Supplement of "Rapid recirculation of FNPP1 derived radiocaesium suggesting new pathway of subtropical mode water in the western North Pacific to the Sea of Japan"

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Fig. S1. [137]Cs measurement sites (a) before 11 March 2011, (b) after 11 March 2011 in the Sea of Japan. The measurement data in the Sea of Japan were depicted.
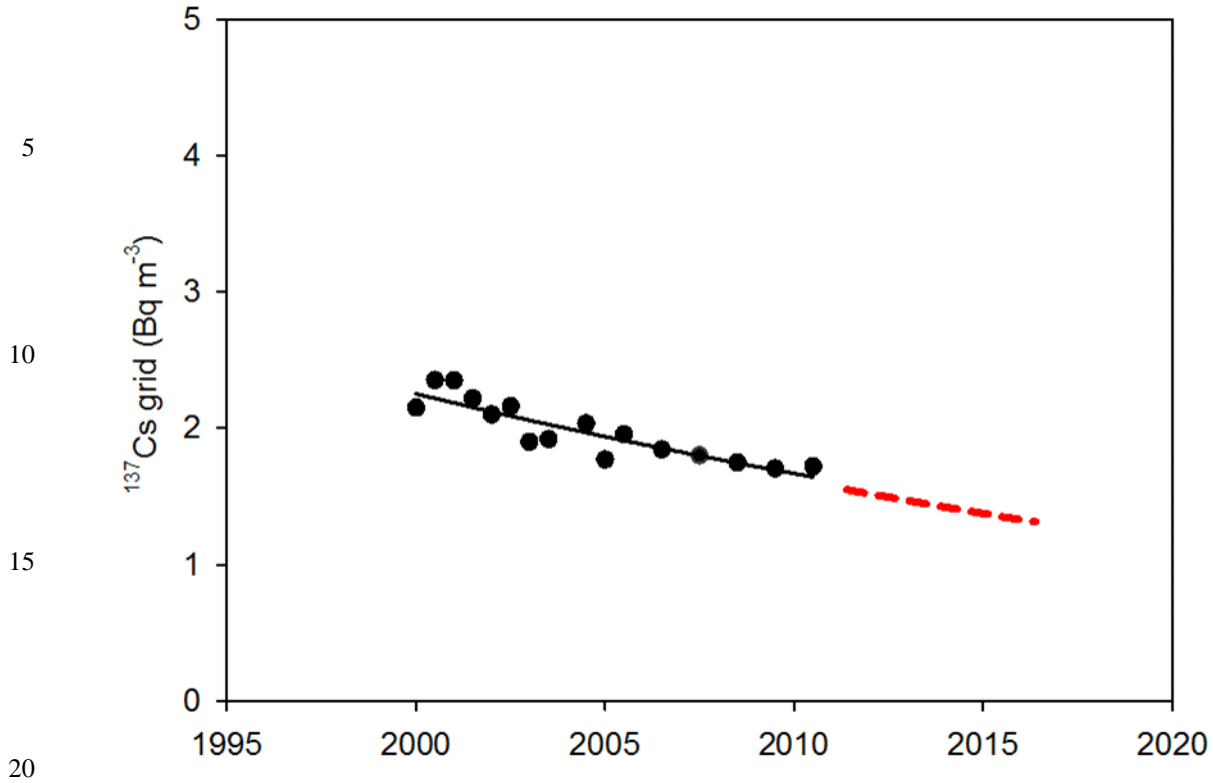
Fig. S2. The half-year average value of ^{137}Cs activity concentrations from 2000 to 2010. The value was decay corrected to 11th March 2011. Based on this fitting curve, ^{137}Cs activity concentrations except for the FNPP1 origin were estimated.
