SUPPLEMENTAL TEXT

Figures 1, 2, and 3. Histograms or "shape spectra" of harmonic 4, 20, and $Rc_{17\text{-}21}$ amplitudes for the James Ross Basin, Seymour Island, and Joinville Plateau samples. The y axis is normalized for sample comparison with the probability of an event occurring in ith bin equal to the number of observations in ith bin divided by the sum of all observations (n). The intervals plotted on the x axis have uneven width to attain maximum possible entropy see Methods section for further explanation of interval width. A Right or left skewed plot indicates that the distribution exhibits greater probabilities in intervals 6 - 8 or 1 - 3 respectively while 'modes' are recognized visually with interval(s) exhibiting greater probability than surrounding intervals (see annotation in Figure 4 of text). James Ross Basin and Seymour Island samples overall exhibit similar right-skewed distributions interpreted as representing similar source terrains through time. In comparison Joinville Plateau distributions exhibit varying modes and means reflecting time-span sampled (28.6 - 0.14 Ma) and allocthonous sedimentation transported by contour currents and/or ice rafting. Note that the two interpreted populations the James Ross Basin and Seymour Island group and Joinville Plateau group become more distinct in harmonic 20 and $Rc_{17\text{-}21}$ shape spectra as James Ross Basin/Seymour Island samples are increasingly right-skewed while Joinville Plateau samples are more left-skewed to polymodal. This increasing difference between the two populations is consistent with decreasing relative entropy (see Fig. 3 of main text) calculated for harmonic 20 and $Rc_{17\text{-}21}$ respectively.