Preliminary Analysis of the Ground Motion Record at BKSI, Bangkok, During the 2025 Mandalay Earthquake

Yoshihisa Maruyama

Chiba University, Japan

Acknowledgement

The earthquake record used in this analysis was kindly provided by Professor Pennung Warnitchai of the Asian Institute of Technology, Associate Professor Sutat Leelataviwat of King Mongkut's University of Technology Thonburi, and Associate Professor Teraphan Ornthammarath of Mahidol University. I would like to express our sincere gratitude for their contributions.

謝辞

分析に用いた地震記録は，アジア工科大学院のPennung Warnitchai教授，キングモンクット工科大学トンブリ校のSutat Leelataviwat 准教授，マヒドン大学のTeraphan Ornthammarath准教授らの研究グループから提供を受けました．記して，謝意を表します．

Summary

- The JMA seismic intensity of the ground motion record at BKSI (Queen Sirikit National Convention Center) was 3.4* (equivalent to JMA Seismic Intensity 3), and the JMA long-period ground motion intensity was Level 3.
- A peak was observed around a period of 6-6.5 seconds in the velocity response spectrum, indicating that the area experienced long-period ground shaking.

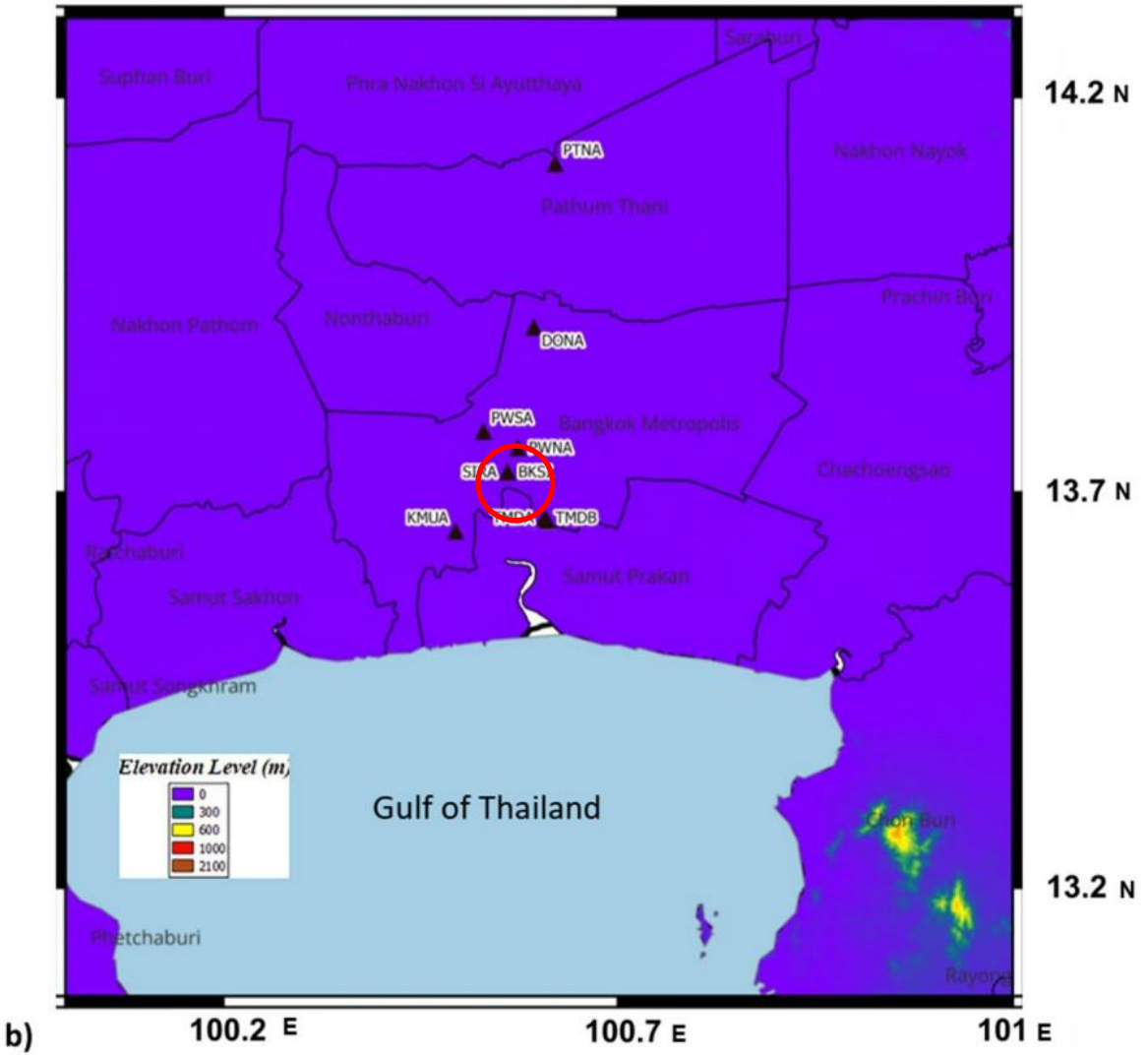
* The ground motion record was interrupted during the shaking.

