Supplementary material to "The impact of altimetry corrections of Sentinel-3A sea surface height in the coastal zone of the Northwest Atlantic"

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Supplementary Figures showing the spatial variability of the reduction (or increase) in variance of SSH anomalies at cross-over points, expressed as the percentage of noise reduction (PNR). PNR is equal to the scaled variance difference.

In addition, distance–PNR relationship is shown for each correction in Figure S8 and spatial variability of retracker SSH differences in Figure S9.
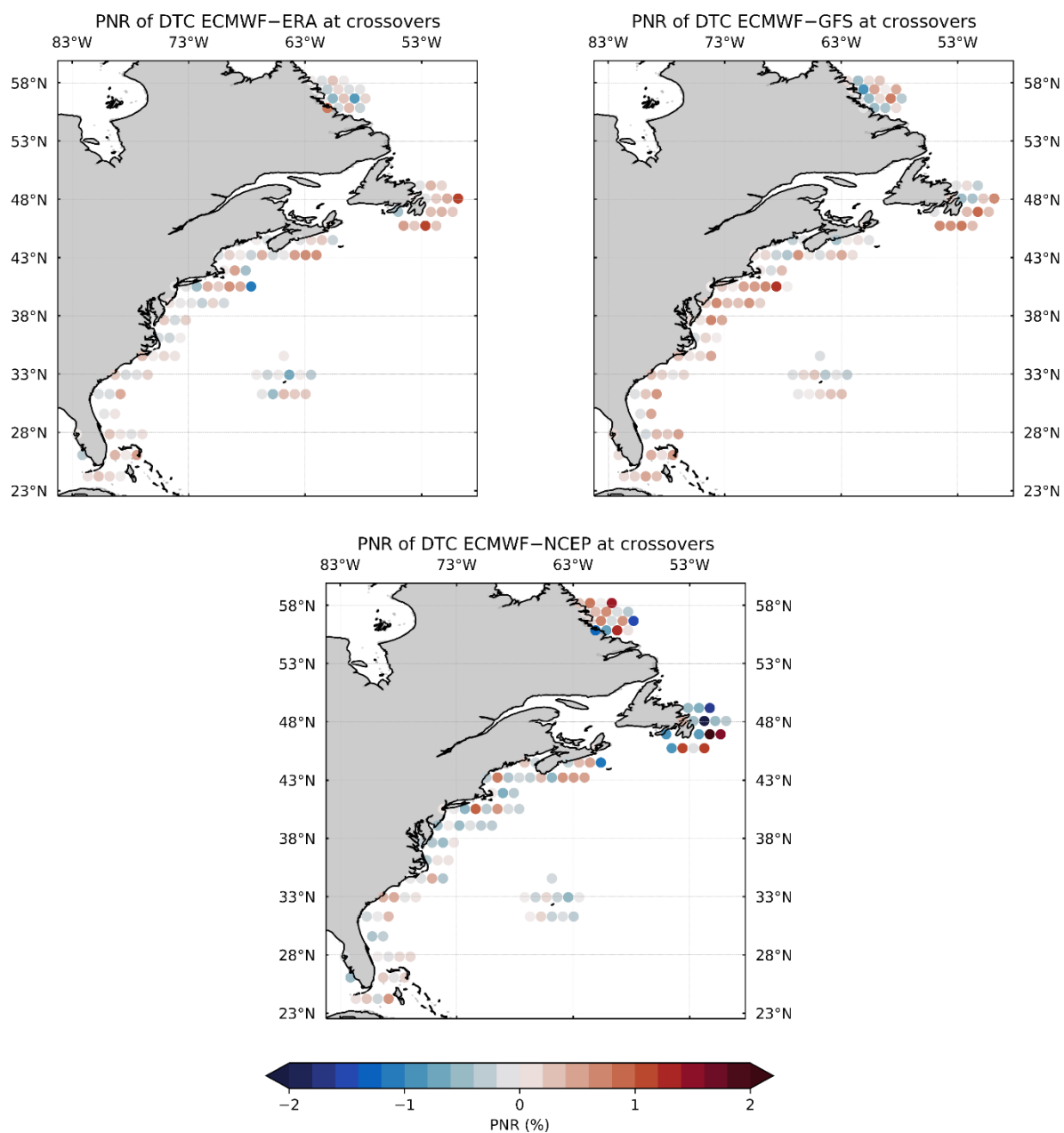
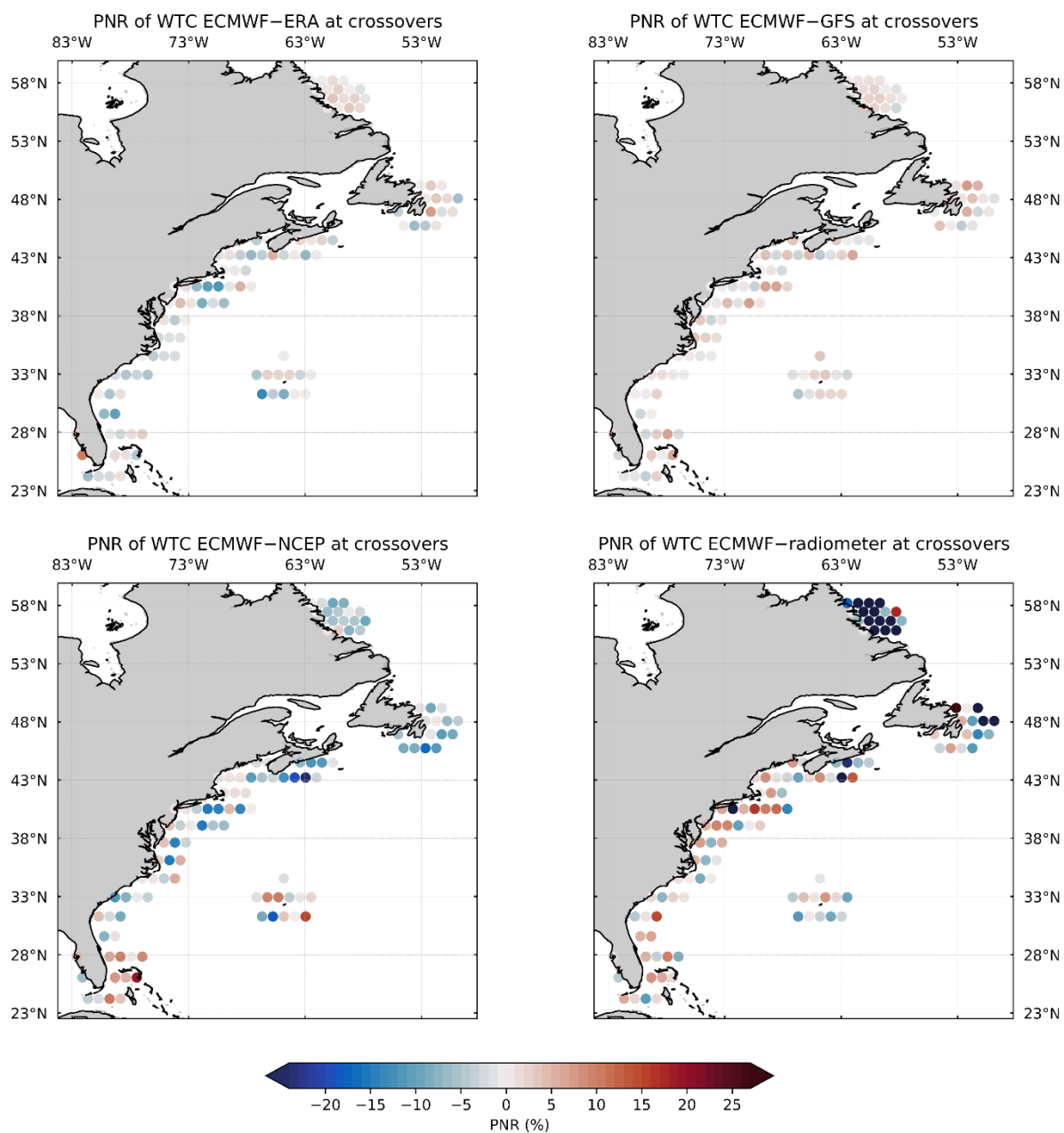**Figure S1.** PNR of SSHA versions at crossovers for DTC.
