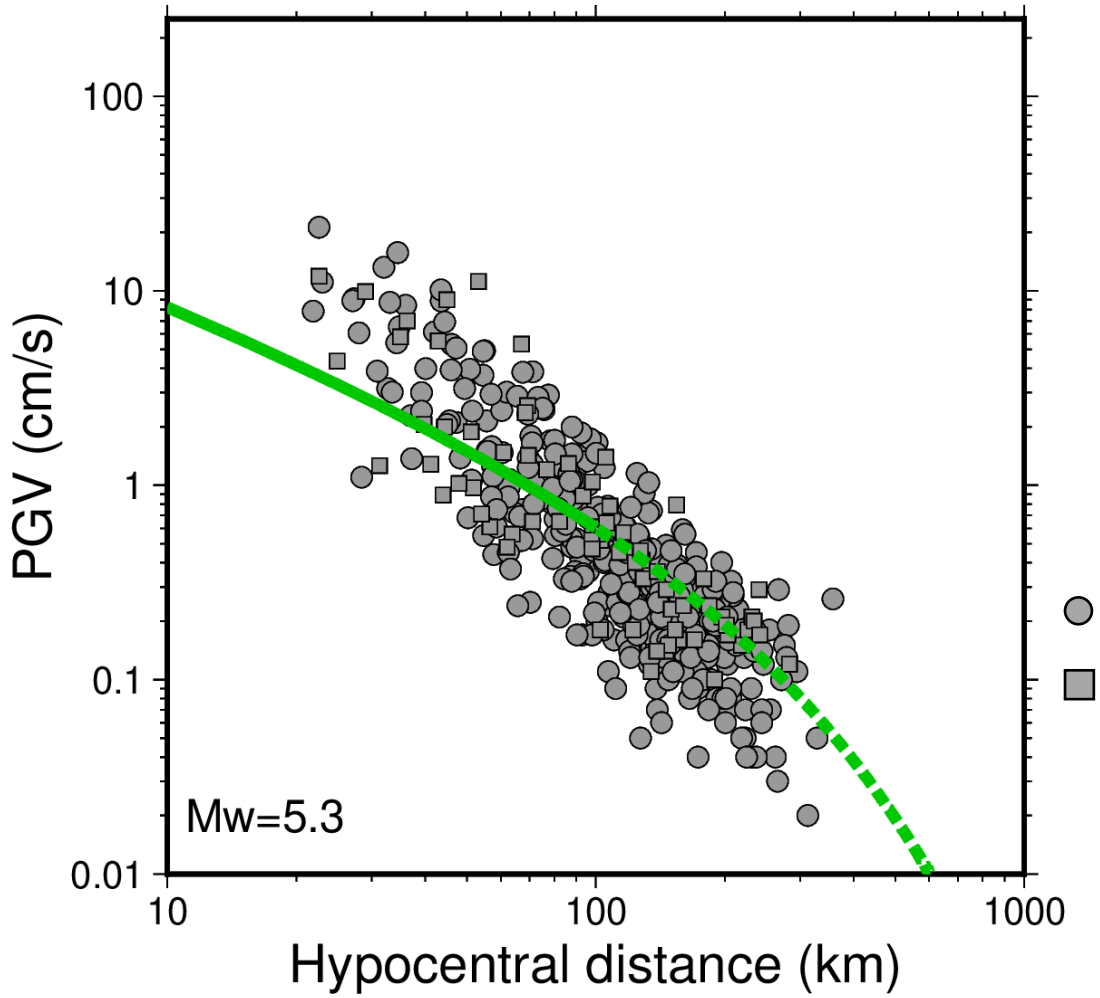
Observed PGAs/PGVs (Vertical comp.)

