

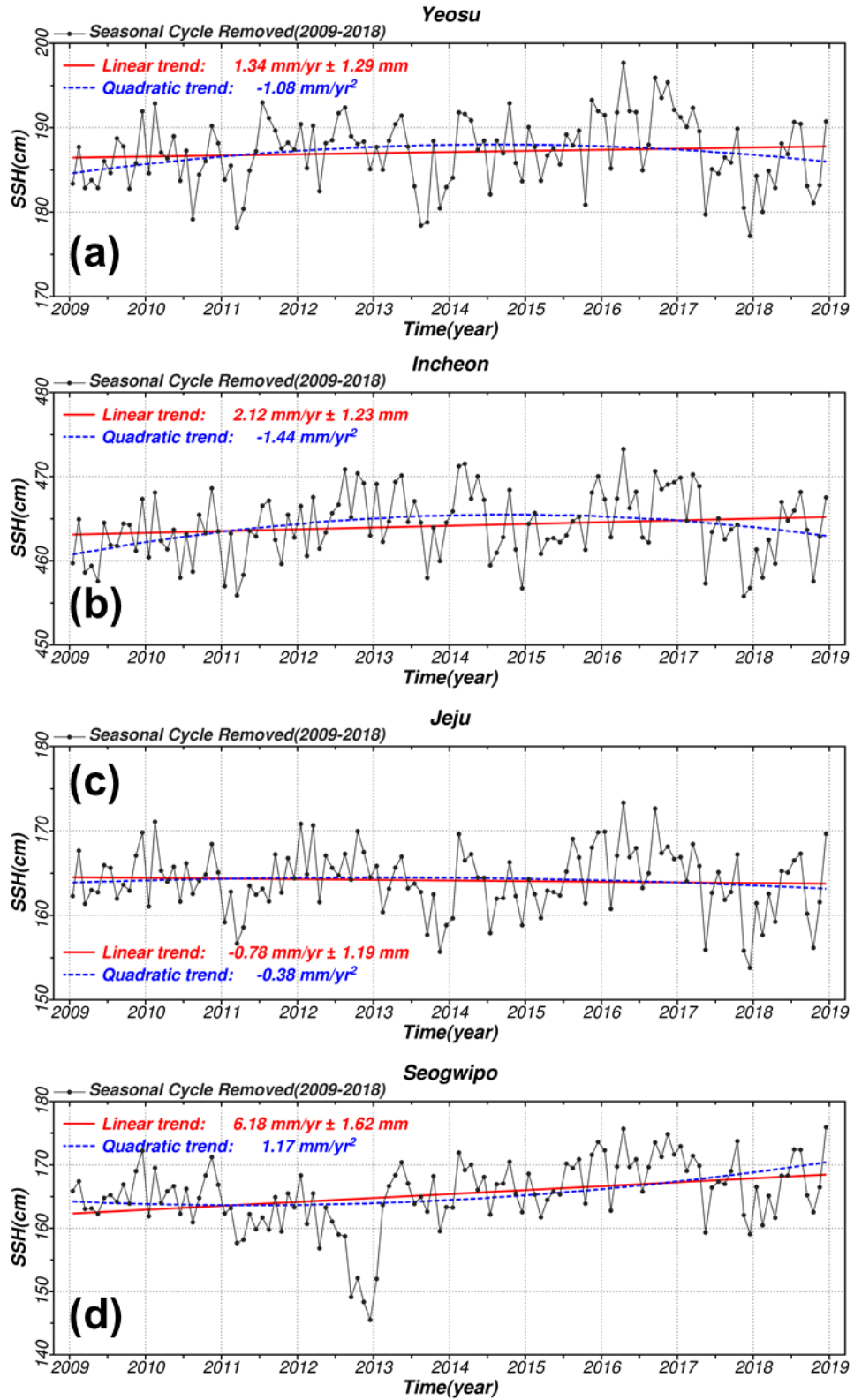


Figure S1. KHOA's sea level changes observed from Yeosu, Incheon, Jeju and Seogwipo tide gauge for the time period 2009 – 2018.