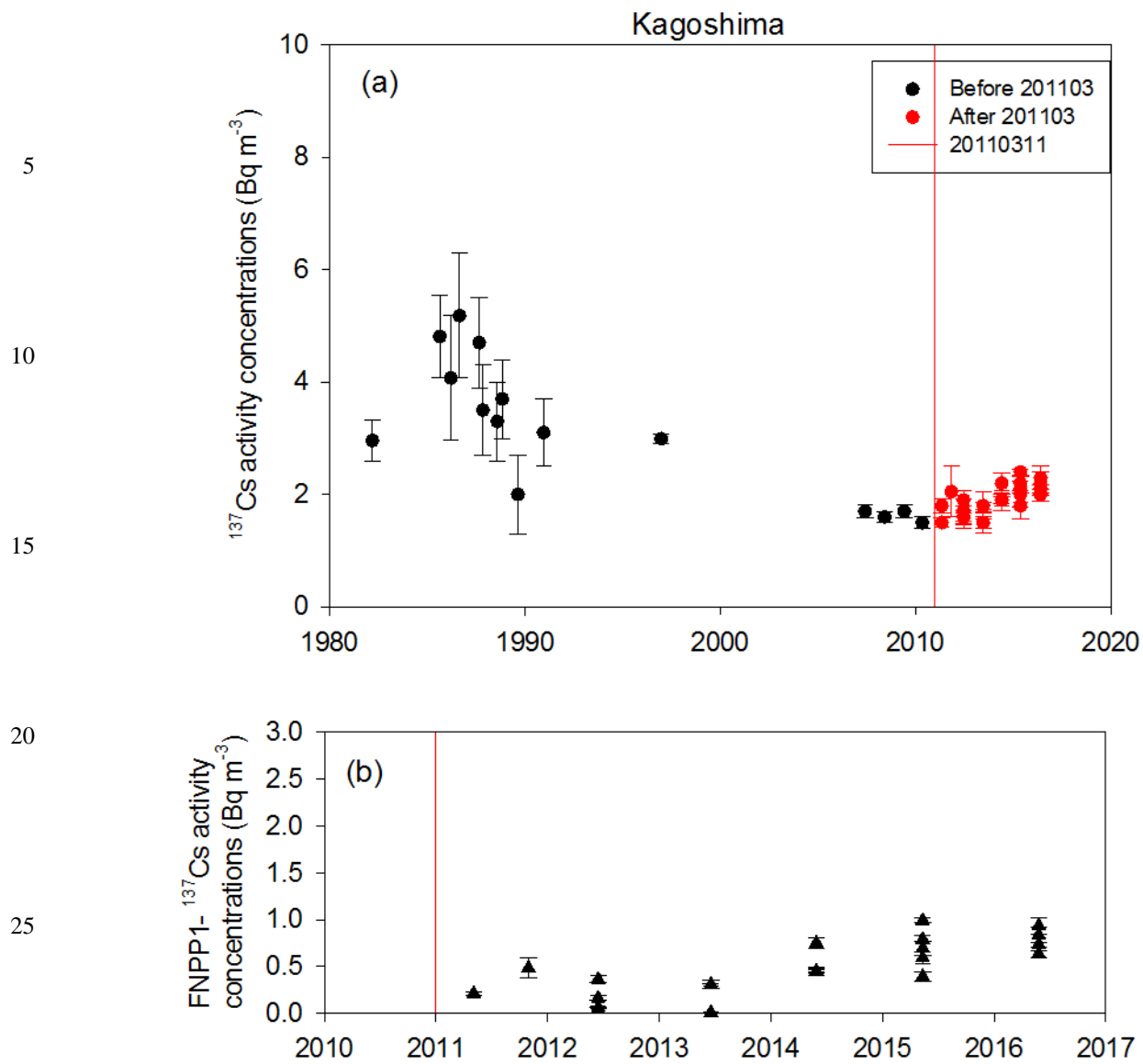
Fig. S3. Time variation of (a) ^{137}Cs activity from 1980 to 2020, (b) FNPP1-^{137}Cs activity based on the fitting curve shown in Figure SI1 at Kagoshima. The value was decay corrected to 11th March 2011. Vertical red line mean the FNPP1 accident day (11 March 2011).
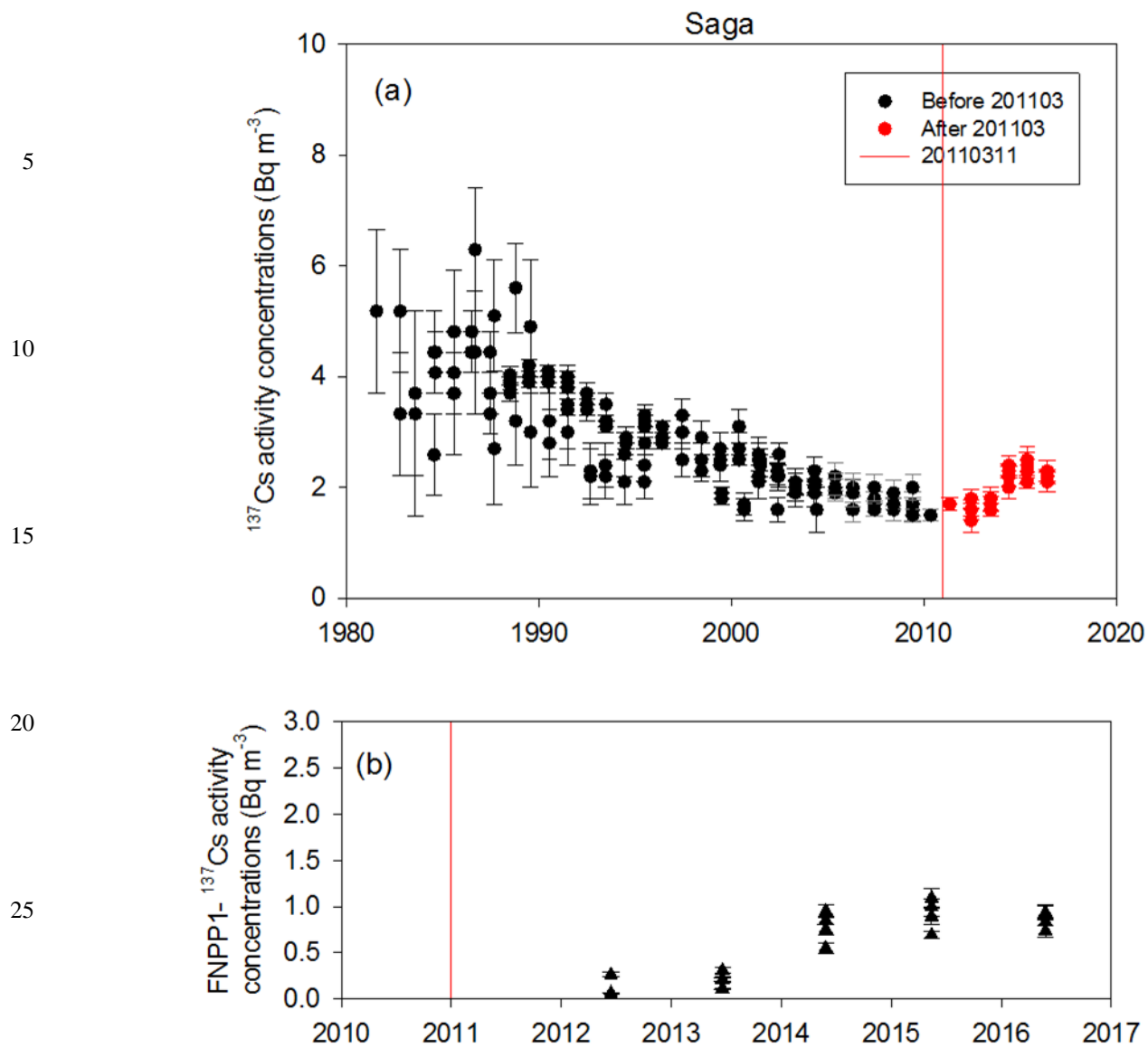
Fig. S4. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) FNPP1-^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Saga. The