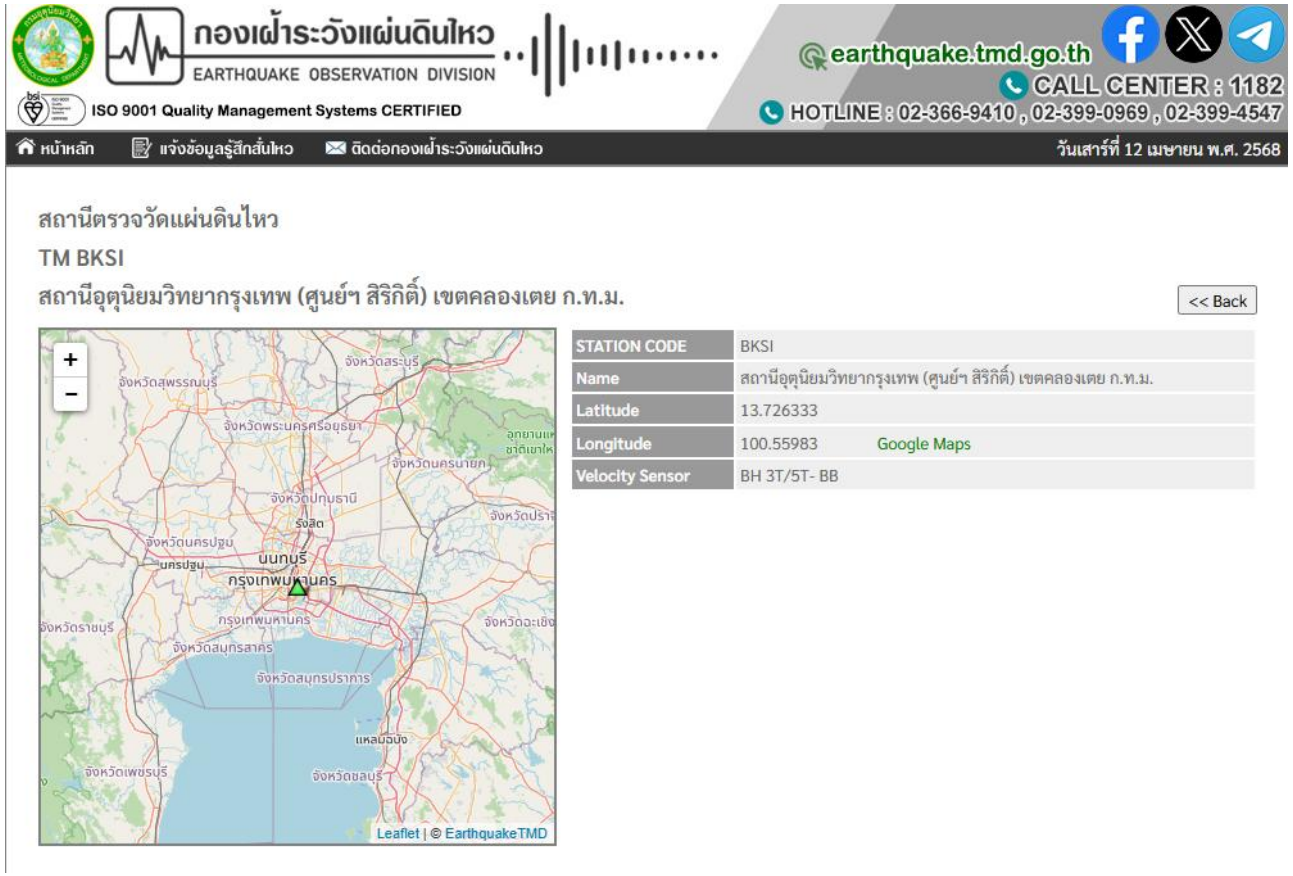
概要

・バンコク市内のBKSI（Queen Sirikit National Convention Center）で観測された地震動の計測震度は3.4（震度4）*，気象庁の長周期地震動階級は3であった
・速度応答スペクトルには周期6～6.5秒程度のピークが見られ，周期の長い揺れに見舞われたものと考えられる