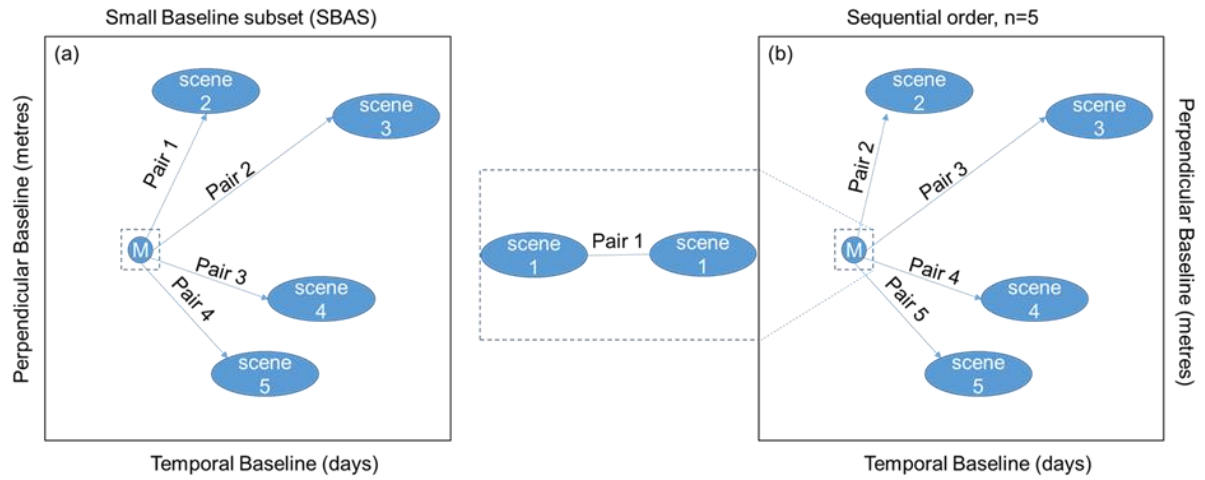


Figure S2 (a) standard StaMPS pair selection and (b) Sequential pair selection for StaMPS-SBAS time-series analysis

Table S1. Processing parameters used in the StaMPS SBAS

| S.No | StaMPS parameters                      | Value of the parameter |
|------|----------------------------------------|------------------------|
| 1.   | Filter grid size                       | 50                     |
| 2.   | Unwrap grid size                       | 50                     |
| 3.   | Number of patches in range and azimuth | 1 x 1                  |
| 4.   | Initial $D_{\Delta A}$ threshold       | 0.6                    |
| 5.   | Maximum DEM error                      | 10 m                   |
| 6.   | Density of random pixels               | 2                      |

