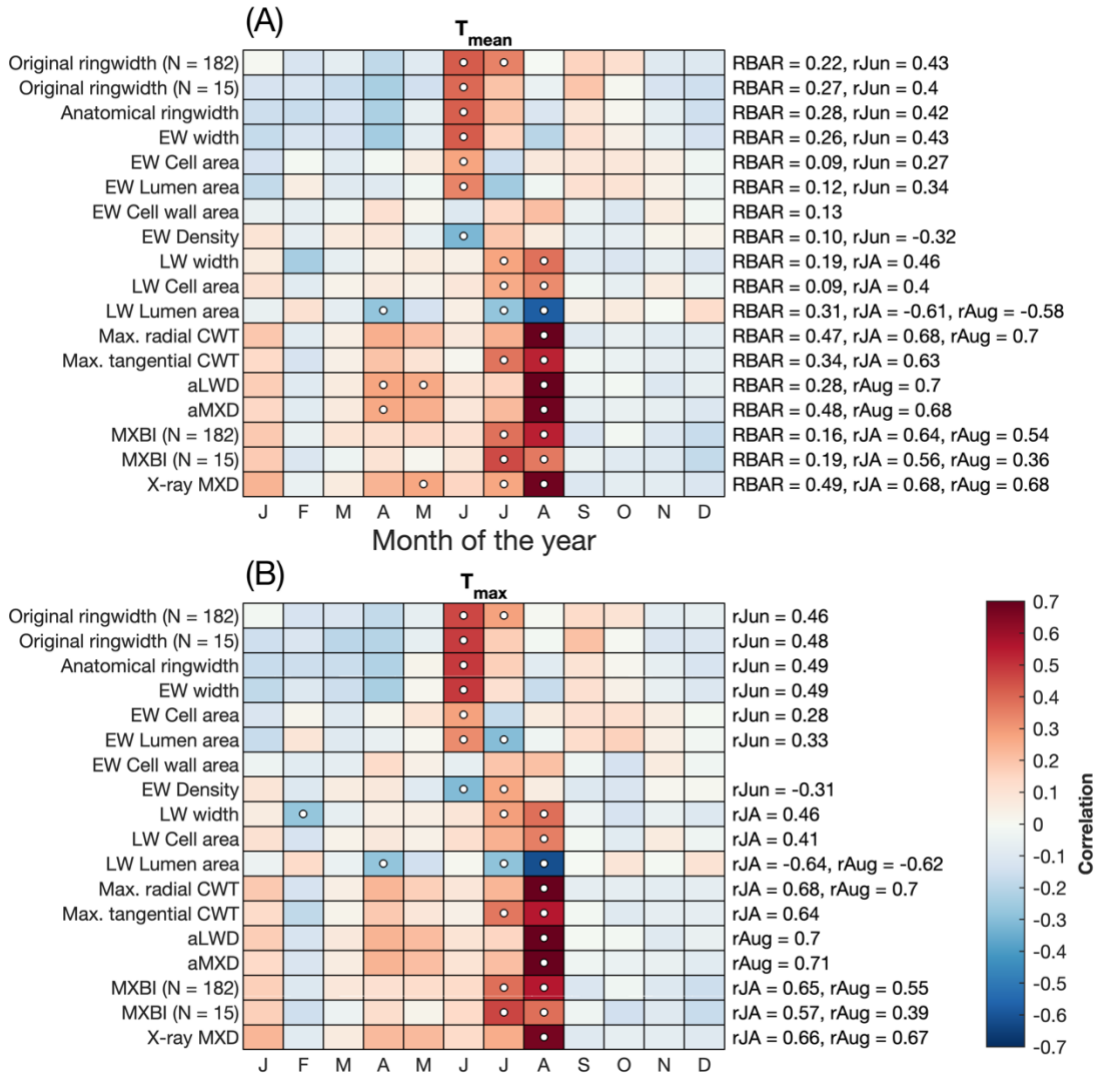

Figure S1: same as fig. 3, but instead of the CRU TS dataset using the Luckman and Wilson (2005) temperature data originally produced by the Meteorological Service of Canada.