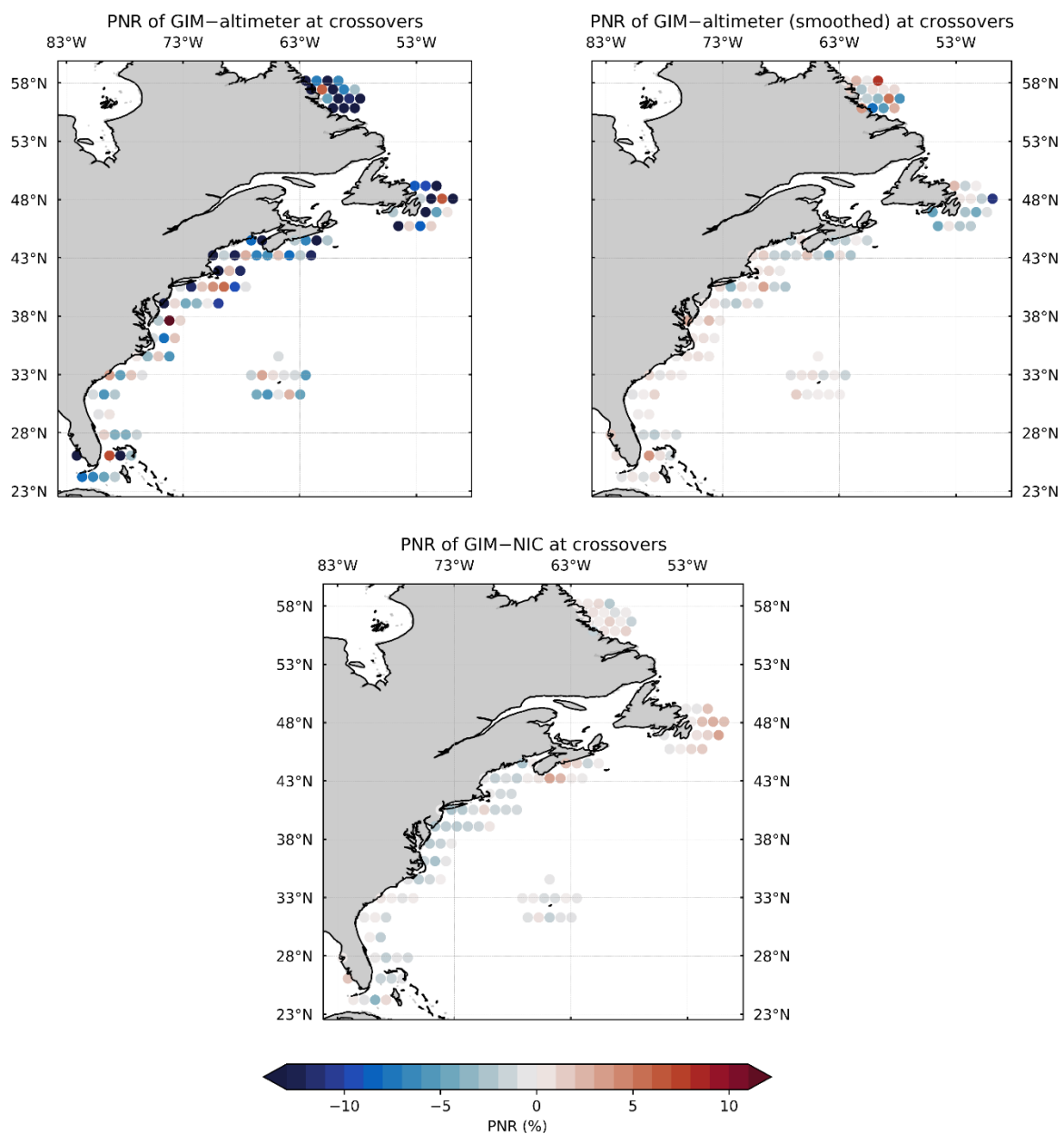
Figure S2. PNR of SSHA versions at crossovers for WTC.