value was decay corrected to 11th March 2011.Vertical red line mean the FNPP1 accident day (11 March 2011).
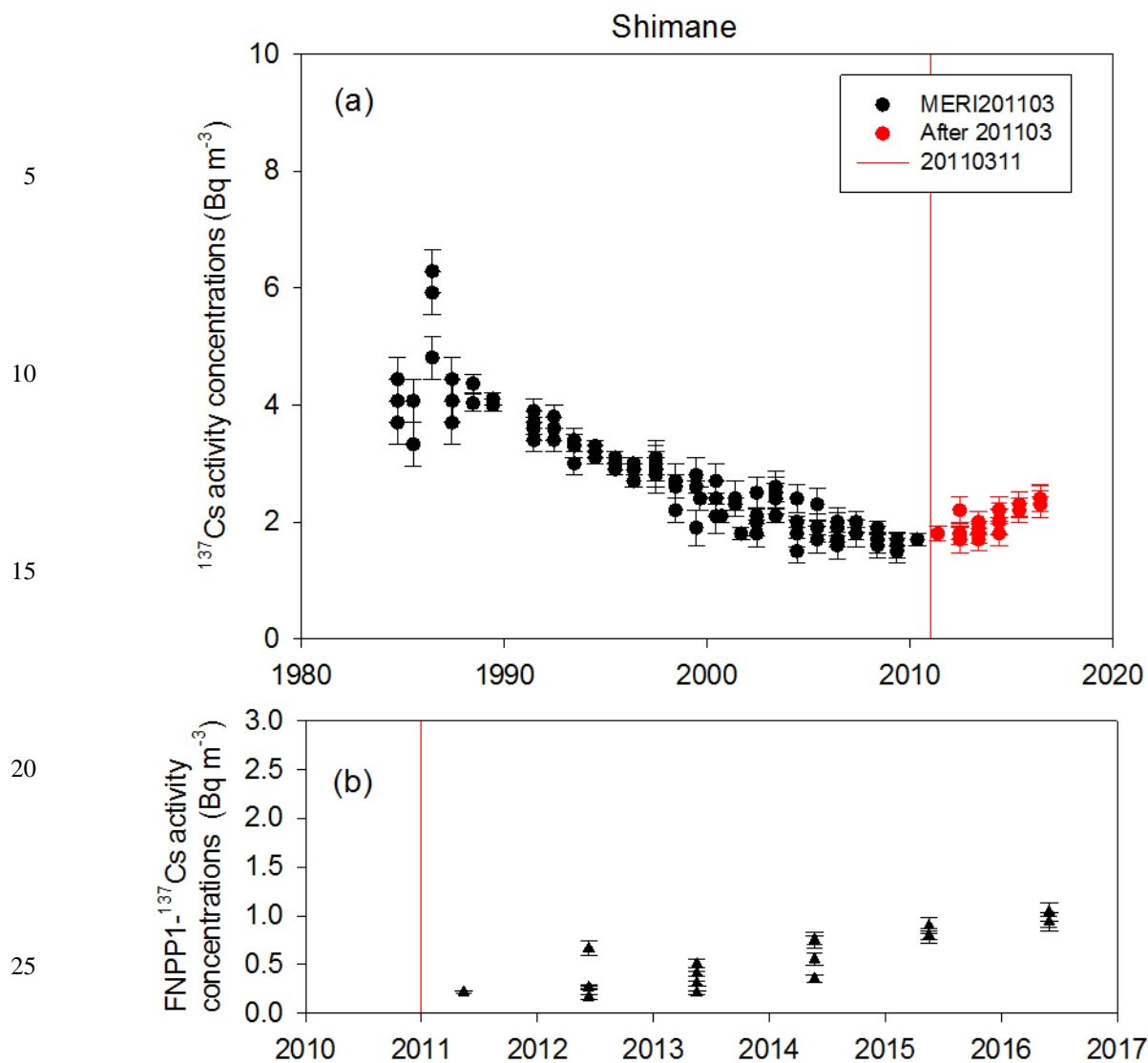
Fig. S5. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) FNPP1 ^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Shimane. The value was decay corrected to 11th March 2011.Vertical red line mean the FNPP1 accident day (11 March 2011).