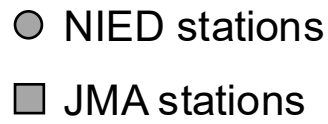


○: NIED stations, □: JMA seismic intensity stations

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



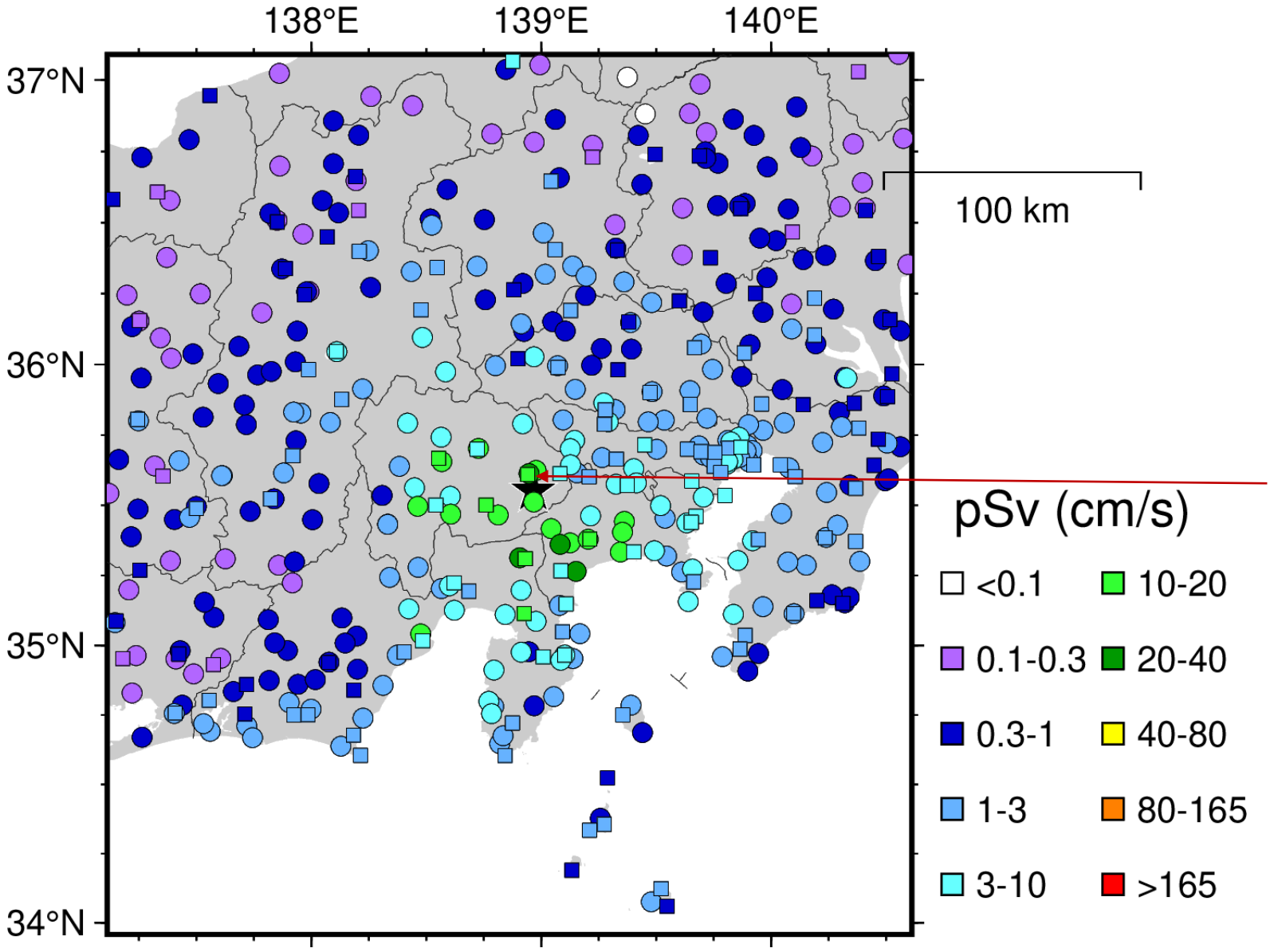


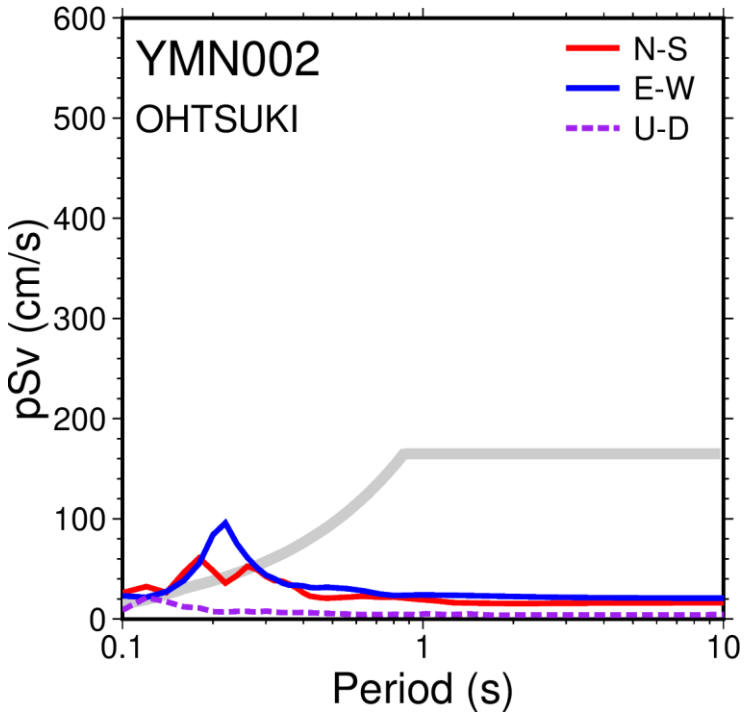


※ Horizontal axis is NOT the “shortest distance to the fault”.
