

Fig. A1. Zr/Nb (a) and $(\text{Ce}/\text{Yb})_{\text{PM}}$ (b) vs. $\delta^{56}\text{Fe}$ in the metabasites of the Ile de Groix compared to a series of tholeiitic (BIR-1, East Pacific Rise, JB-2, BCR, FAMOUS–MAR: "French-American Mid-Ocean Undersea Study – Mid-Atlantic Ridge") and alkaline basalts (BHVO-1, Samoa, Easter Island, Reunion). The $\delta^{56}\text{Fe}$ values are from Weyer and Ionov (2007) for East Pacific Rise, JB-2, Easter Island and Reunion samples; from Konter et al. (2016) for Samoa samples; and from Nebel et al (2013) for the FAMOUS basalts (E-MORB). The mean $\delta^{56}\text{Fe}$ values for BIR-1, BHVO-1 and BCR basalts are from Weyer and Ionov (2007), and from Craddock and Dauphas (2011). The trace element compositions are from: Govindaraju (1994) for BIR-1, BHVO-1 and BCR basalts; Imai et al. (1994) for JB-2 basalt; Haase (2002) for East Pacific Rise and Easter Island samples; Fretzdorff and Haase (2002) for Reunion sample; Langmuir et al (1977) for the FAMOUS basalts; Jackson et al. (2007) for Samoa samples. The long-term reproducibility (BIR-1) is represented as an error bar on plot (a). Error bars are at 2σ SE external reproducibility, and at 95% confidence level for East Pacific Rise, Reunion Easter Island and JB-2 basalts.