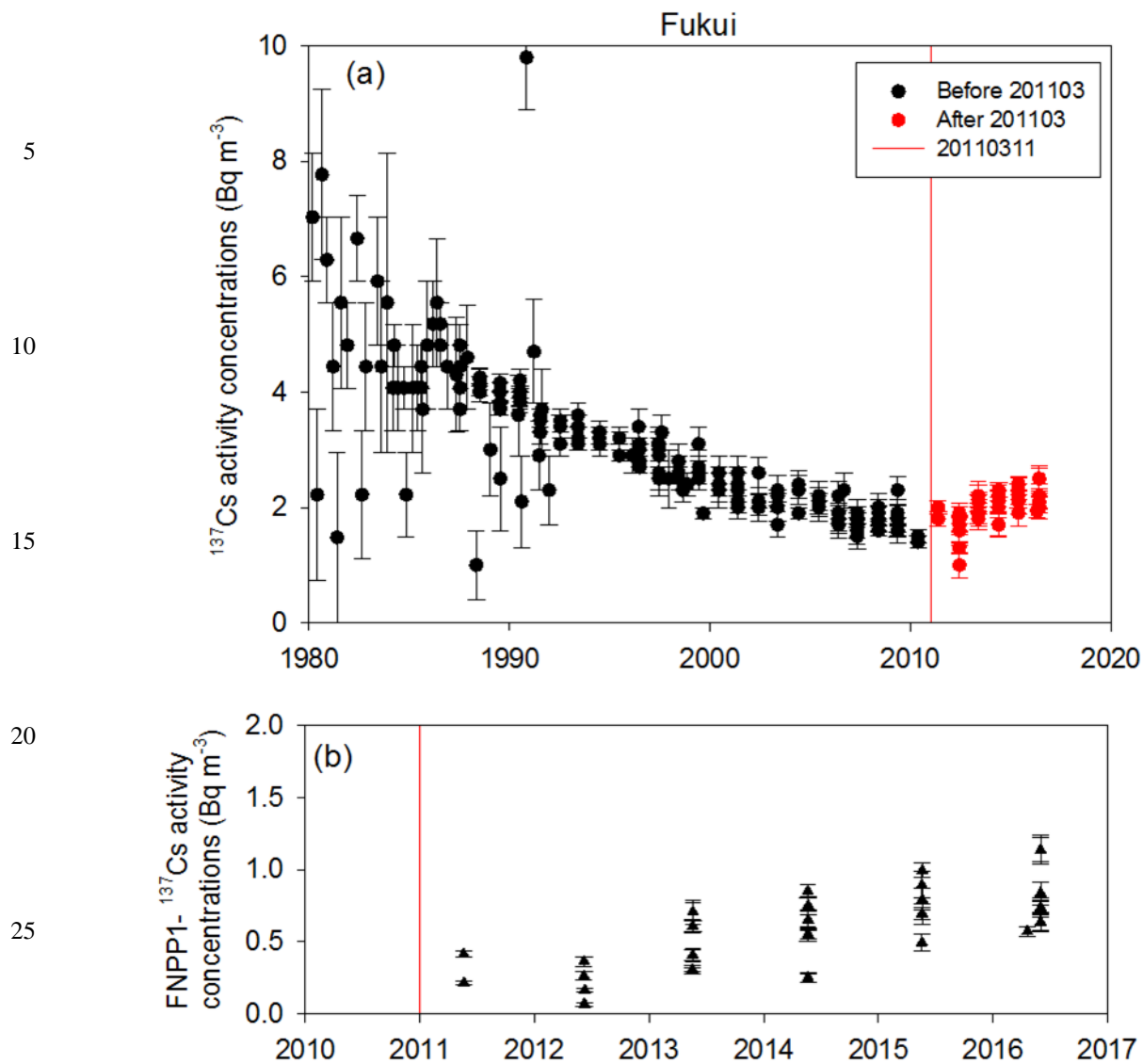
Fig. S6. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) FNPP1-^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Fukui. The value was decay corrected to 11th March 2011.Vertical red line mean the FNPP1 accident day (11 March 2011).