※ PGA/PGV values are the larger of the maximum values of NS and EW components.
※ Intraplate earthquake (source depth=20 km) is assumed for the estimation.
※ Estimated values beyond 100 km (dashed line) are shown as reference values.

Pseudo-velocity response

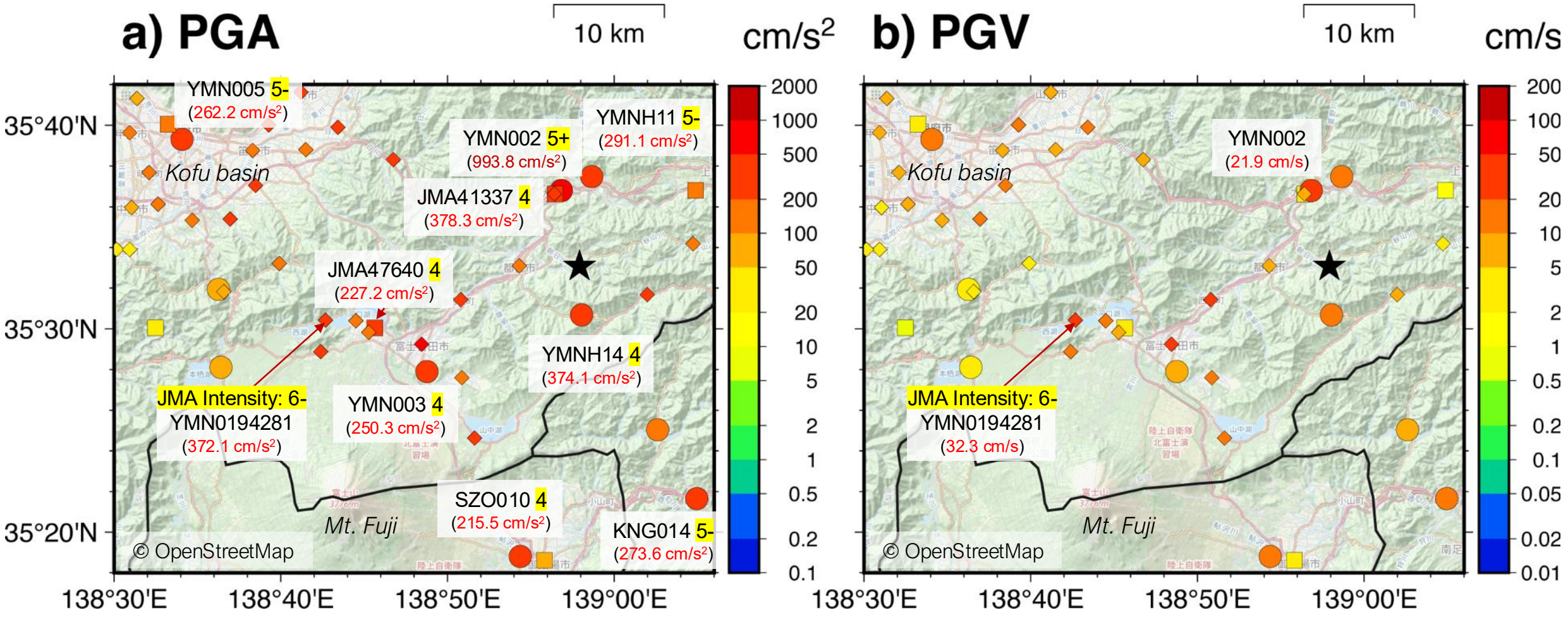
(pSv: maximum value for periods of 1–2 s, 5% damping)