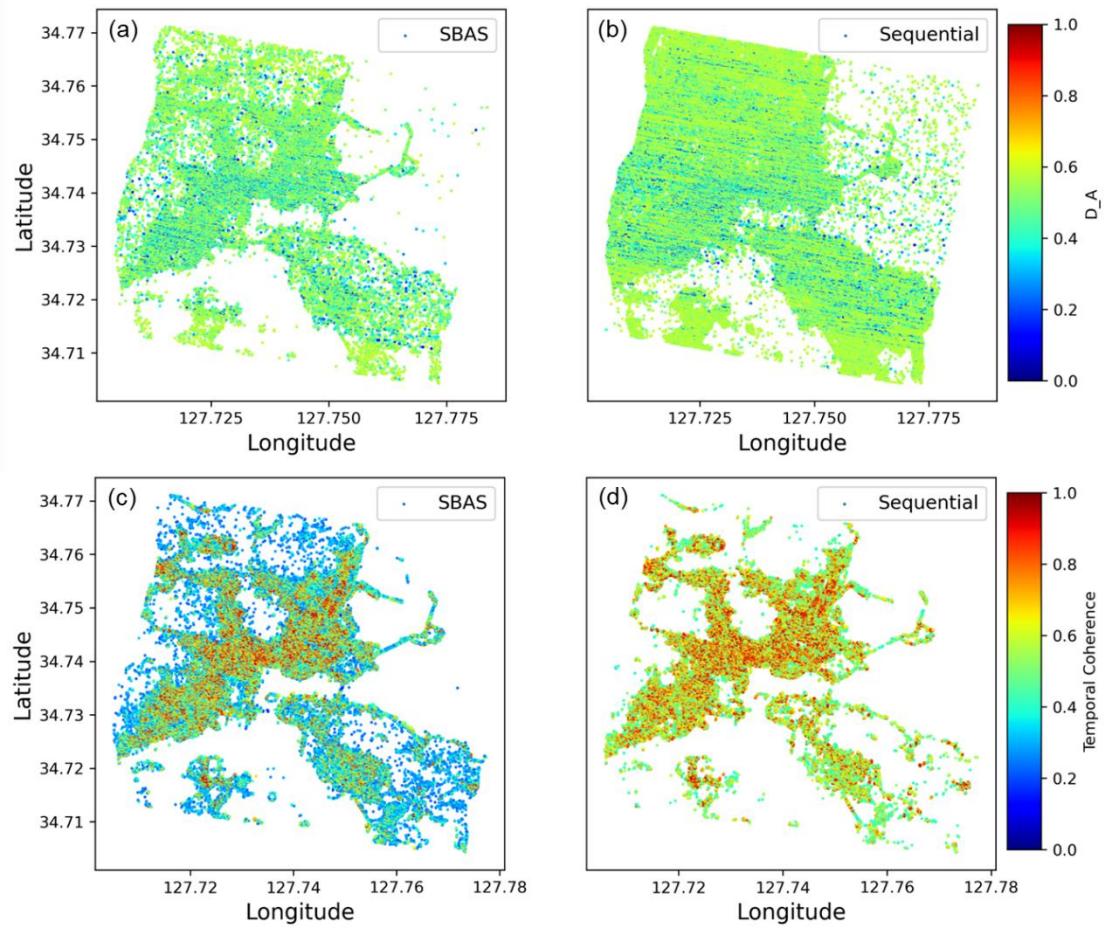


Figure S3. (a) and (b)  $D_{\Delta,A}$  value less than 0.6 for StaMPS-SBAS and sequential pair selection, respectively. (c) and (d) Temporal coherence of final SDFP pixel for StaMPS-SBAS and sequential pair selection, respectively.