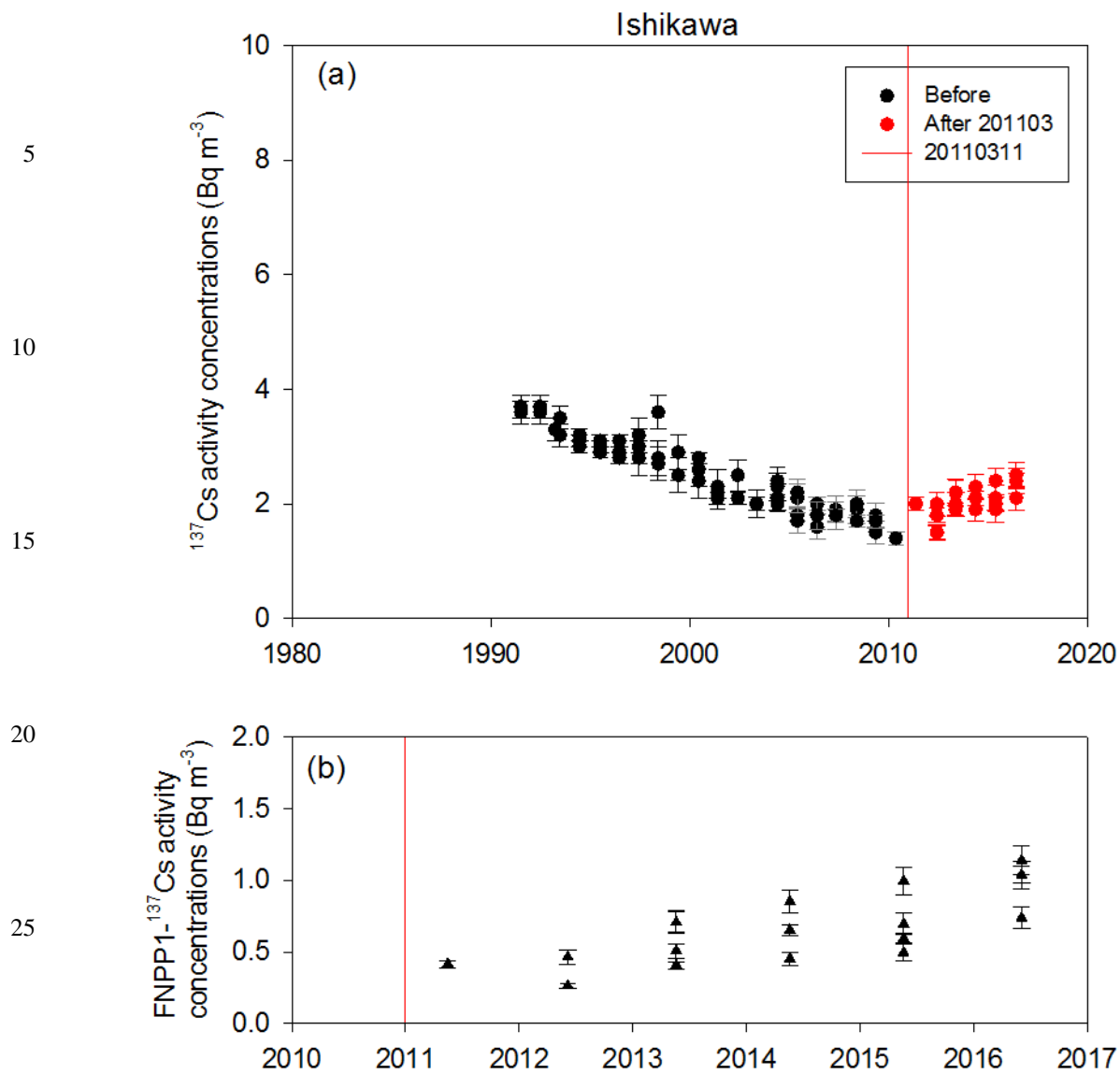
Fig. S7. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) FNPP1-^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Ishikawa. The value was decay corrected to 11th March 2011.Vertical red line mean the FNPP1 accident day (11 March 2011).