Regional distribution of PGAs/PGVs (Horizontal comp.)

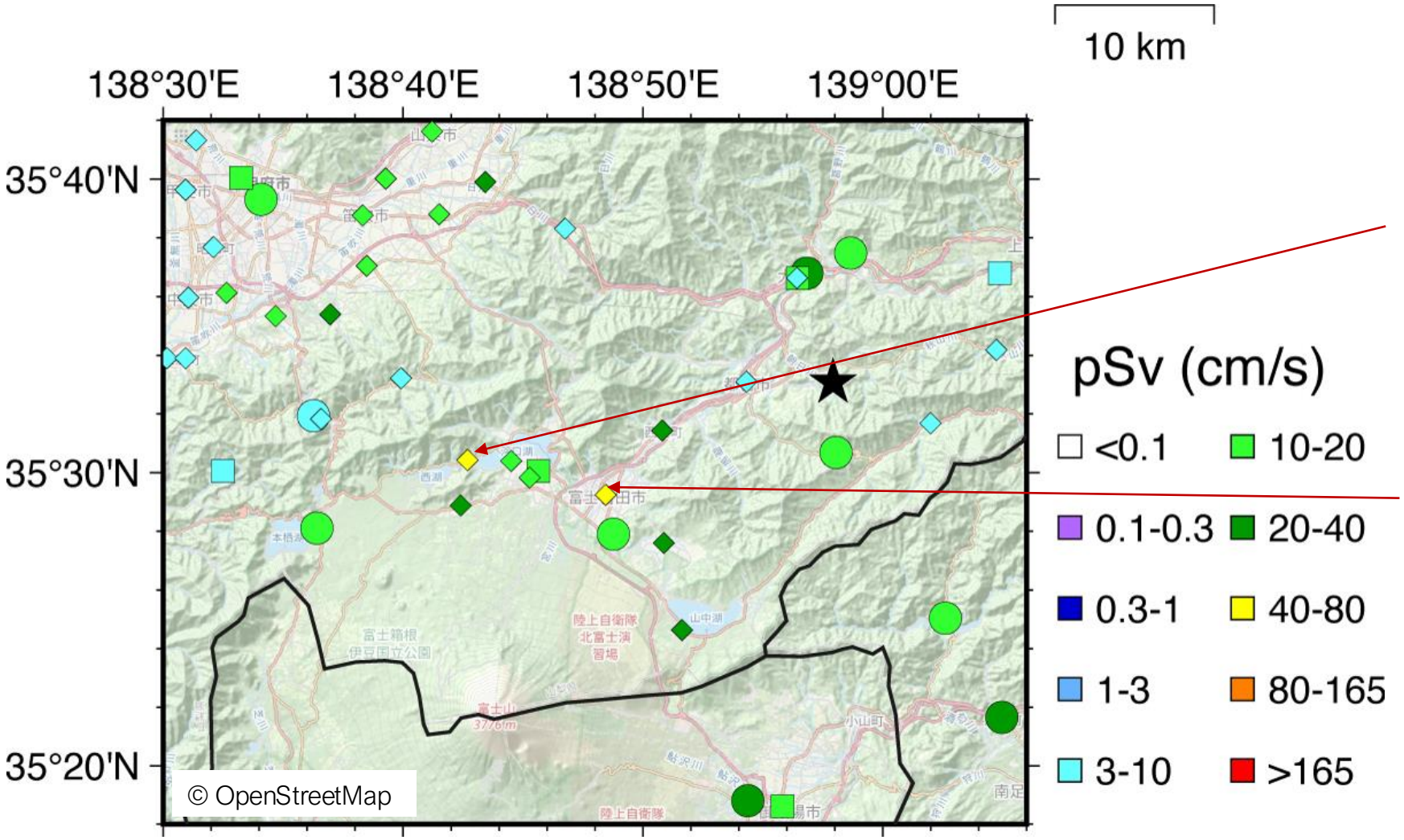
Comparison with Records from Municipal Seismic Intensity Meters in Yamanashi Prefecture