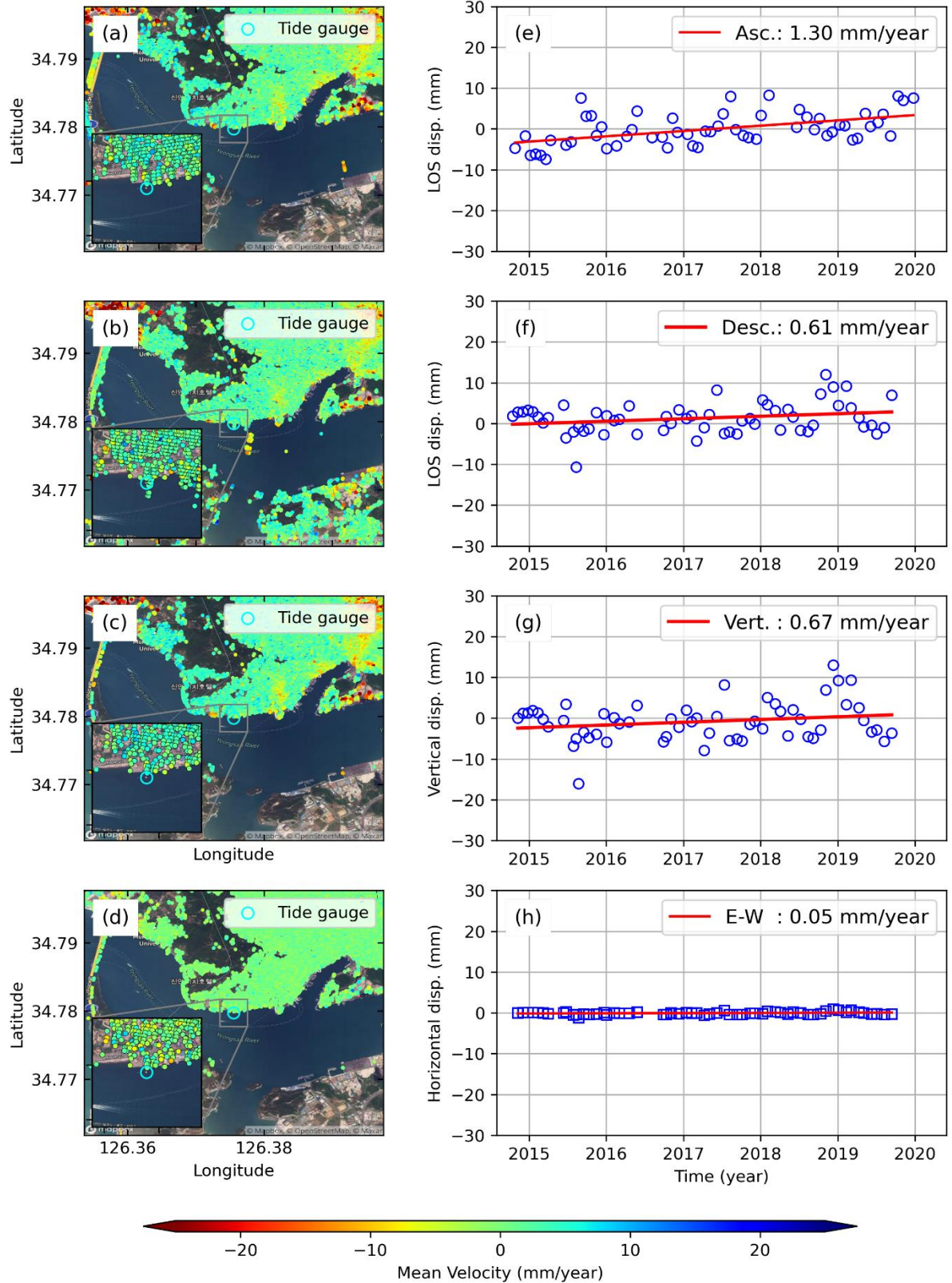


Figure S4. Mokpo Tide gauge (a) Vertical Land Motion (VLM) rate (b) Horizontal Land Motion rate