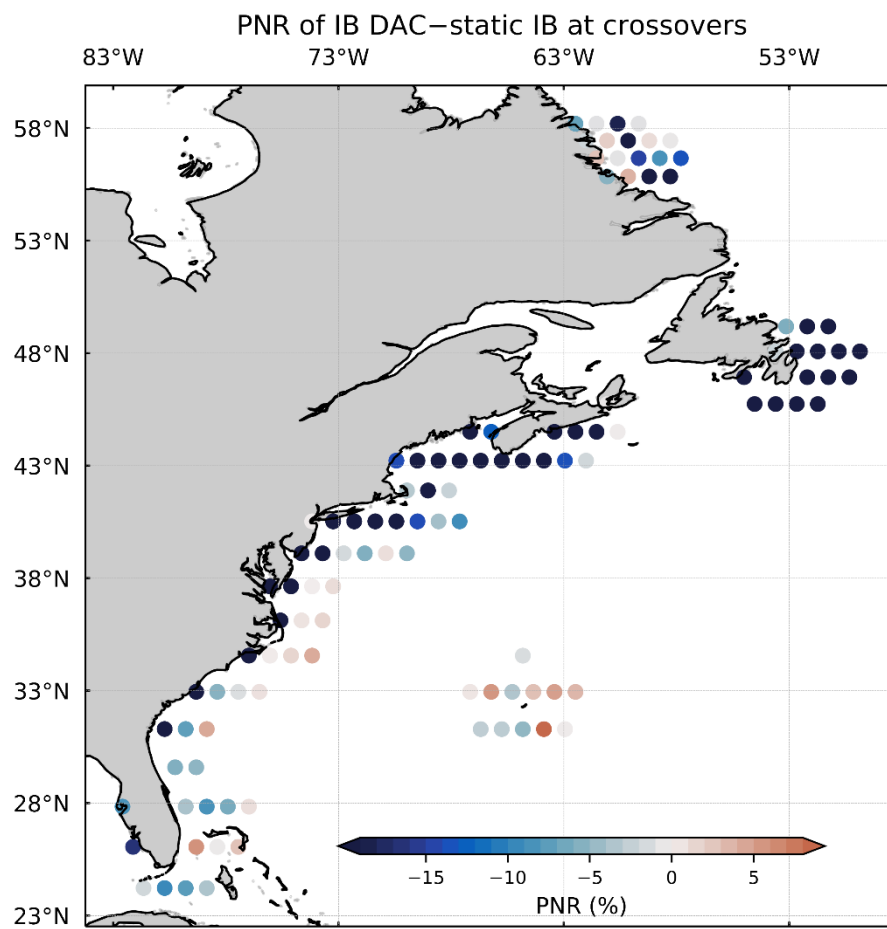**Figure S3.** PNR of SSHA versions at crossovers for ionospheric correction.