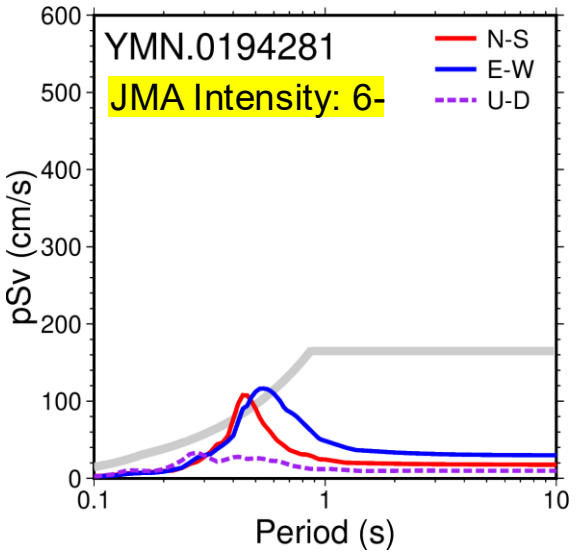


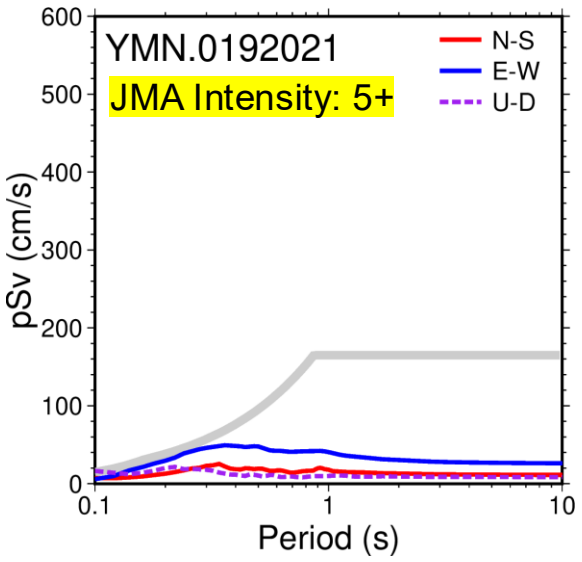
○: NIED stations, □: JMA seismic intensity stations, ◇: Seismic intensity meter stations (Yamanashi Prefecture)

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

Comparison with Records from Municipal Seismic Intensity Meters in Yamanashi Prefecture