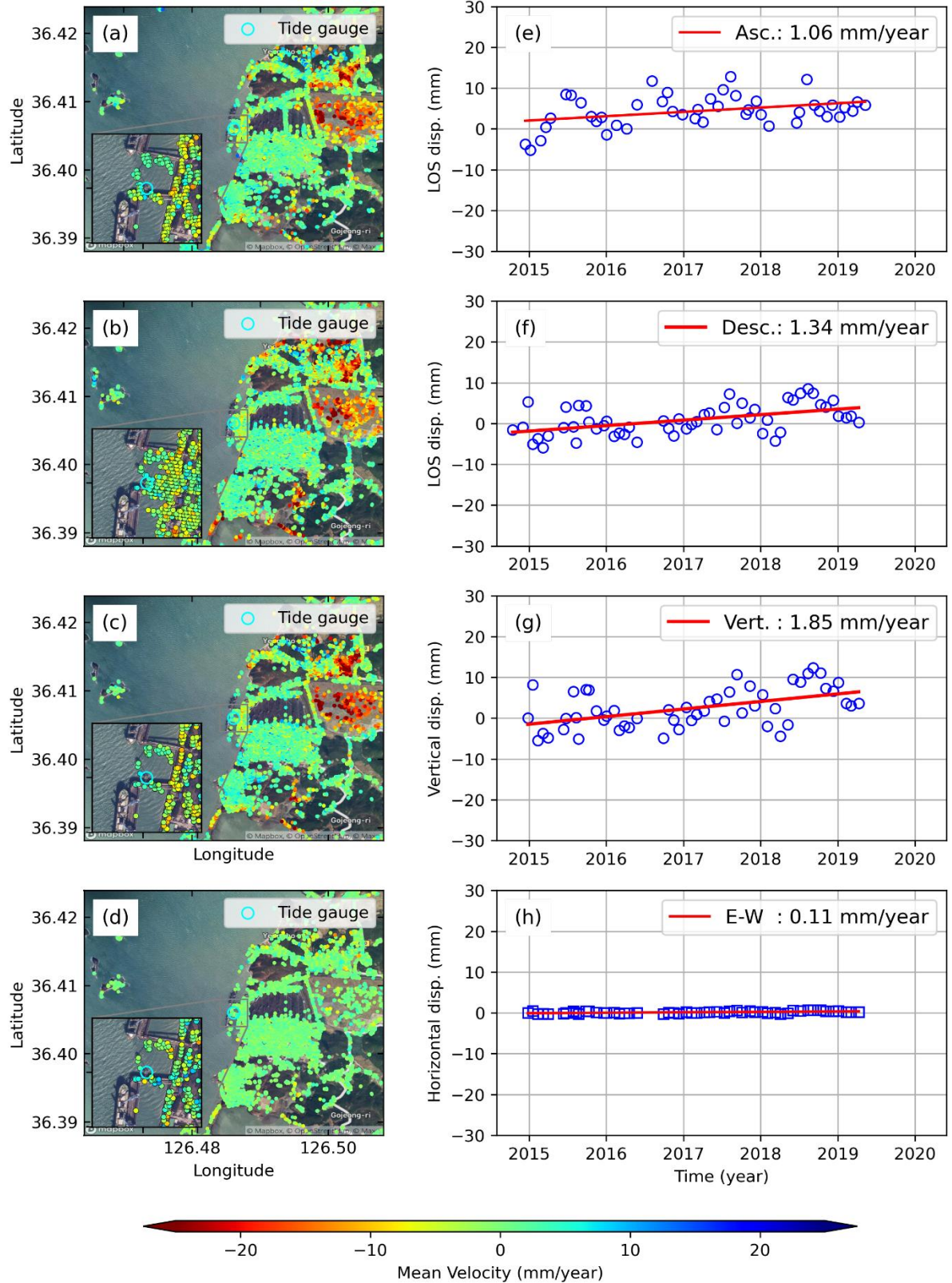


Figure S5 Boryeong TG (a) Vertical Land Motion (VLM) rate (b) Horizontal Land Motion rate