*地震記録が途中で切れている

Location of BKSI

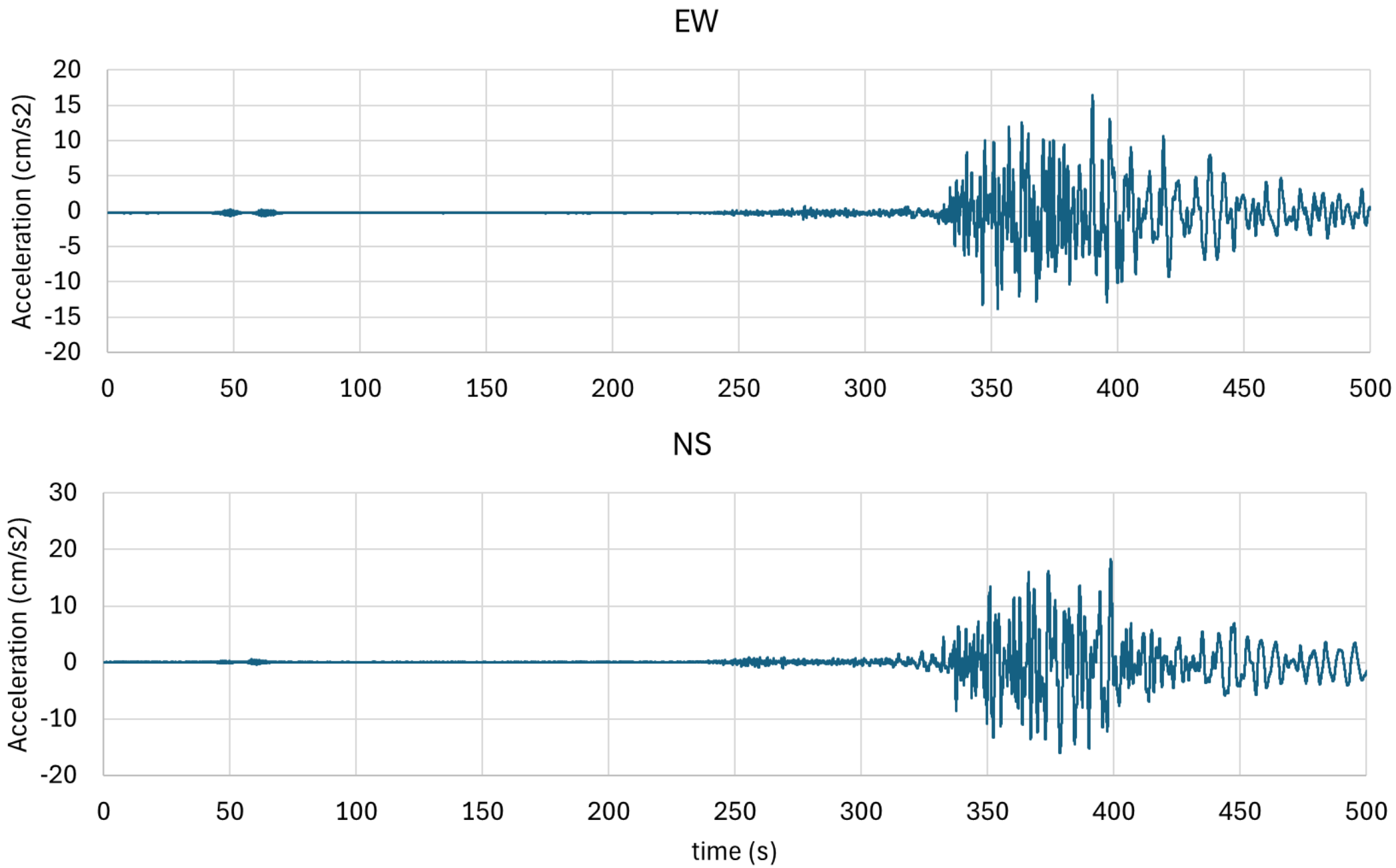




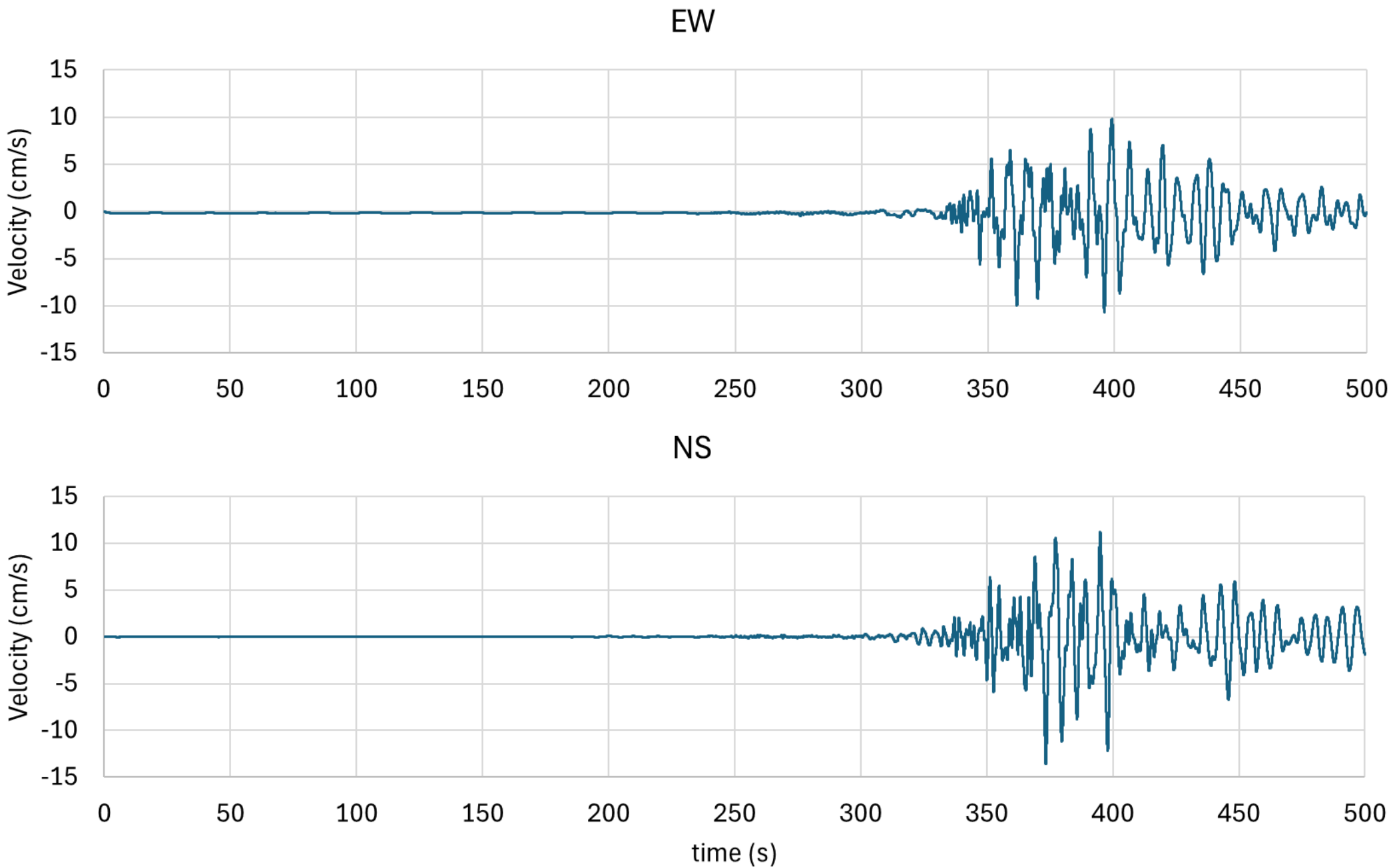
https://earthquake.tmd.go.th/station-info.html?id=154