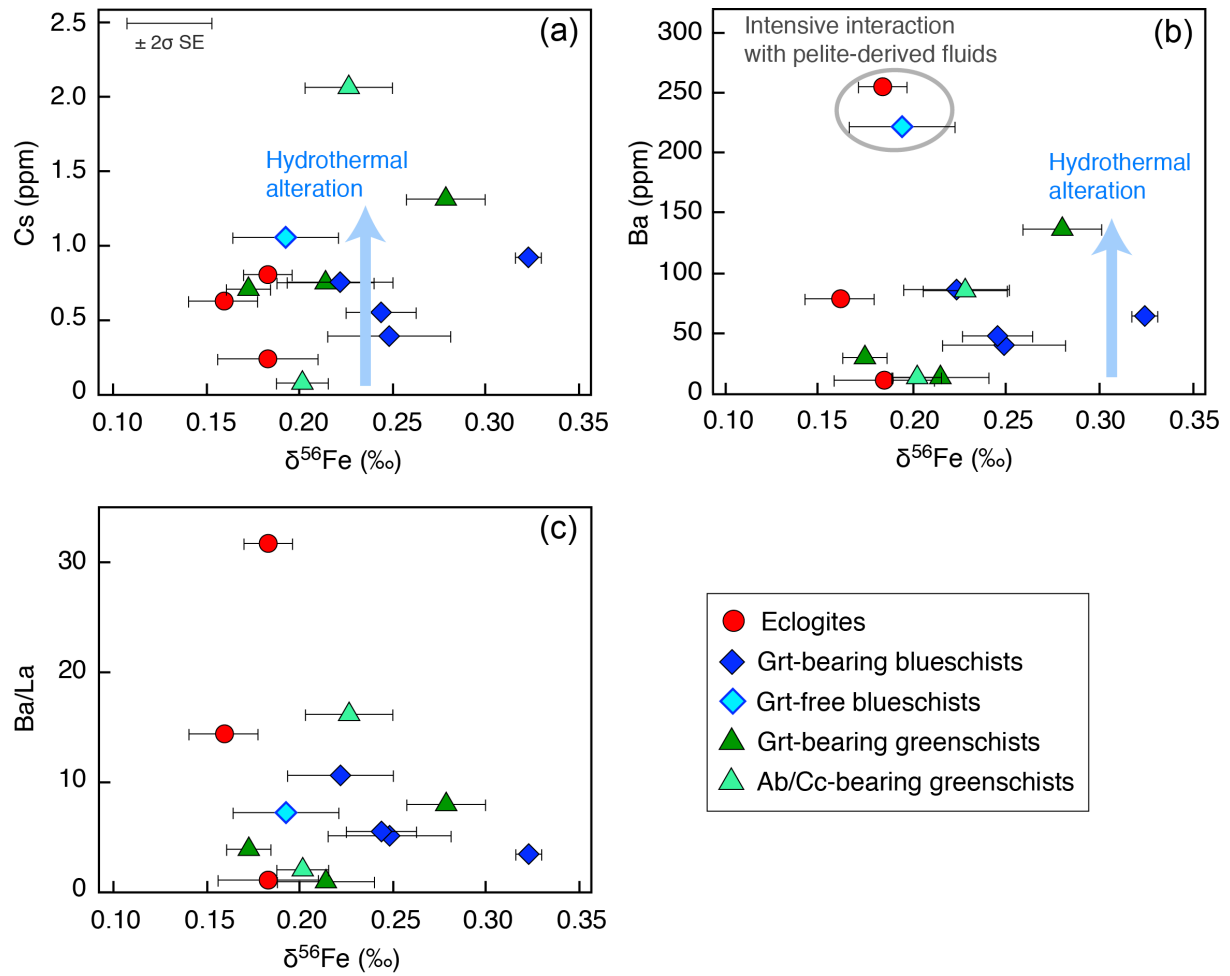


Fig. A2. Cs (a), Ba (b) and Ba/La (c) vs. $\delta^{56}\text{Fe}$ in the metabasites of the Ile de Groix. Cs, Ba and La compositions are from El Korh et al. (2009, 2011, 2013). Error bars are at 2σ external reproducibility. The long-term reproducibility at 2σ SE for $\delta^{56}\text{Fe}$ ($\pm 0.045\text{‰}$) is represented as an error bar on diagram (a).

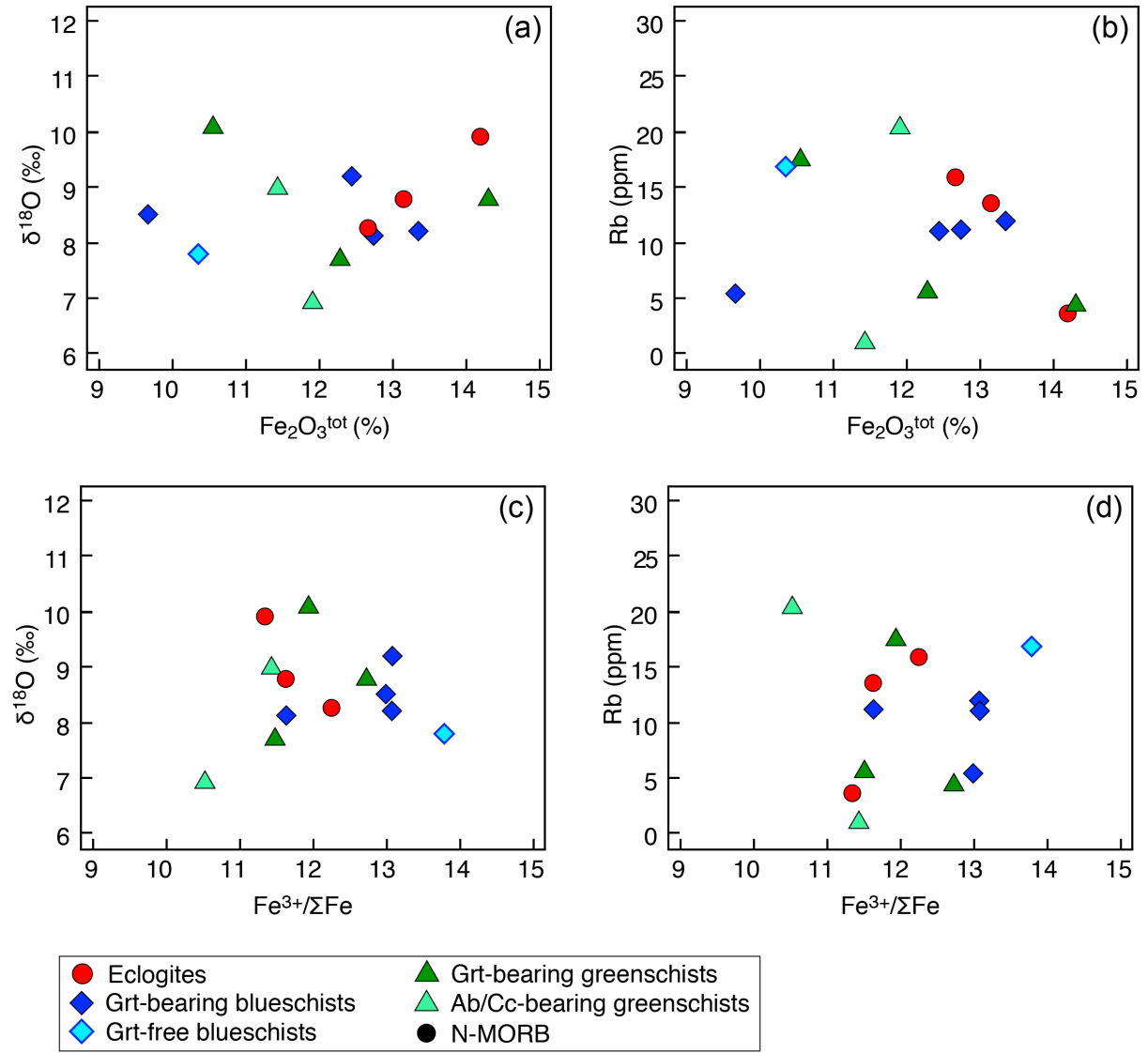


Fig. A3. $\delta^{18}\text{O}$ (a) and Rb (b) vs. $\text{Fe}_2\text{O}_3^{\text{tot}}$ and $\delta^{18}\text{O}$ (c) and Rb (d) vs. $\text{Fe}^{3+}/\Sigma\text{Fe}$ in the metabasites of the Ile de Groix. Data are from El Korh et al. (2009, 2011, 2013, 2017).