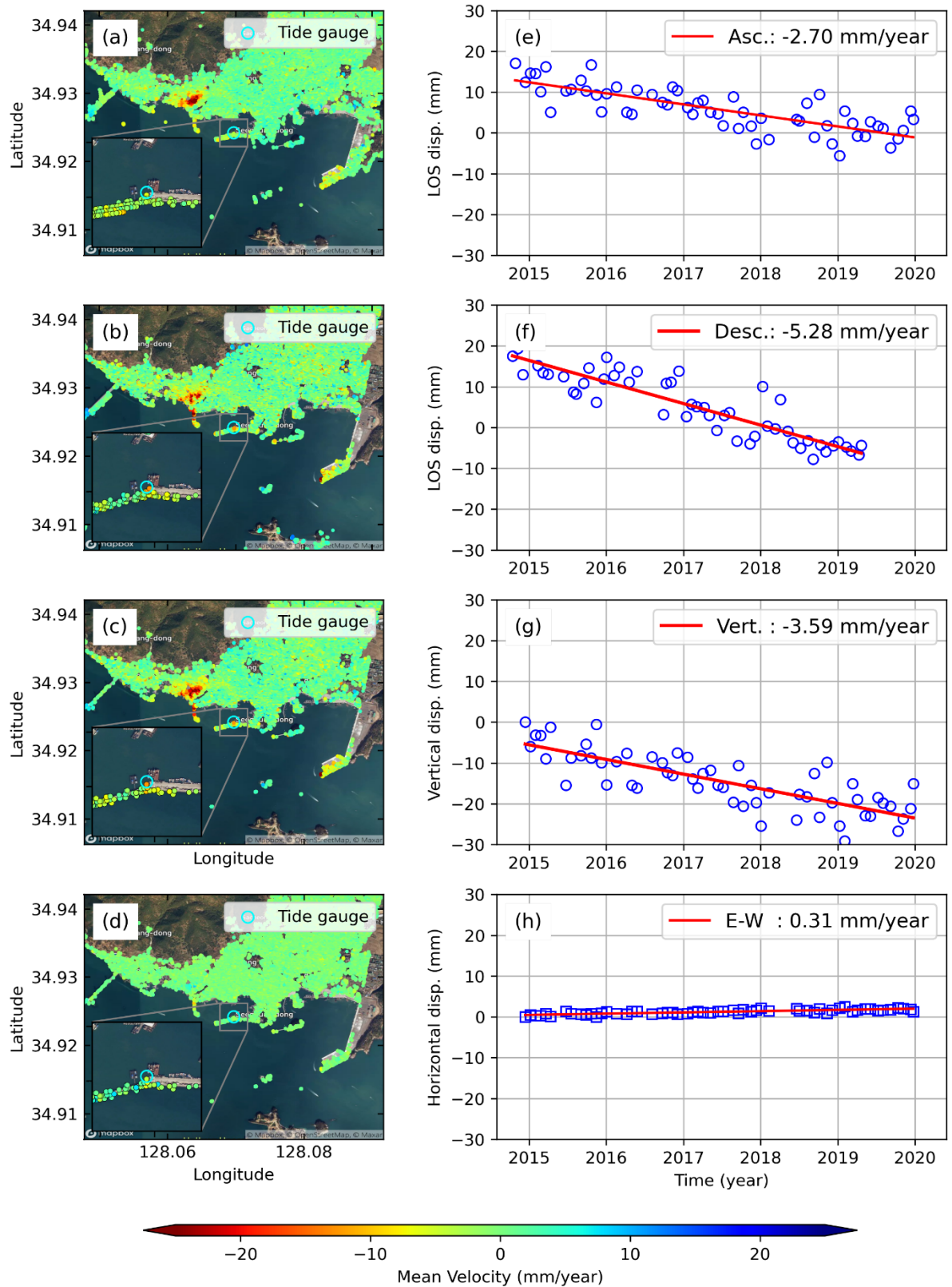


Figure S6. Samchonpo tide gauge (a) Vertical Land Motion (VLM) rate (b) Horizontal Land Motion rate