Ornthammarath et al. (2023) Preliminary analysis of amplified ground motion in Bangkok basin using HVSR curves from recent moderate to large earthquakes, Geoenvironmental Disasters

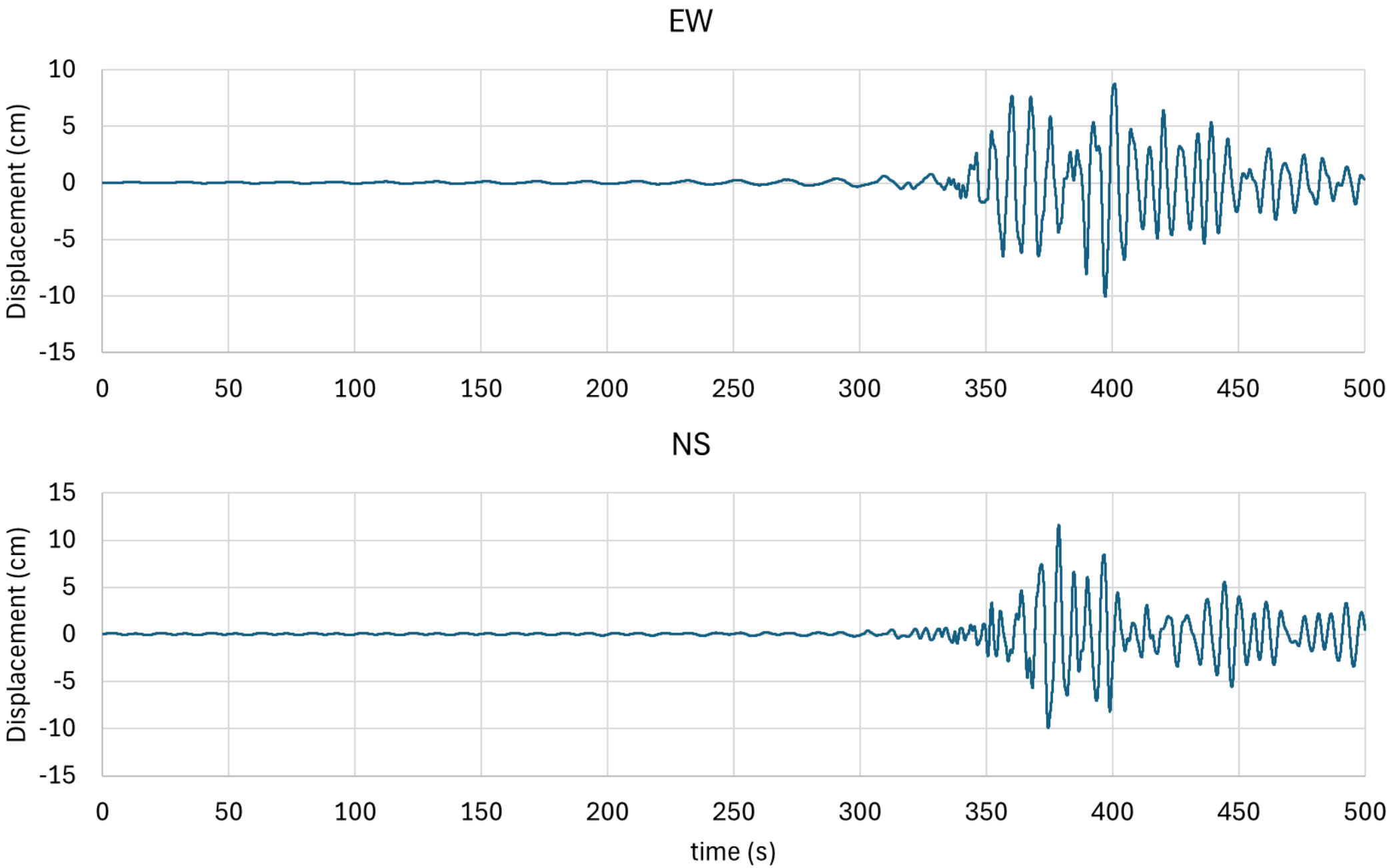
Acceleration Time History



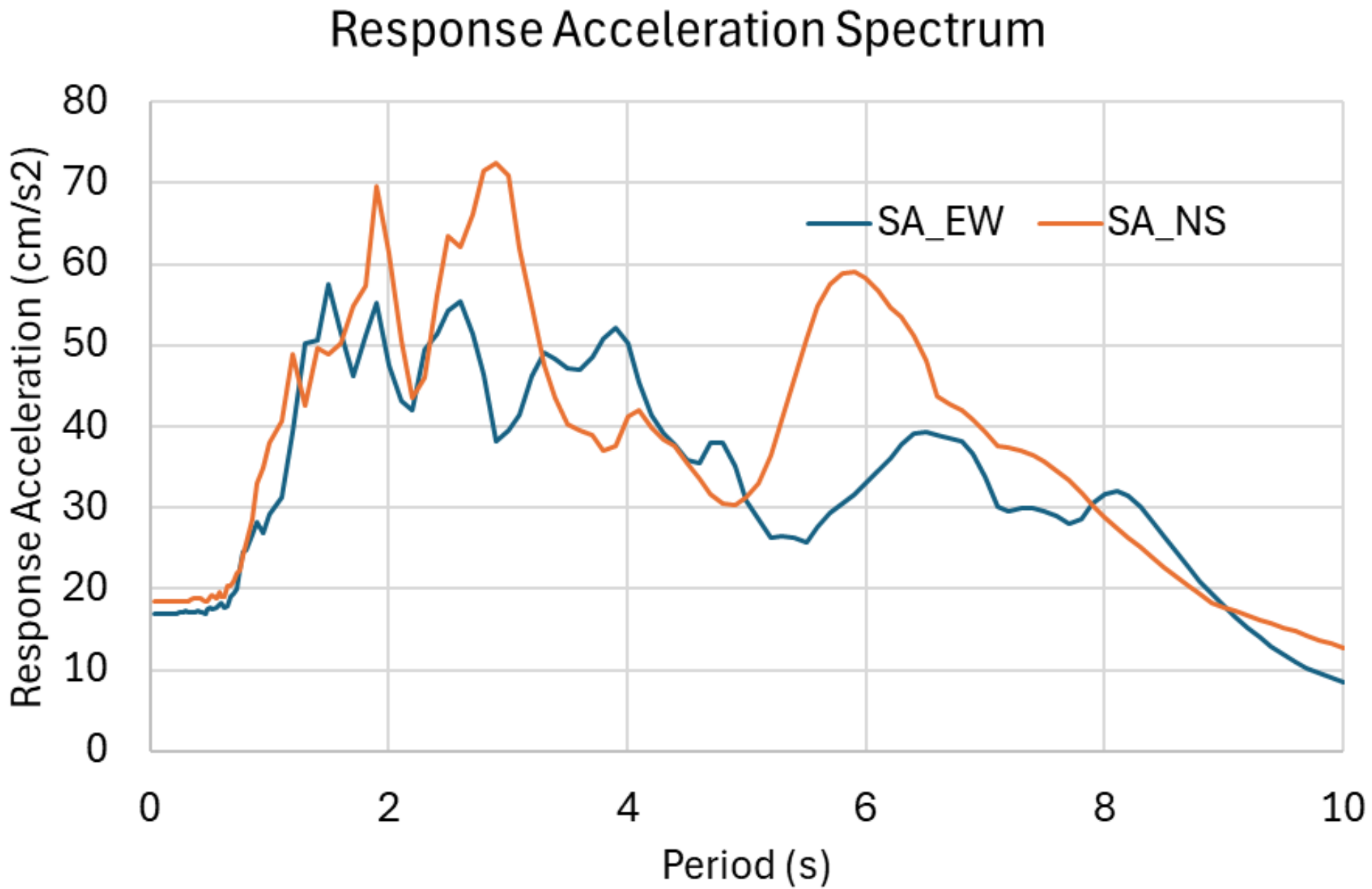
Velocity Time History