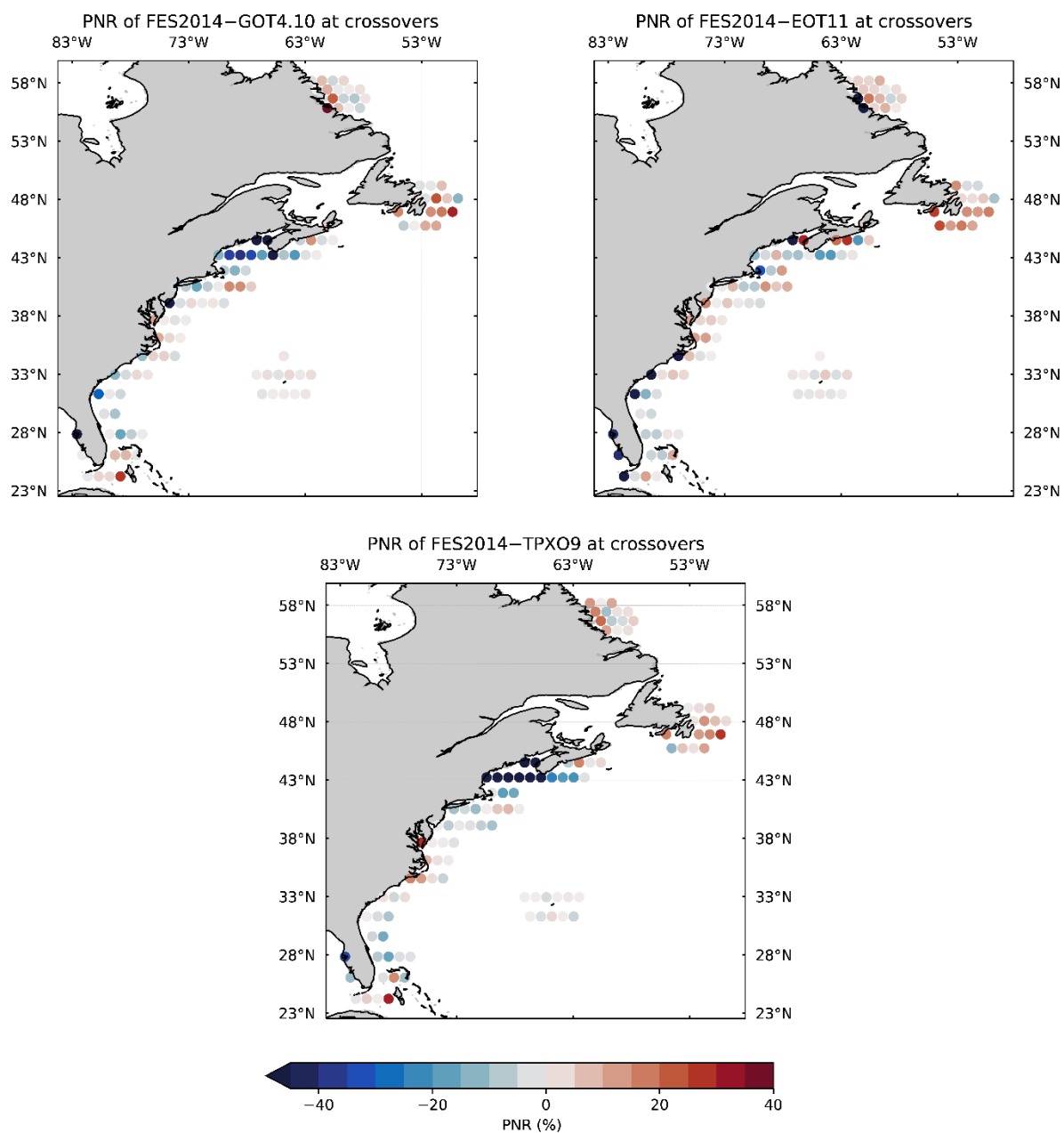
Figure S4. PNR of SSHA versions at crossovers for IB.

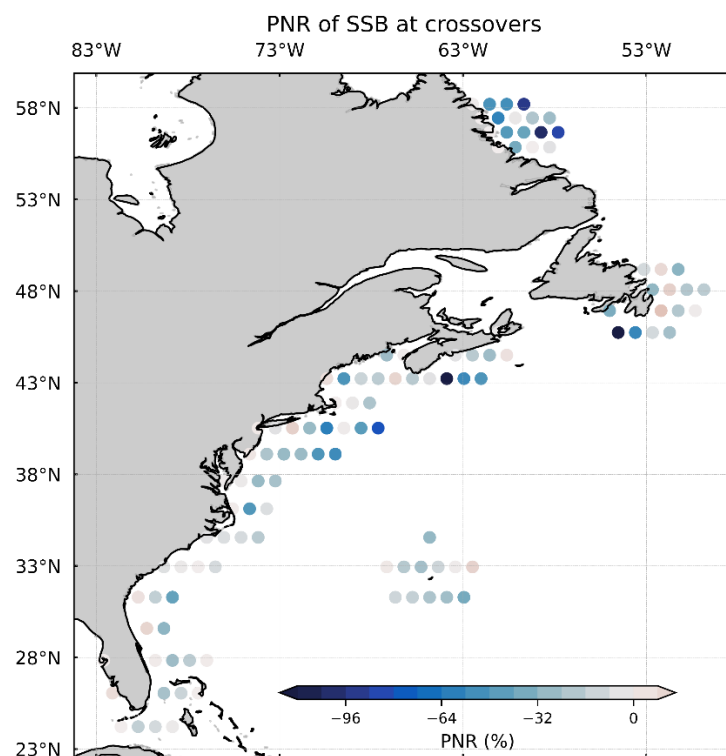**Figure S5.** PNR of SSHA versions at crossovers for tidal correction.