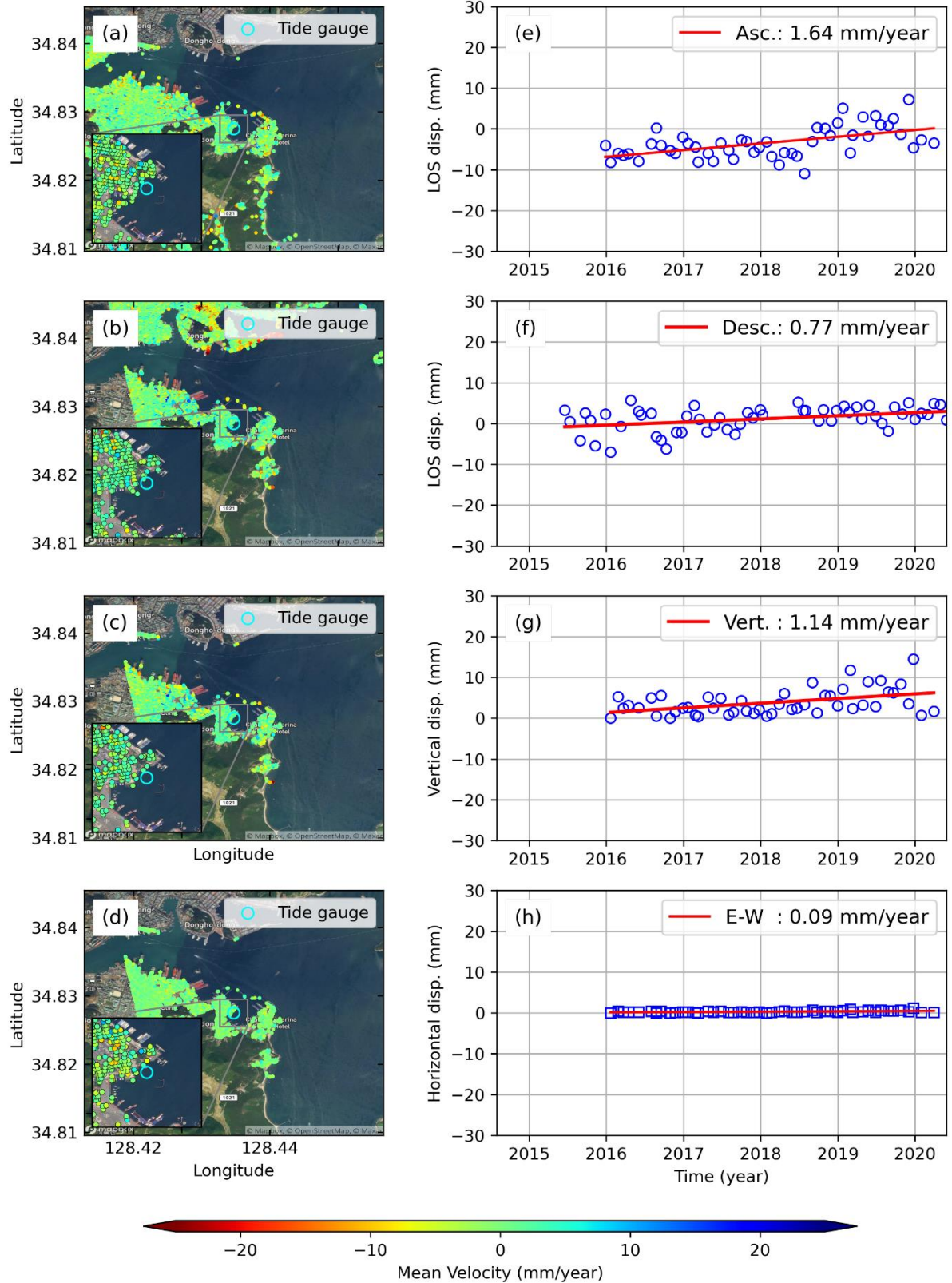


Figure S7. Tongyeong tide gauge (a) Vertical Land Motion (VLM) rate (b) Horizontal Land Motion rate

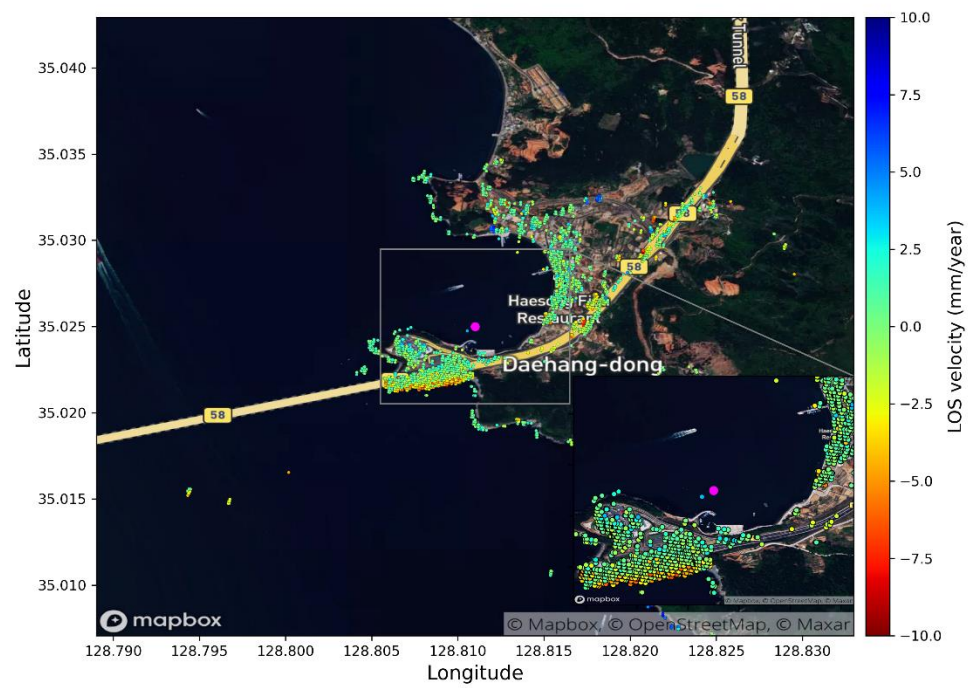


Figure S8. Mean LOS velocity map at Gadeokdo island