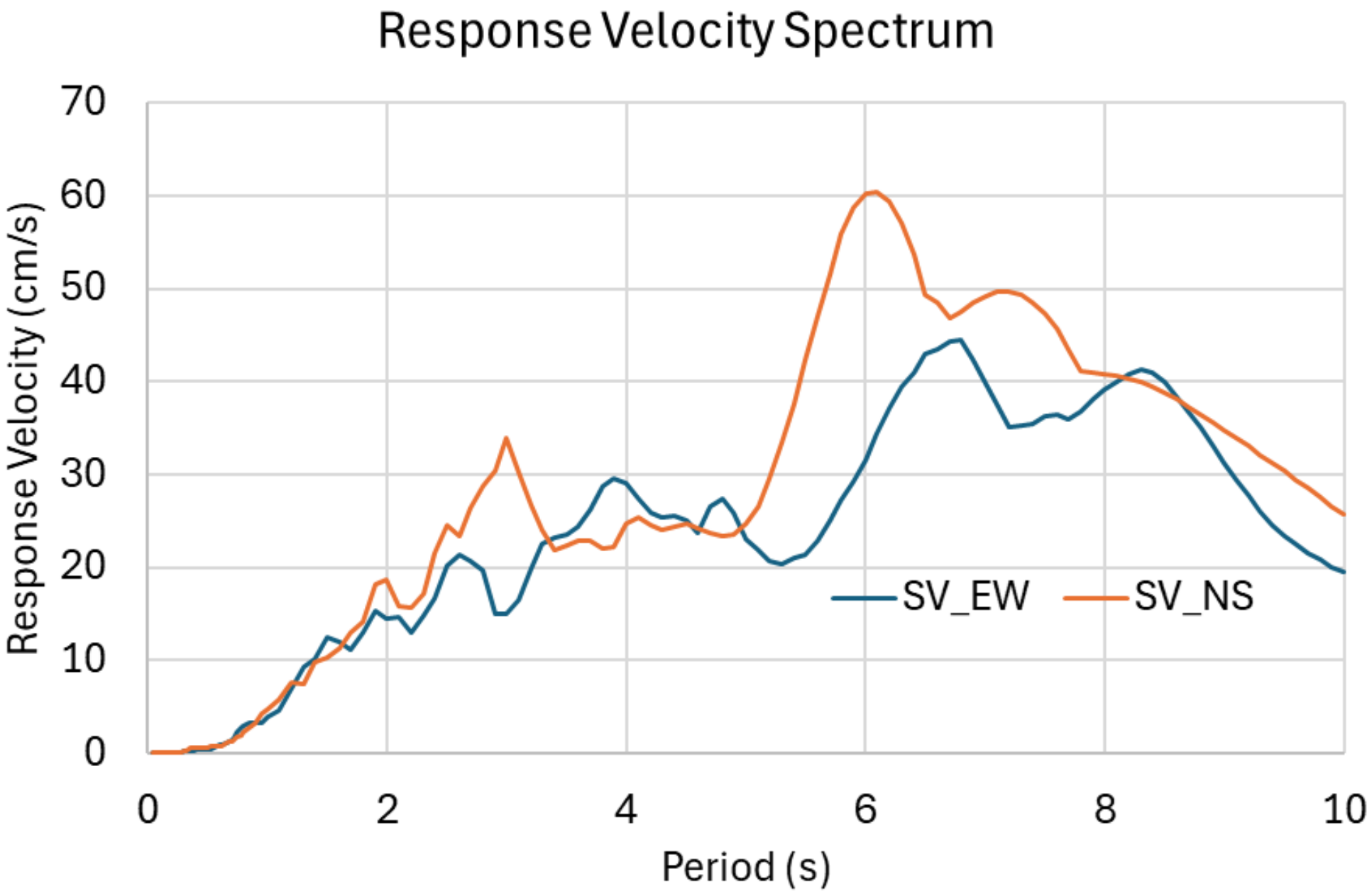
Displacement Time History



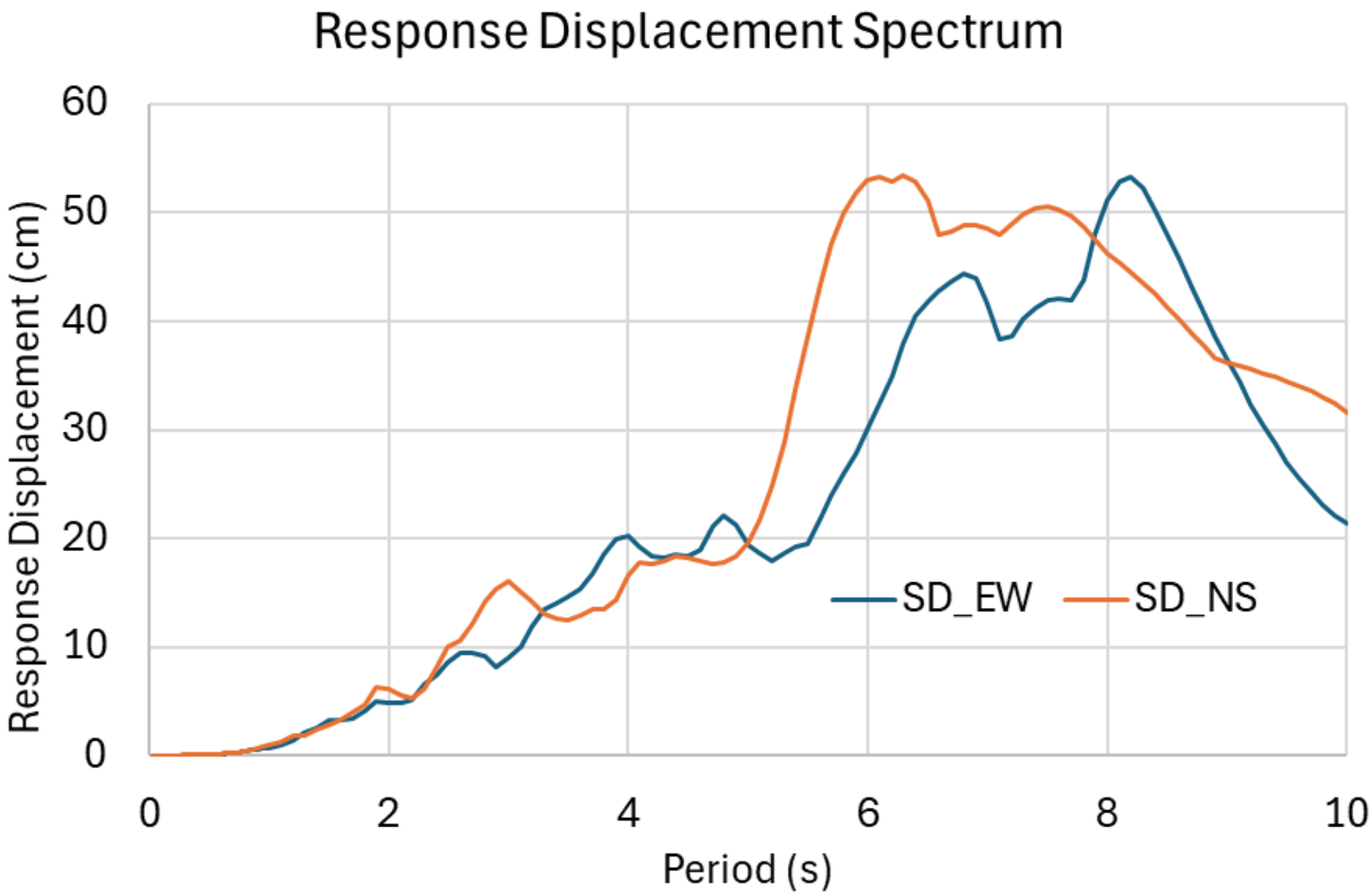
Acceleration Response Spectrum (h=0.05)