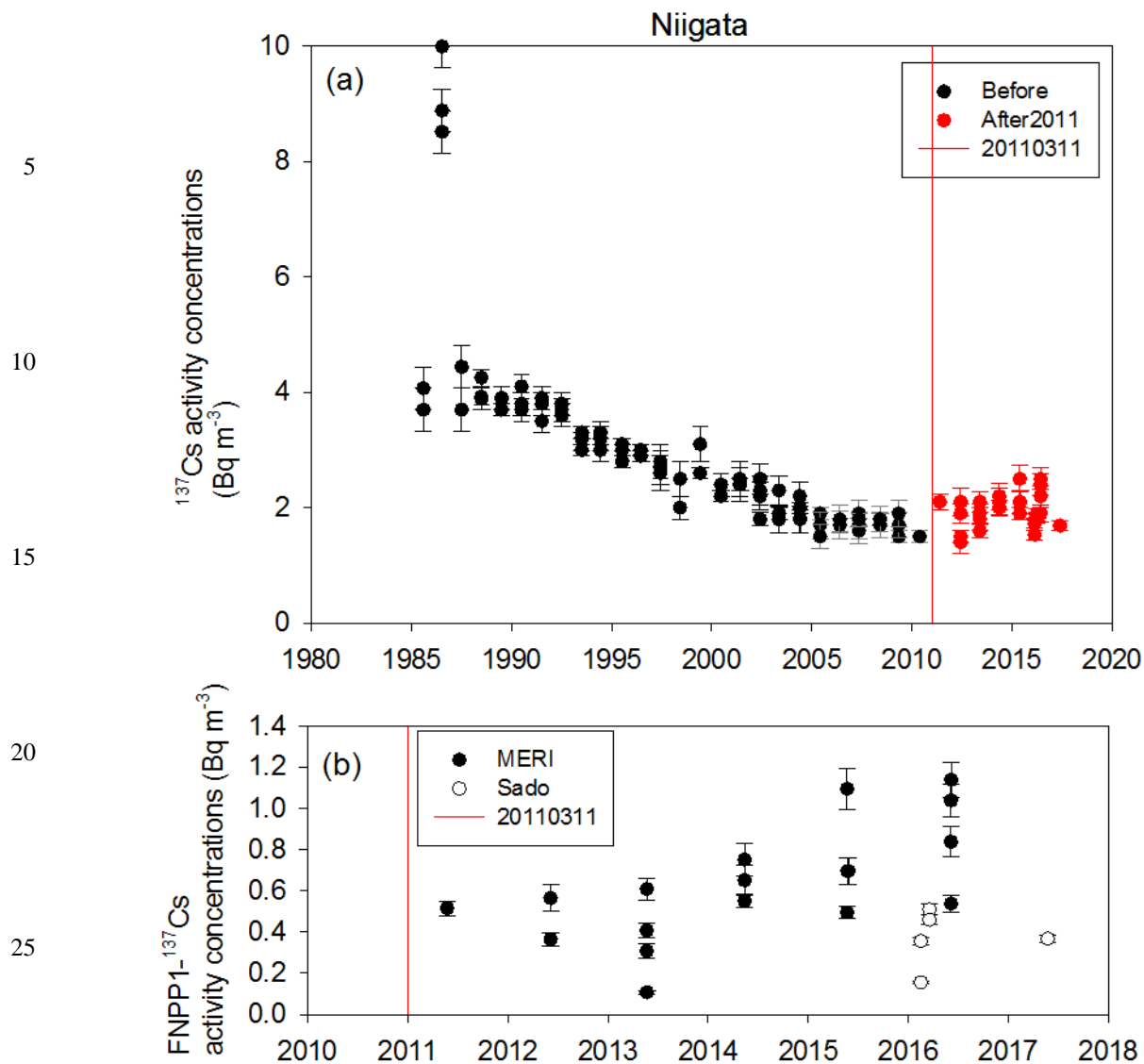
Fig. S8. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) FNPP1-^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Niigata. The value was decay corrected to 11th March 2011. Vertical red line mean the FNPP1 accident day (11 March 2011).
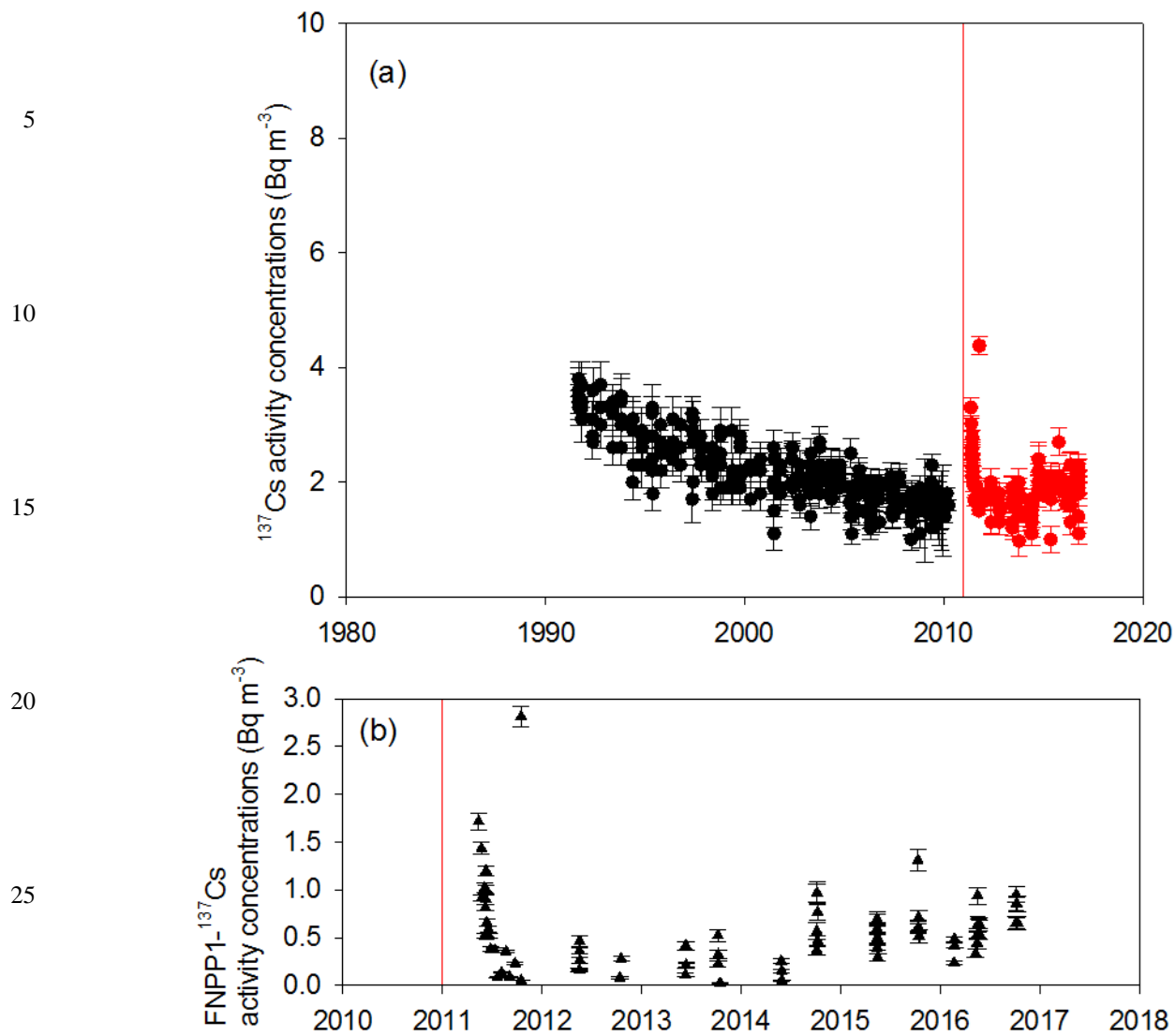
Fig. S9. Time variation of (a) ^{137}Cs activity concentrations from 1980 to 2020, (b) enhanced ^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Aomori area. The value was decay corrected to 11th March 2011. Vertical red line mean the FNPP1 accident day (11 March 2011).
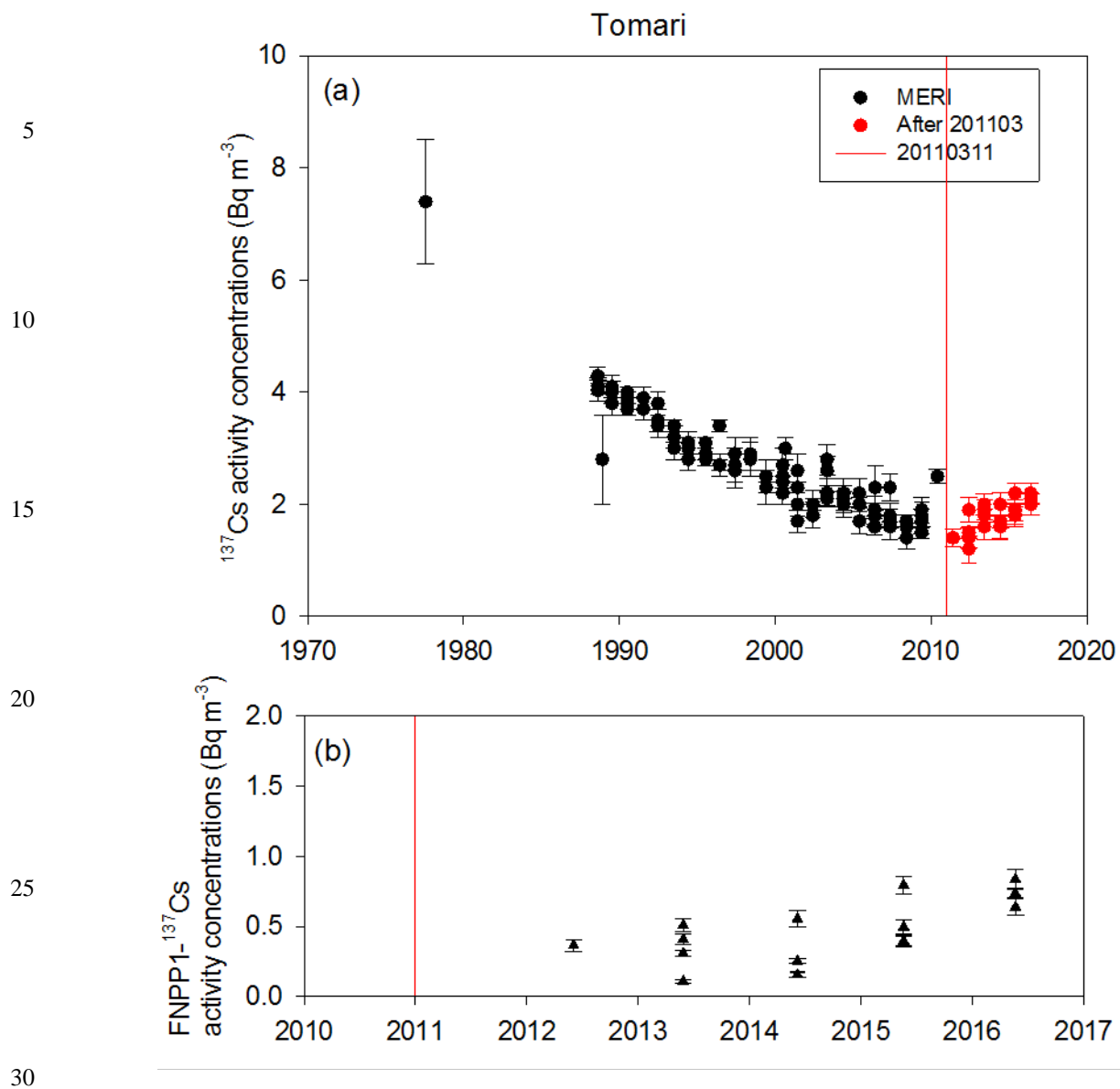
Fig. S10. Time variation of (a) ^{137}Cs activity concentrations from 1970 to 2020, (b) FNPP1-^{137}Cs activity concentrations based on the fitting curve shown in Figure SI1 at Tomari. The value was decay corrected to 11th March 2011. Vertical red line mean the FNPP1 accident day (11 March 2011).
