



**Figure 8.** COF data from the DF core and the EDC core are compared using common age scales. Here, we applied the DF2021 age scale (Oyabu et al., 2022) for ages younger than 216 thousand years BP and the AICC2012 age scale (Bazin et al., 2013) for older ages. Light-gray shading indicates the interglacial periods. (a)  $\Delta\epsilon$  presented as raw data (dots) and as mean values for each 0.5-m segment (black markers for DF) or for each thin section (red marker for EDC). The right axis provides a scale for normalized eigenvalues. (b) SD for  $\Delta\epsilon$  in the DF core. (c) Detrended  $\Delta\epsilon$  values in the DF core. (d) Oxygen isotope ratios ( $\delta^{18}\text{O}$ ) in the DF ice core. (e) Grain size in the DF cores (Azuma et al., 2000 and this study) and the EDC core (Durand et al., 2009). (f) Concentrations of  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ , and  $\text{Ca}^{2+}$  ions (Goto-Azuma et al., 2019). (g) Concentration of dust particles (DFICPM, 2017).