

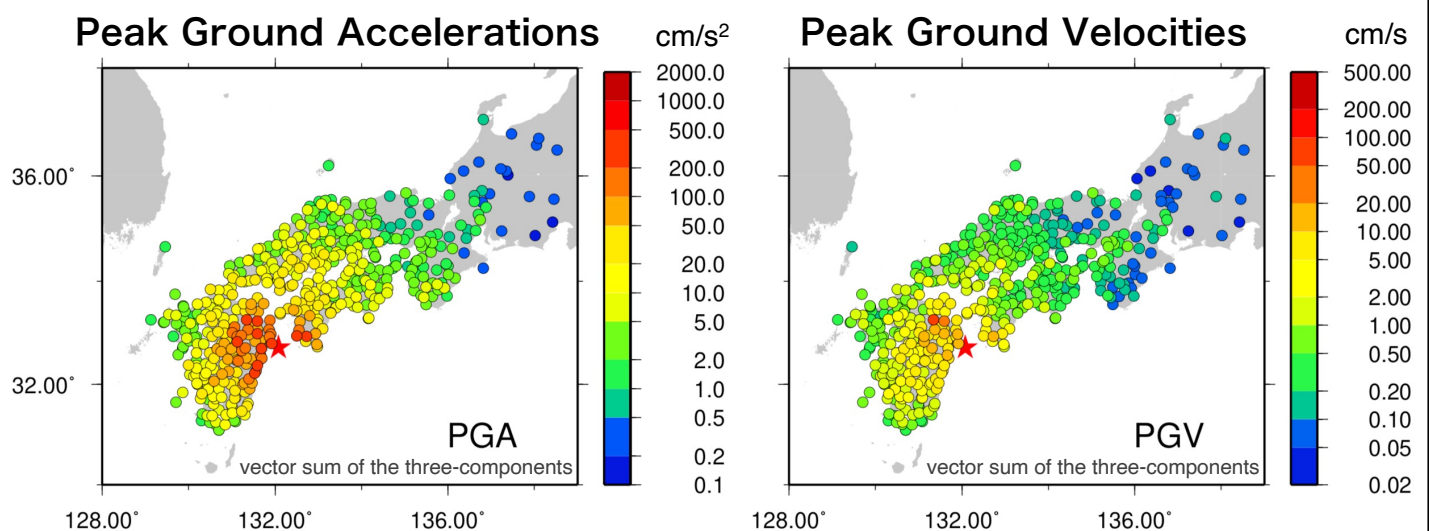
# Strong Ground Motions (NIED K-NET, KiK-net)

IISEE, Building Research Institute

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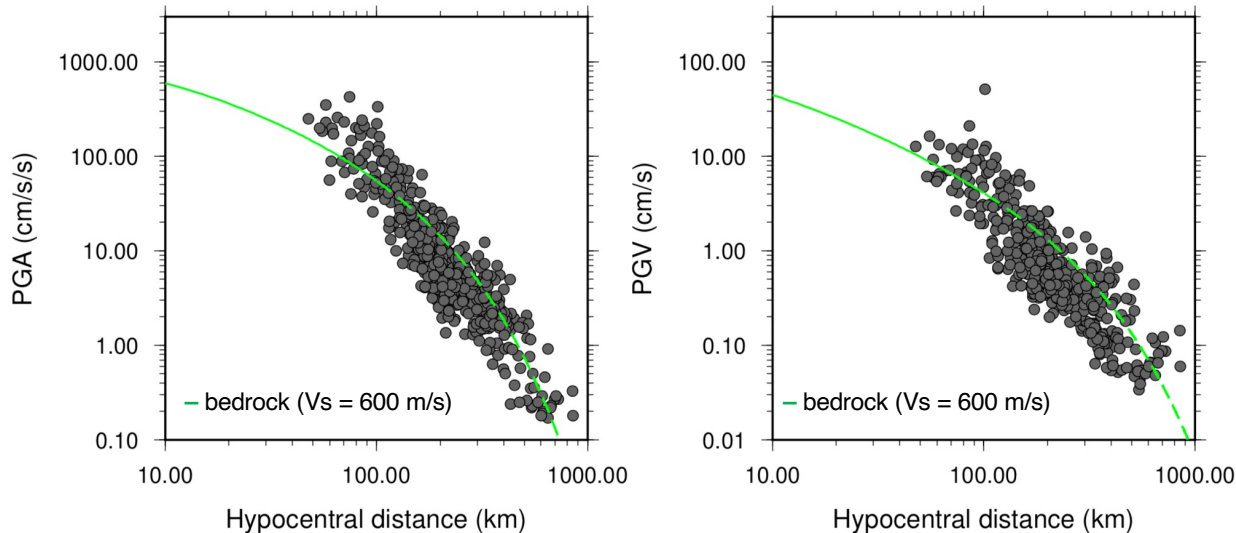
## NIED Strong-motion data (K-NET, KiK-net)