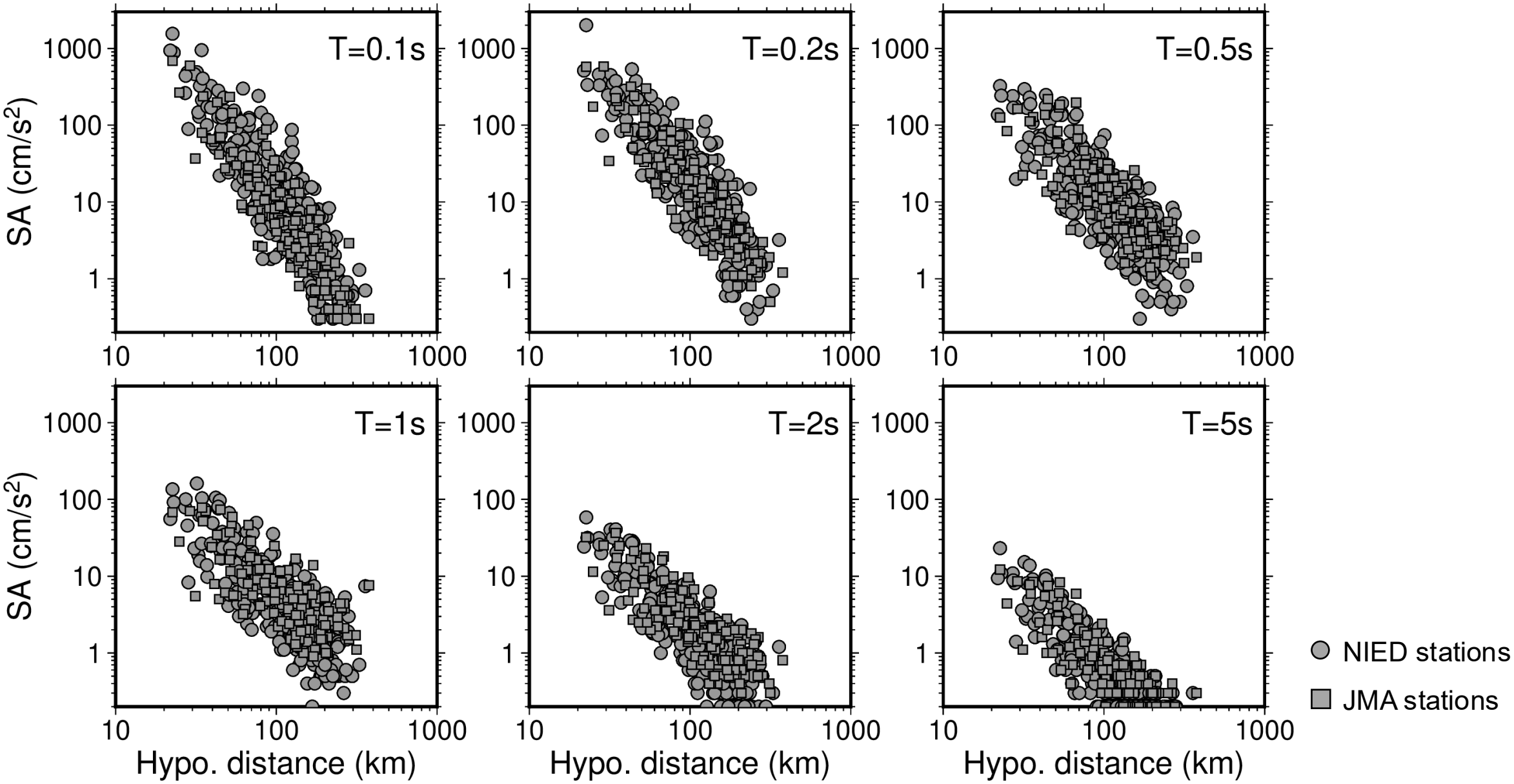


○: NIED stations, □: JMA seismic intensity stations

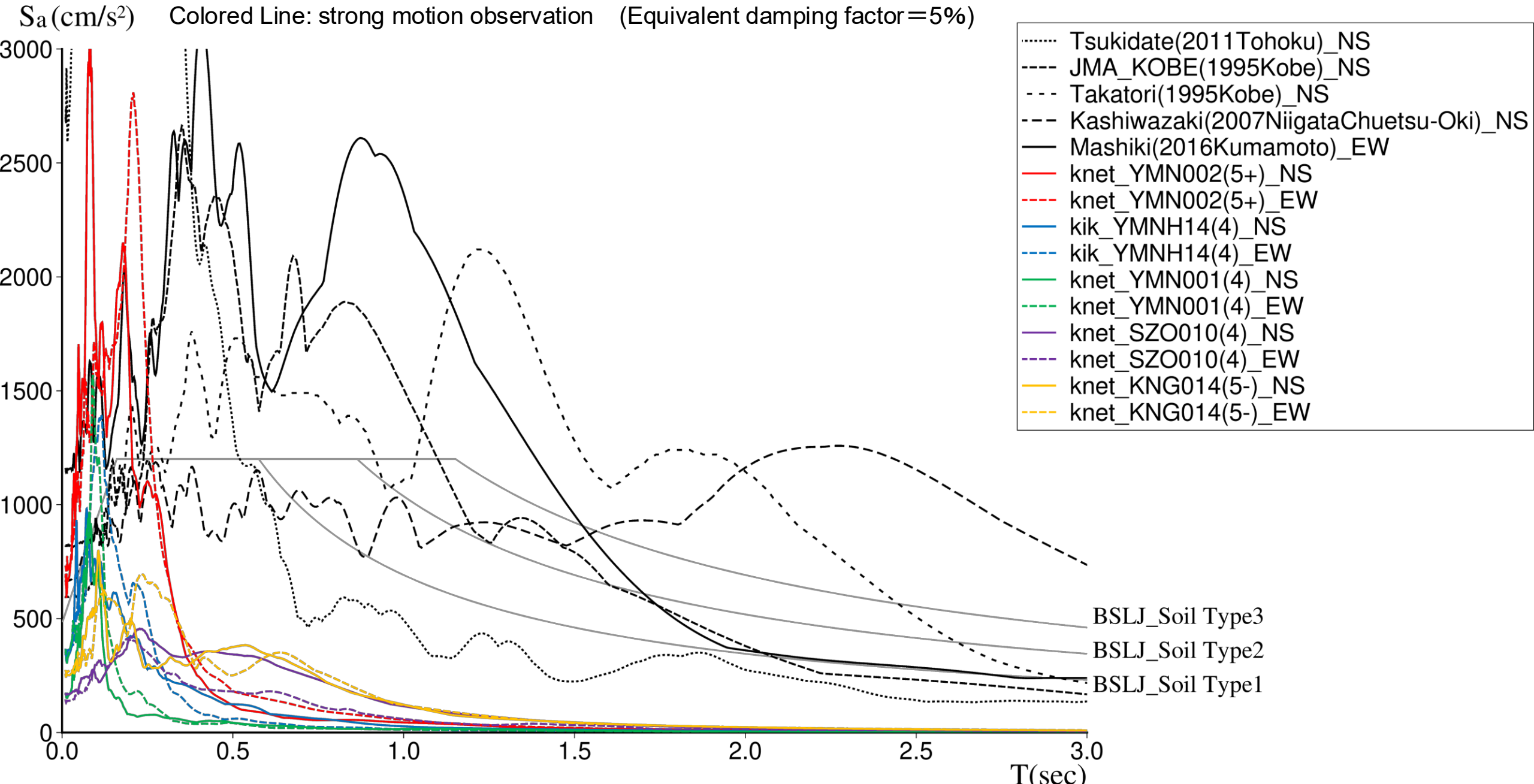
◇: Seismic intensity meter stations (Yamanashi Prefecture)

Attenuation characteristics of response spectra (Sa)

