

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: The snapshot showing the rupture propagation of the Mw 7.8 event resolved by joint FFI. The white diamonds and circles denote the High-Freq radiators resolved by SEBP of CH array and AK array, respectively.

File Name: Supplementary Movie 2

Description: The rupture process of the Mw 7.8 event resolved by SEBP using CH array. The red asterisk denotes the hypocenter of the mainshock. The white star denotes the hypocenter of the Mw 6.7 aftershock occurring ~11 minutes later. The white lines denote the fault traces. The magenta points denote the seismicities occurring between Jan 1, 2023 to Feb 8, 2023. MPS: MUSIC Pseudo-Spectrum.

File Name: Supplementary Movie 3

Description: The same as Supplementary Movie 2 but using a constant color scale for $f(\text{MPS})$. $f(\text{MPS}) = (\text{MPS} - \text{Min}[\text{MPS}])^{0.35}$.

File Name: Supplementary Movie 4

Description: The rupture process of the Mw 7.8 event resolved by SEBP using the AK array. The red asterisk denotes the hypocenter of the mainshock. The white star denotes the hypocenter of the Mw 6.7 aftershock occurring ~11 minutes later. The white lines denote the fault traces. The magenta points denote the seismicities occurring between Jan 1, 2023 to Feb 8, 2023. MPS: MUSIC Pseudo-Spectrum.

File Name: Supplementary Movie 5

Description: The same as Supplementary Movie 4 but using a constant color scale for $f(\text{MPS})$. $f(\text{MPS}) = (\text{MPS} - \text{Min}[\text{MPS}])^{0.35}$.

File Name: Supplementary Movie 6

Description: The rupture process of the Mw 7.5 event resolved by SEBP using the CH array. The red asterisk denotes the hypocenter of the mainshock. The white lines denote the fault traces. The magenta points denote the seismicities occurring between Jan 1, 2023 to Feb 8, 2023. MPS: MUSIC Pseudo-Spectrum.

File Name: Supplementary Movie 7

Description: The same as Supplementary Movie 6 but using a constant color scale for $f(\text{MPS})$. $f(\text{MPS}) = (\text{MPS} - \text{Min}[\text{MPS}])^{0.35}$.

File Name: Supplementary Movie 8

Description: The rupture process of the Mw 7.5 event resolved by SEBP using the AK array. The red asterisk denotes the hypocenter of the mainshock. The white lines denote the fault traces. The magenta points denote the seismicities occurring between Jan 1, 2023 to Feb 8, 2023. MPS: MUSIC Pseudo-Spectrum.

File Name: Supplementary Movie 9

Description: The same as Supplementary Movie 8 but using a constant color scale for $f(\text{MPS})$. $f(\text{MPS}) = (\text{MPS} - \text{Min}[\text{MPS}])^{0.35}$.