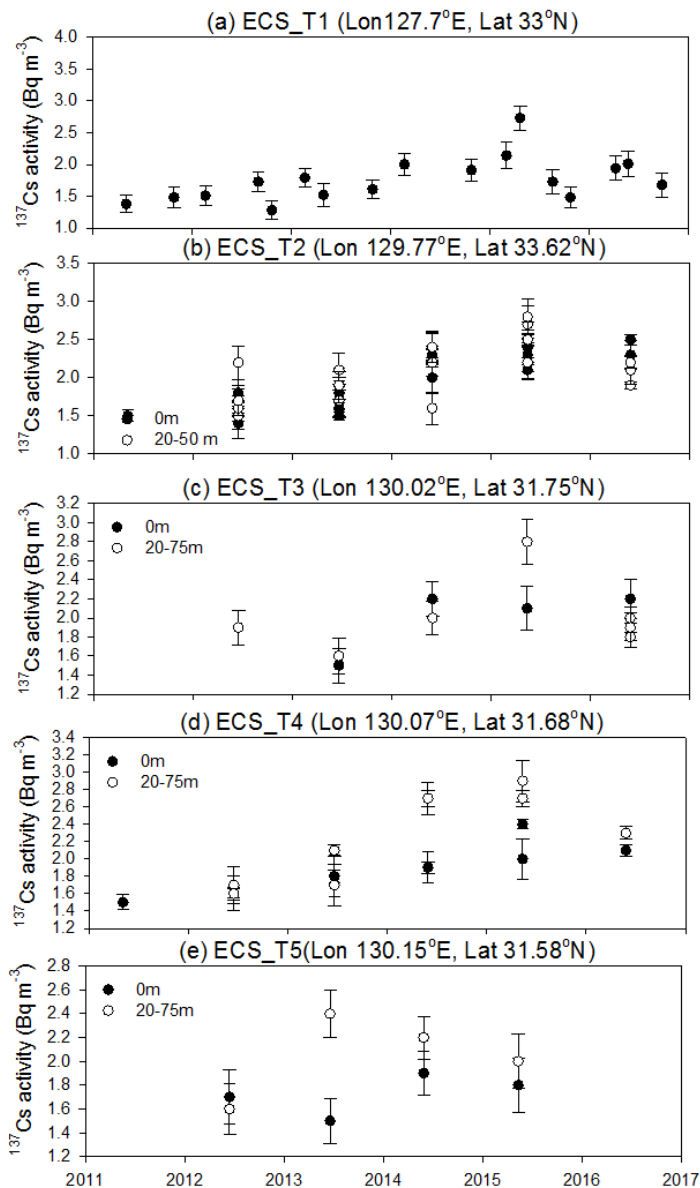
Fig. S11. Temporal variations of ^{137}Cs activity concentrations at the five sites in ECS. (a) Longitude 127.7°E, Latitude 33°N, (b) Longitude 129.77°N, Latitude 33.62°N, (c) Longitude 130.02°E, latitude 31.75°N, (d) Longitude 130.07°E, Latitude 31.68°N, (e) Longitude130.15°N, Latitude 31.58°N. These are monitoring sites denoted as triangle with arrows in Fig. 6.