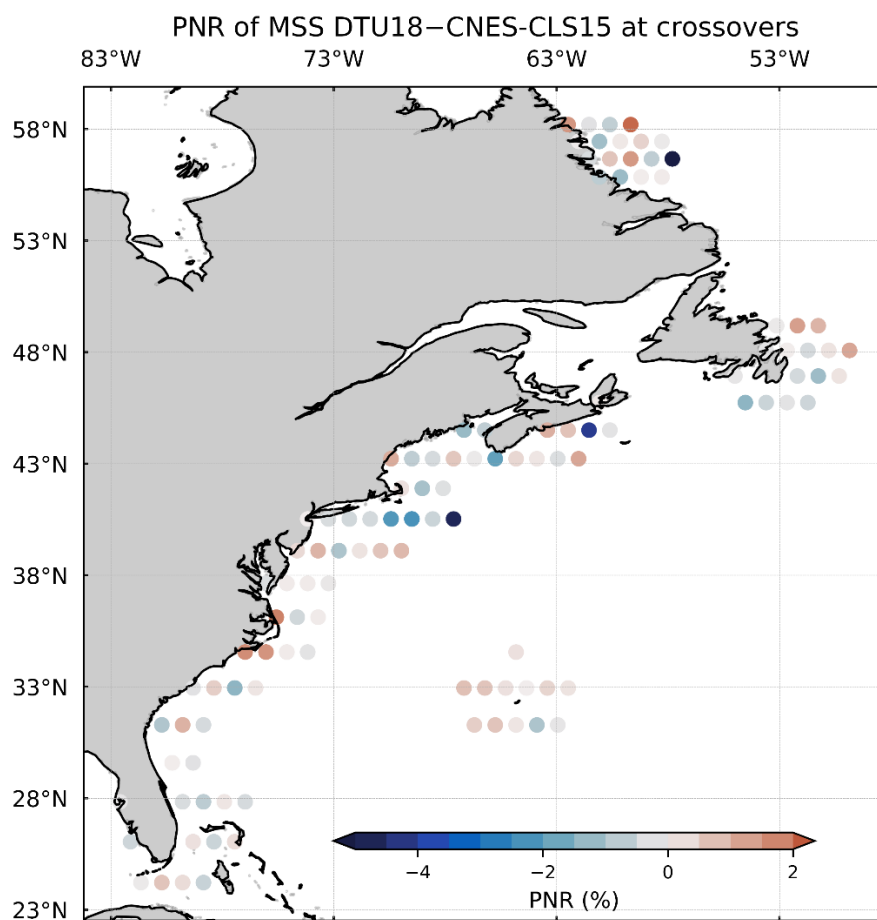
Figure S6. PNR of SSHA versions at crossovers for SSB.