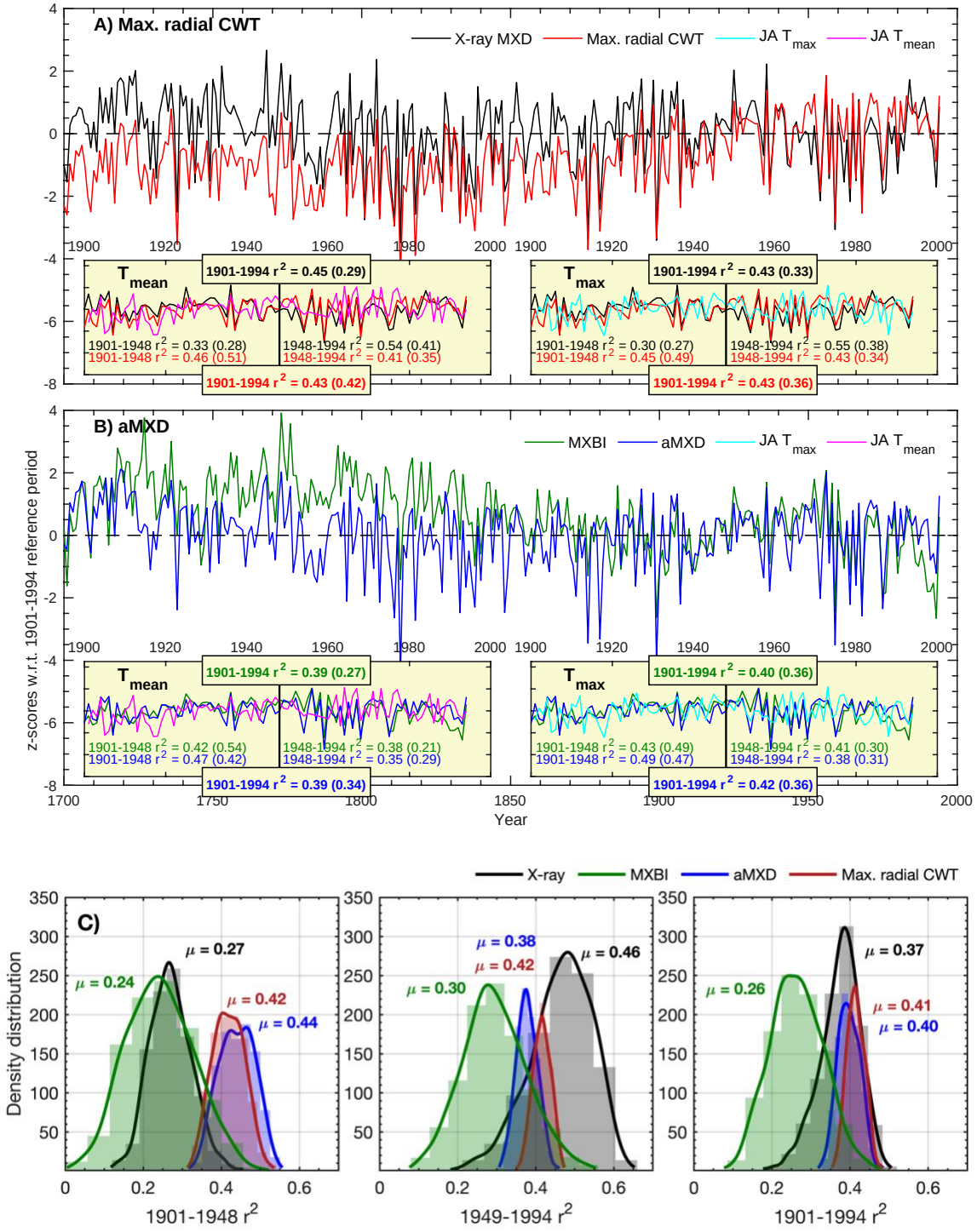

Figure S2: same as fig. 5, but instead of the CRU TS dataset using the Luckman and Wilson (2005) temperature data originally produced by the Meteorological Service of Canada.

