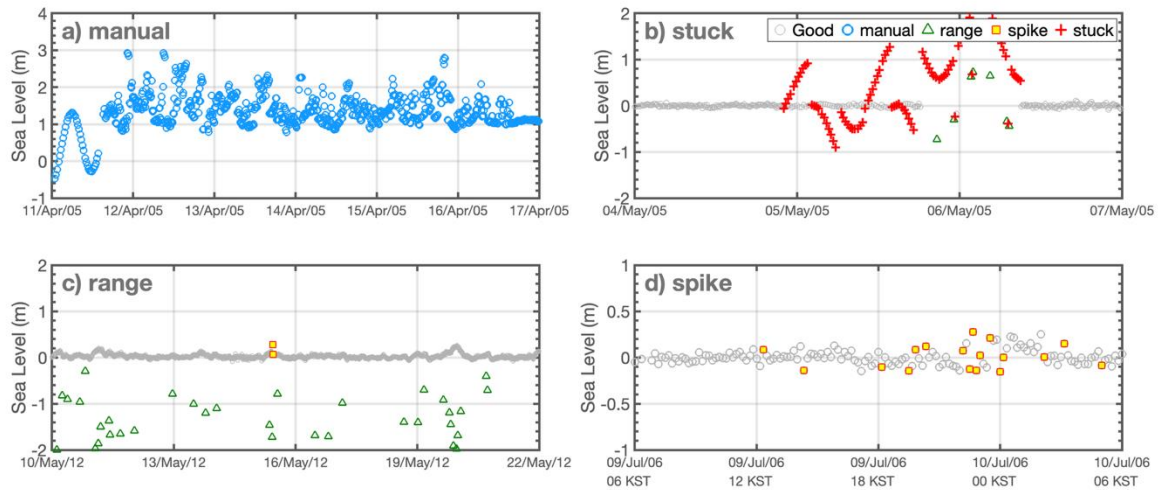
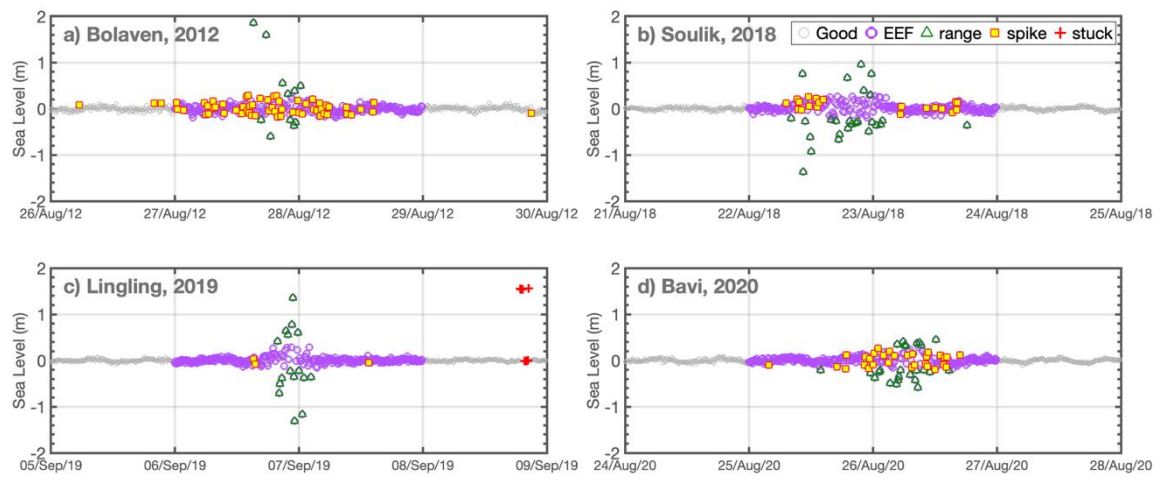


**Figure S1.** Same as Fig. 5, but for invariant stuck case (a-c, from 05 May 2005 to 07 May 2005), stuck case during short-period (d-f, from 12 Jul 2013 to 18 Jul 2013), and range-spike misclassification case (g-i, 12 Jun 2016 to 14 Jun 2016). The figures represent the processed sea level heights by adopting TALOD, KHOA, and SELENE QCs, respectively. The SELENE results were performed using a spike threshold of 1.0, a window size of 36, a polynomial fitting degree of 3, a valid data range of  $-2.0$  to  $2.0$ , and a maximum of 30 iterations.



**Figure S2.** Time series of non-tidal residual values for cases involving about 4 flags. a) manual, b) range, c) spike, and d) stuck. Each marker indicates Good Data (grey circle), manual (blue circle), range (green triangle), spike (yellow square with red outline), and stuck (red cross), respectively.



**Figure S3.** Time series of non-tidal residual values for each typhoon case. a) Bolaven in 2012, b) Soulik in 2018, c) Lingling in 2019, and d) Bavi in 2020. Good Data (grey circle), EEf (purple circle), range (green triangle), and spike (yellow square with red outline), respectively.