A statistical definition of the Antarctic marginal ice zone

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Fig. S1: As in Fig. 1 of the main text but for the NOAA/NSIDC GM (1979-2019). Top panel: median of the monthly standard deviation of sea-ice concentration daily anomaly (σ_{SIA}), plotted on a stereographic projection. The pixels with SIC=0 have been excluded from the analysis of the distribution. Bottom panel: empirical probability and cumulative density functions of the median values from the map (PDF: black line and CDF: blue line).



Fig. S2: As in Fig. 1 of the main text but for the OSI-450 CDR (1979-2015). Top panel: median of the monthly standard deviation of sea-ice concentration daily anomaly (σ_{SIA}), plotted on a stereographic projection. The pixels with SIC=0 have been excluded from the analysis of the distribution. Bottom panel: empirical probability and cumulative density functions of the median values from the map (PDF: black line and CDF: blue line).



Fig. S3: As in Fig. 3 of the main text but for the NSIDC/NOAA GM dataset. Climatological values of the indicator $(\overline{\sigma}_{SIA}^n)$, computed as the standard deviation of the daily anomalies for each month in the whole time series.



Fig. S4: As in Fig. 3 of the main text but for the OSI-450 dataset. Climatological values of the indicator $(\overline{\sigma}_{SIA}^n)$, computed as the standard deviation of the daily anomalies for each month in the whole time series.



Fig. S5: As in Fig. 5 of the main text but with $\sigma_{SIA}^m > 0.15$. Seasonal cycle of the MIZ extent estimated from the a) SIC criterion ($0.15 \leq \text{SIC} < 0.80$) and b) the σ_{SIA} indicator. The NOAA/NSIDC GM curve is not shown because very similar to the BT data set.





Fig. S6: Monthly values of the exceedance probability for a threshold $\sigma_{SIA}=0.1$ from the NOAA/NSIDC CDR.