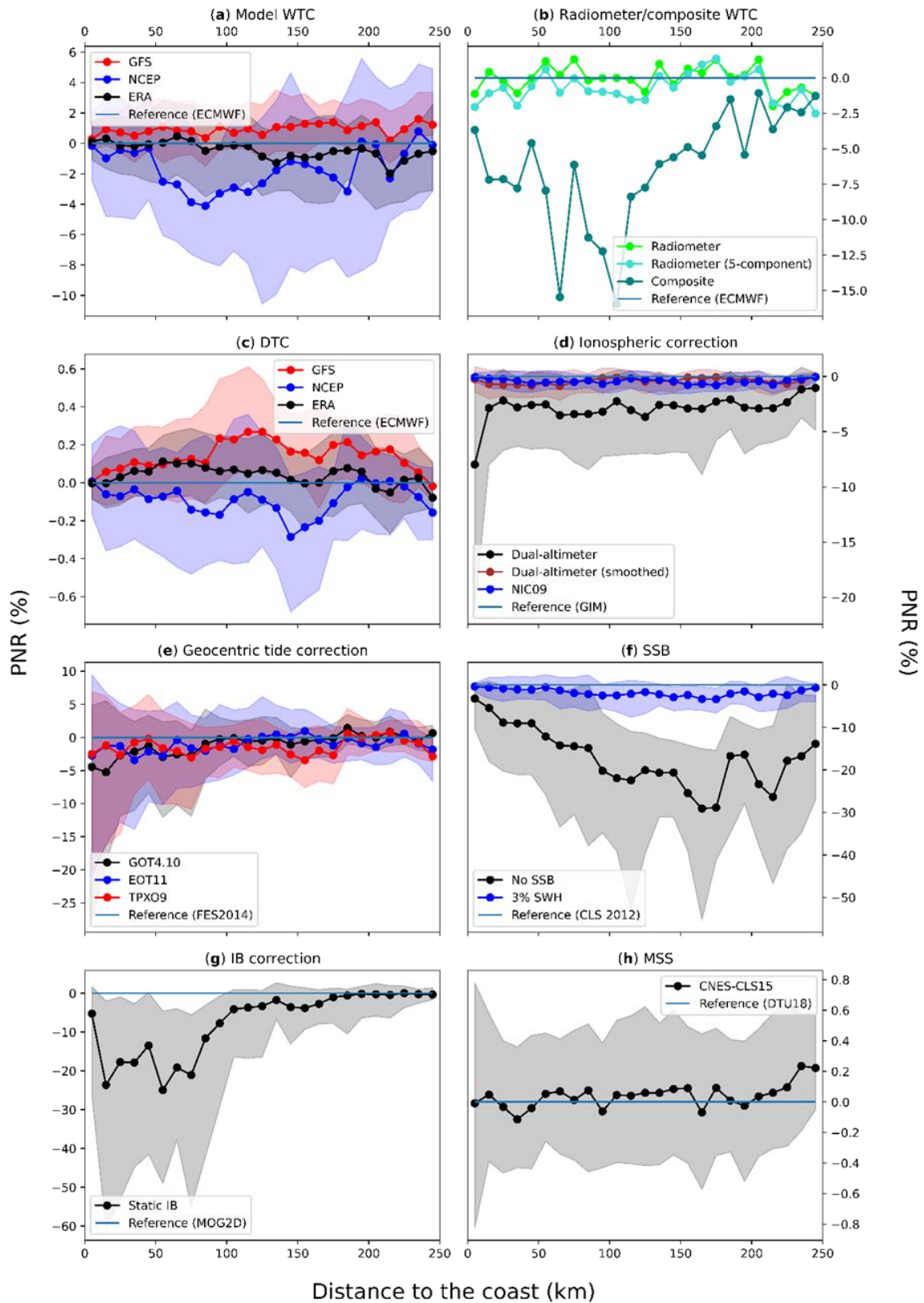**Figure S7.** PNR of SSHA versions at crossovers for MSS.

Figure S8. Panel of PNR versus the distance to the coast per 10 km bin: (**a**) wet tropospheric correction (standard: ECMWF-derived WTC); (**b**) dry tropospheric correction (standard: ECMWF-derived DTC); (**c**) ionospheric correction (standard: GIM); (**d**) sea state bias correction (standard: Jason 2-based nonparametric SSB [32,33]); (**e**) geocentric tide correction, a sum of ocean and load tide (standard: FES2014b); (**f**) dynamic atmosphere correction (standard: MOG2D dynamic atmosphere correction). All plots show the median value with associated interquartile range (IQR).