Velocity Response Spectrum (h=0.05)



Displacement Response Spectrum (h=0.05)



Seismic Indices

PGA (cm/s²)		
EW	NS	UD
16.4	18.4	16.9

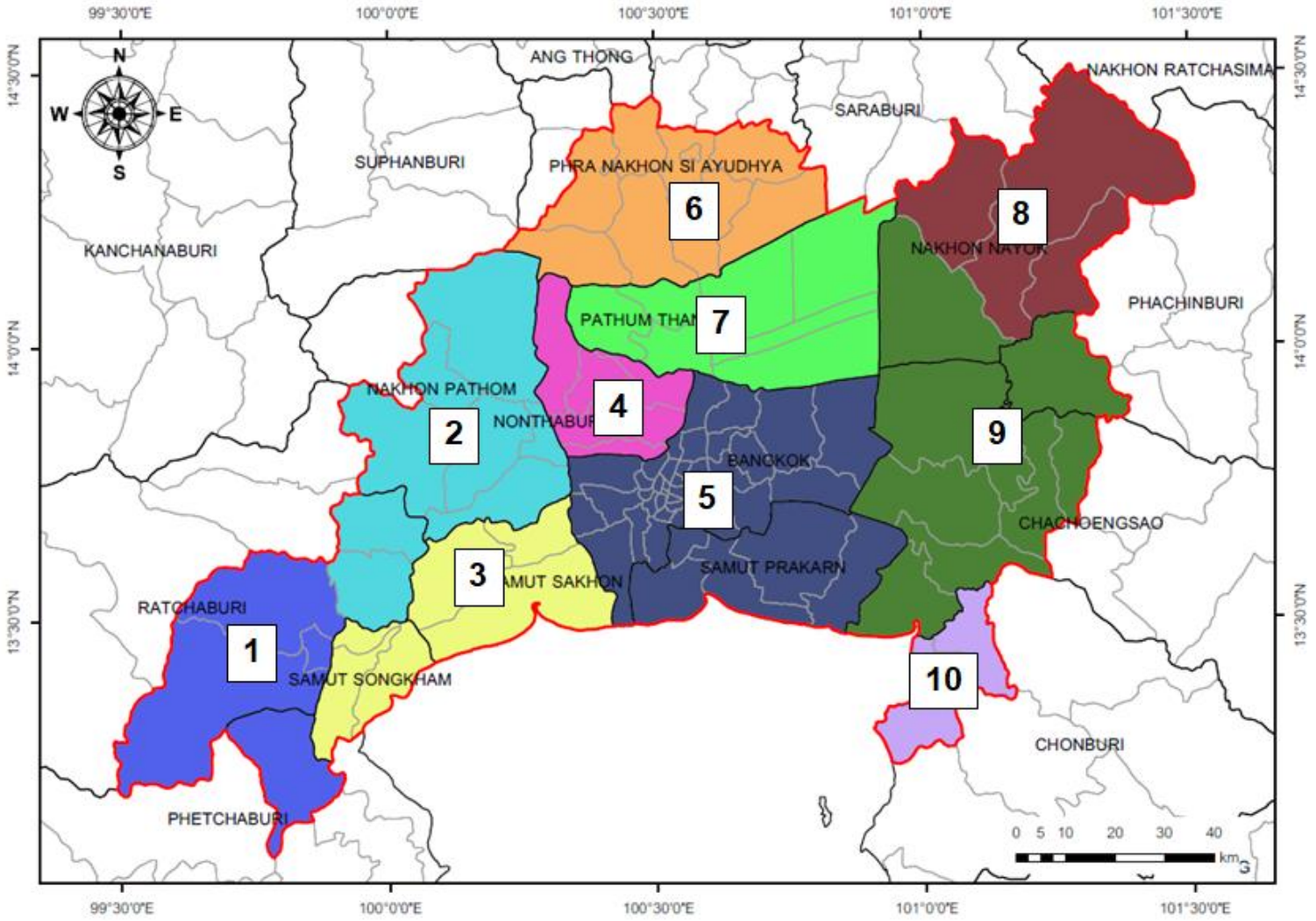
PGV (cm/s)		
EW	NS	UD
10.7	13.6	4.0

PGD (cm)		
EW	NS	UD
10.0	11.7	3.0

JMA Seismic Intensity Scale
3 (3.4)