5% damping

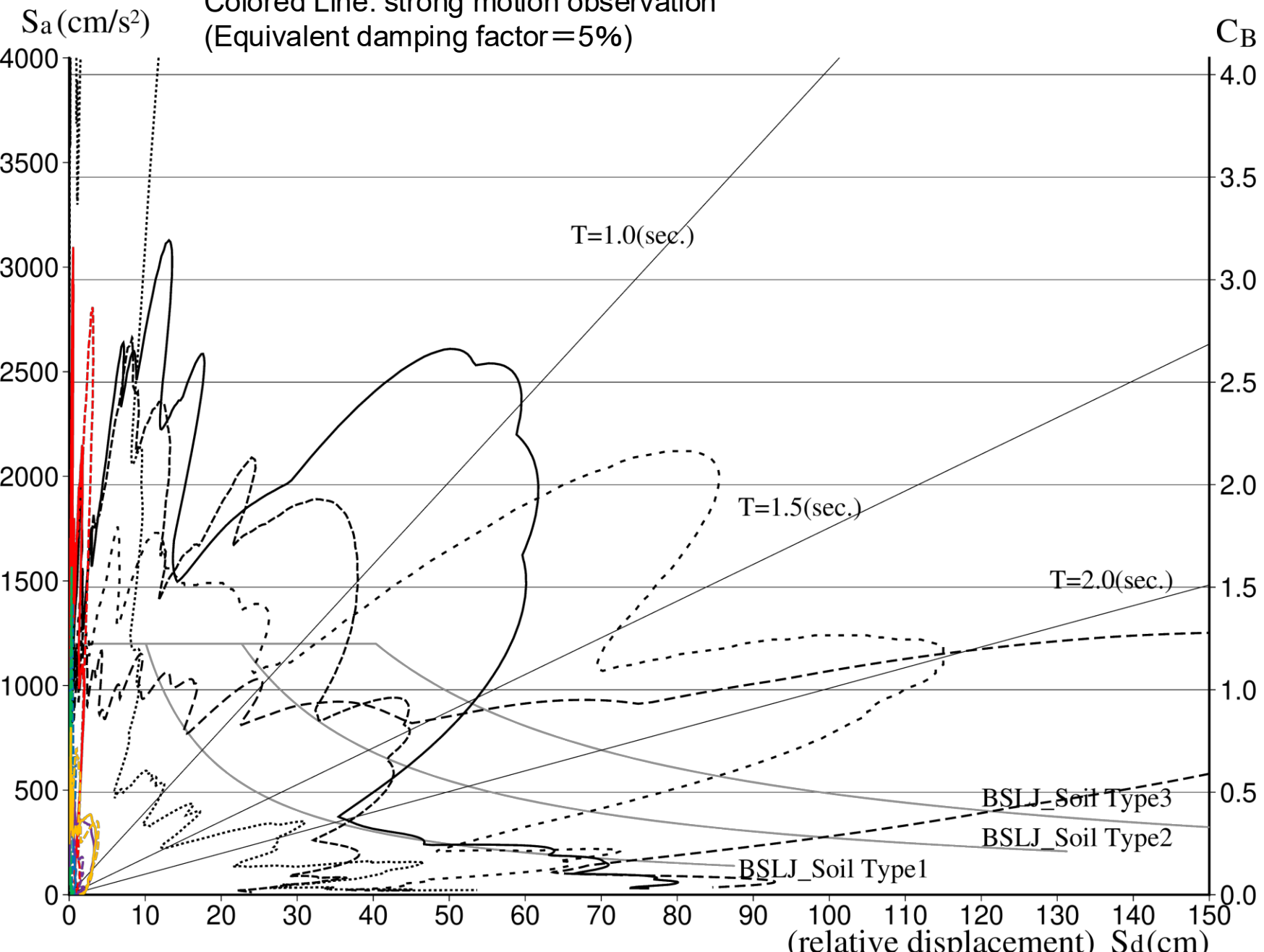


Response acceleration spectrum S_a and response periods



S_a - S_d curve and response periods

Colored Line: strong motion observation
(Equivalent damping factor＝5%)



Base shear coefficient C_B *
(* effective mass conversion)

- Tsukidate(2011Tohoku)_NS
- JMA_KOBE(1995Kobe)_NS
- Takatori(1995Kobe)_NS
- Kashiwazaki(2007NiigataChuetsu-Oki)_NS
- Mashiki(2016Kumamoto)_EW
- knet_YMN002(5+)_NS
- knet_YMN002(5+)_EW
- kik_YMNH14(4)_NS
- kik_YMNH14(4)_EW
- knet_YMN001(4)_NS
- knet_YMN001(4)_EW
- knet_SZO010(4)_NS
- knet_SZO010(4)_EW
- knet_KNG014(5-)_NS
- knet_KNG014(5-)_EW

Summary

- Relatively large PGA values (>200 cm/s²) and PGV values (>20 cm/s) were observed at several stations, particularly to the west of the epicenter.
- The maximum seismic intensity (6-lower) was recorded at a municipal seismic intensity station (YMN0194281; Fujikawaguchiko) located 23 km west of the epicenter, rather than at stations closer to the epicenter.
- In the 1–2 s period range, none of the stations recorded a pseudo-velocity response exceeding 80 cm/s during the earthquake.
- From the response accelerations (Sa) and the Sa-Sd curve, assuming a 5% damping ratio, the Sa and Sa-Sd shapes of this earthquake were smaller than those of past major earthquakes in Japan for periods longer than 0.5 s.

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)
The moment magnitude (Mw) was obtained from the NIED F-net solution.
The hypocenter location is based on the Japan Meterological Agency (JMA) Unified Earthquake Catalog.
We used ground motion data from seismic intensity meters in Yamanashi Prefecture, through SK-net.
We used strong-motion data from NIED (K-NET and KiK-net), JMA, and RTRI for past strong motion in Japan.
Sa-T and Sa-Sd were calculated using the View Wave by Kashima, BRI.
Figures were prepared using Generic Mapping Tools (GMT: Wessel and Smith, 1998 and 2019).