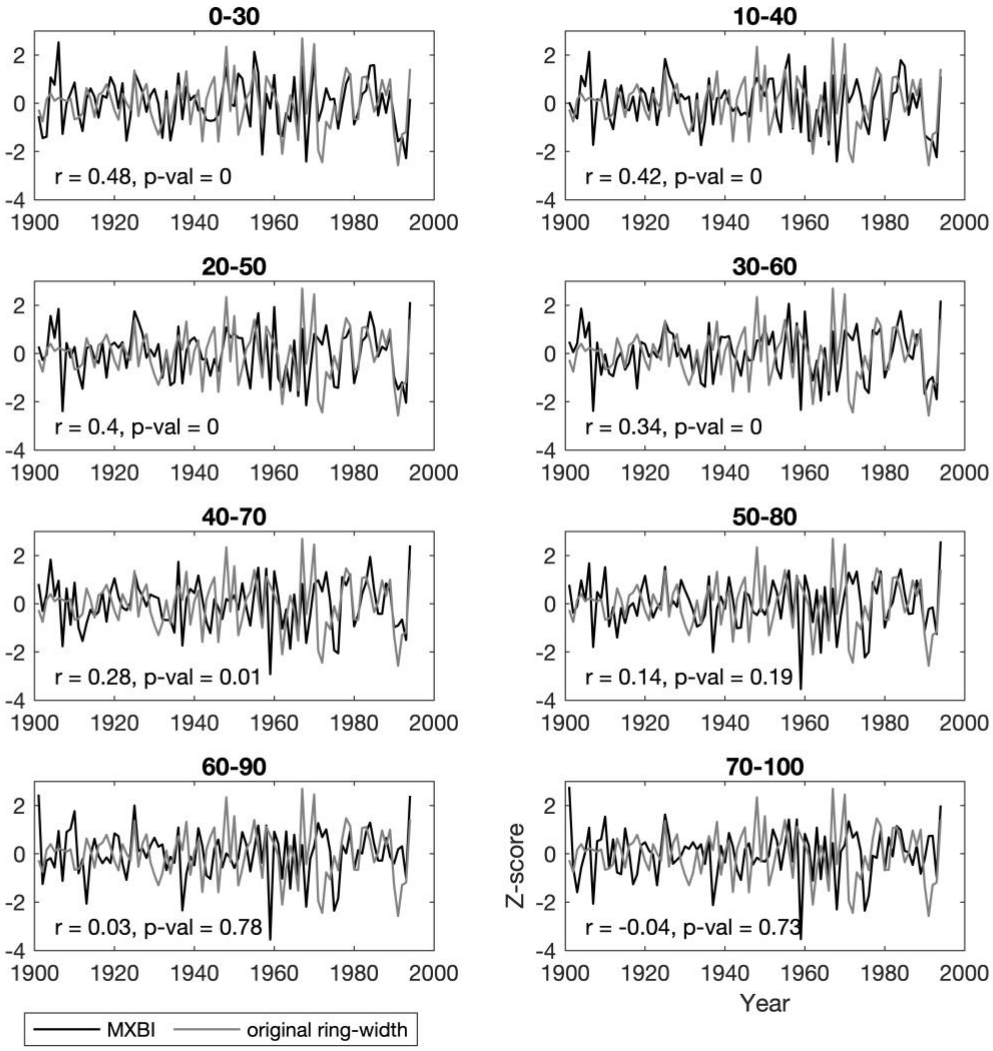

Figure S3: The MXBI percentile chronologies visualized against the original ring-width chronology. The percentile chronologies are obtained by sorting the high-pass filtered MXBI values into eight percentile intervals based on the corresponding measurements of absolute ring-width (e.g., the 0-30 percentile are the corresponding MXBI-values for the narrowest 30% of the rings). The titles provide the percentile interval used in each plot. The original ring-width chronology is developed from the full sample cohort (N = 182). The correlations between chronologies and its significances are provided in the bottom of each plot.

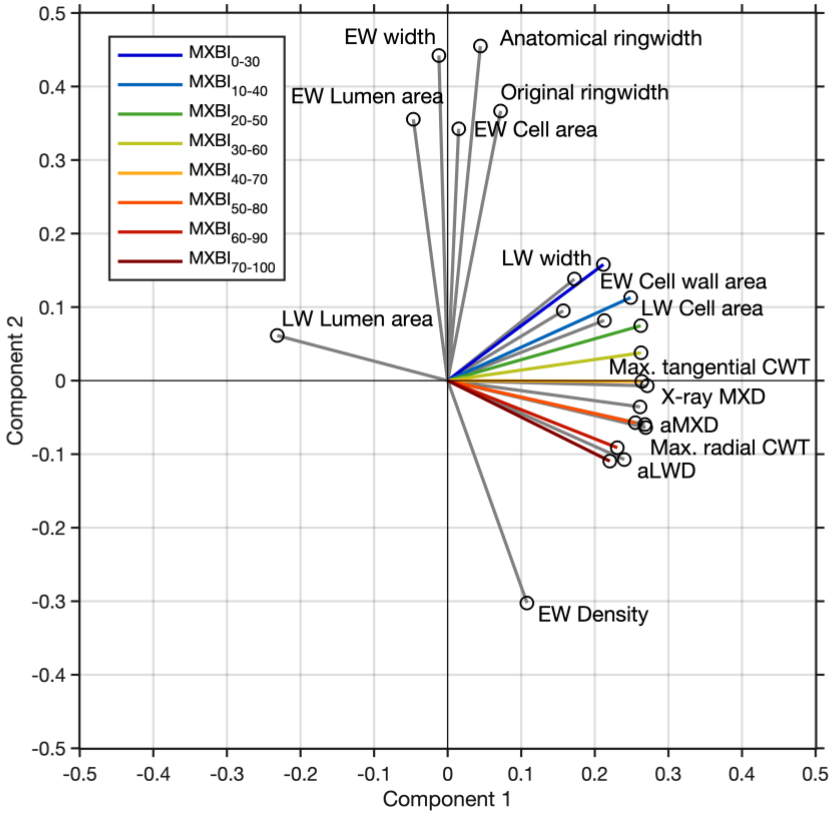

Figure S4: Biplot of the first two principal components of the PCA performed 1901-1994 CE period on the MXBI percentile chronologies (depicted in fig. S3), together with the width, anatomy, and density parameters (shown by the grey lines). The colors of the MXBI vectors correspond to the percentiles, where the blue-colored lines correspond to MXBI values measured on the narrow rings whereas the redder colors correspond to MXBI values from the wider rings.