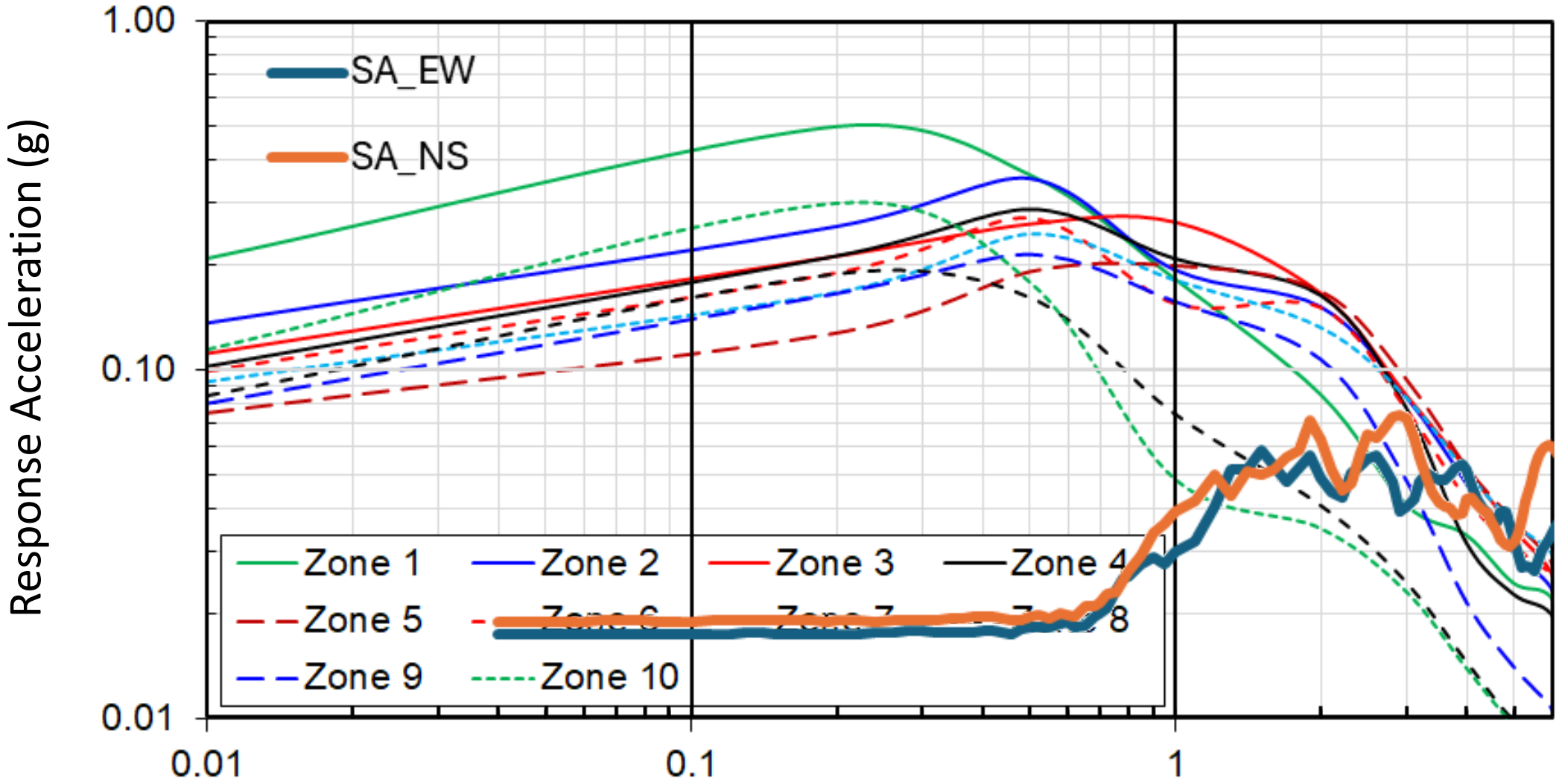
JMA Long-period ground motion intensity class
Class 3
Strong swaying. People may find it hard to stand. Furniture may move.

Microzonation map based of the design spectrum for Bangkok



Nakhorn, et al. (2018): A new earthquake resistant design standard for buildings in Thailand, Proceedings of The 7th Asia Conference on Earthquake Engineering

Comparison of the Acceleration Response Spectra at BKSI (h=0.05) with the Design Spectra



Nakhorn, et al. (2018): A new earthquake resistant design standard for buildings in Thailand, Proceedings of The 7th Asia Conference on Earthquake Engineering