BRI Confidential



- PGAs > 100 cm/s<sup>2</sup> were recorded mainly in Oita, Kumamoto, Miyazaki Prefectures in Kyushu.  
 → Maximum PGA was **427.8 cm/s<sup>2</sup>** at KiK-net Hyuga station (MYZH15: distance=74 km)
- PGVs > 10 cm/s were recorded mainly in Oita Prefecture.  
 → Maximum PGV was **51.0 cm/s** at K-NET Yufuin station (OIT009: distance=101 km)

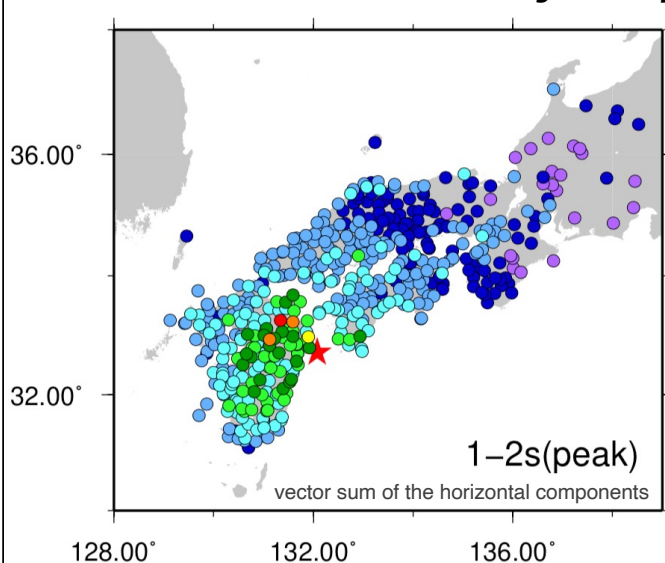
## Observed PGAs/PGVs vs GMPE (Si and Midorikawa, 1999)



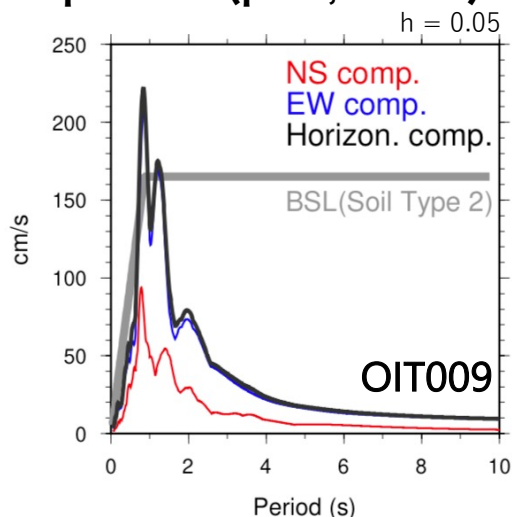
→ Agreements are generally good.

- ※ Hypocentral distance is shown in the horizontal axis (not “shortest distance to the fault”).
- ※ Intraplate earthquake is assumed for the estimation.
- ※ Estimated values beyond 100 km (dashed line) are shown as reference values.

## Pseudo-velocity Response Spectra (pSv; 1-2 s)



- |           |         |          |        |
|-----------|---------|----------|--------|
| ■ -0.1    | ■ 1-3   | ■ 20-40  | ■ 165- |
| ■ 0.1-0.3 | ■ 3-10  | ■ 40-80  |        |
| ■ 0.3-1   | ■ 10-20 | ■ 80-165 |        |
- pSv(cm/s)



- Large velocity response (**175cm/s**) was derived at K-NET station Yufuin (OIT09) between 1 and 2s.
- EW component ground motion shows significant ground response at OIT09.
- Estimated JMA seismic intensity at OIT09 was **6-lower (unofficial value)**

## Summary

- Relatively large ground motions were observed in Oita, Miyazaki, and Kumamoto Prefectures during the earthquake.
- Maximum PGA was 427.8 cm/s<sup>2</sup> at KiK-net Hyuga (MYZH15) in Miyazaki Prefecture.
- Maximum PGV was 51.0 cm/s at K-NET Yufuin (OIT009) in Oita Prefecture.
- Maximum velocity response (1–2s) was 175 cm/s at station OIT009.
- EW component ground motion was significant at station OIT009.

### Acknowledgements:

We used K-NET and KiK-net strong-motion data provided by the National Research Institute for Earth Science and Disaster Resilience; NIED), Japan  
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Velocity response spectra were calculated using the subroutine program developed by Osaki (1994).  
Figures were prepared by using the Generic Mapping Tools (GMT: Wessel and Smith, 1998).