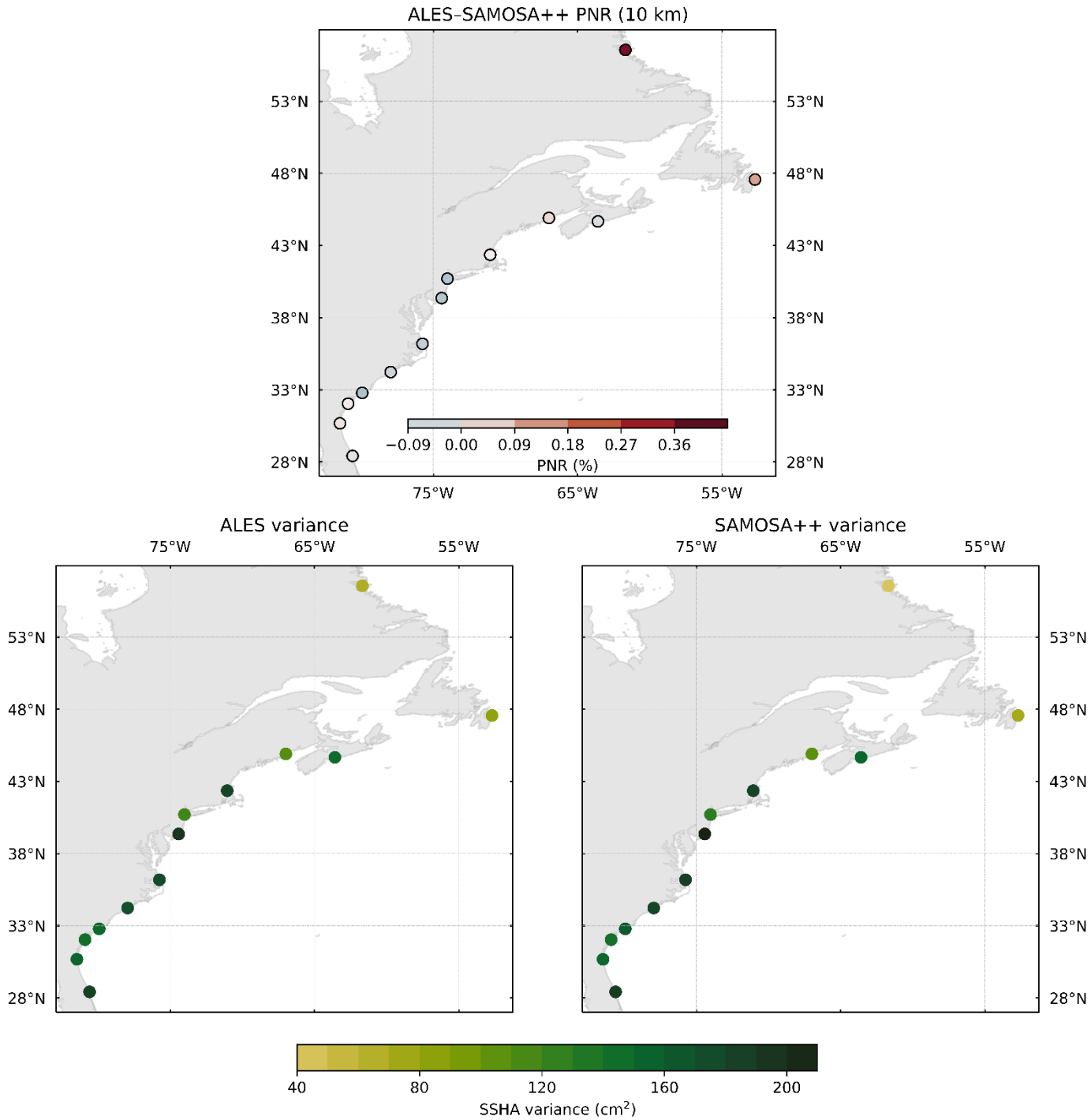
Figure S9. Variance of all measurements around a virtual tide gauge (aggregated) within 10 km from the coast: (**a**) PNR difference between ALES and SAMOSA++; (**b**) variance of SSHA for ALES; (**c**) variance of SSHA for SAMOSA++. This plot shows that the sea ice-affected areas north of 45 degrees latitude are stronger affected by the decrease in variance by the application of coastal retrackers.