



## Iterative energy self-calibration of Fe XANES spectra. Erratum

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A correction is made to the paper by Jones *et al.* (2020). [*J. Synchrotron Rad.* **27**, 207–211].

In the paper by Jones *et al.* (2020), the authors have noted that an incorrect value was published for the calibrated  $\text{Fe}^{3+}/\Sigma\text{Fe}$  for the rafted pumice sample from the 2012 Havre eruption. The correct value is 0.257 (0.010) and is included in the updated Table 2 below and updated in the inset in Fig. 3(c) (overleaf).

**Table 2**

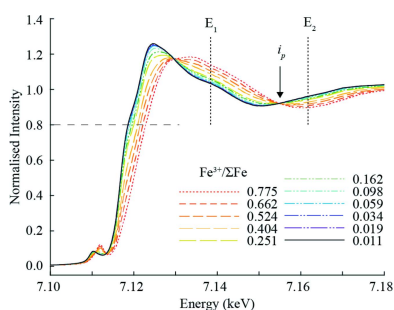
Summary of uncalibrated and self-calibrated values for the data presented in Fig. 3, where the uncalibrated, self-calibrated and expected  $\text{Fe}^{3+}/\Sigma\text{Fe}$  ratios are presented together with the required energy change ( $\Delta E$ ).

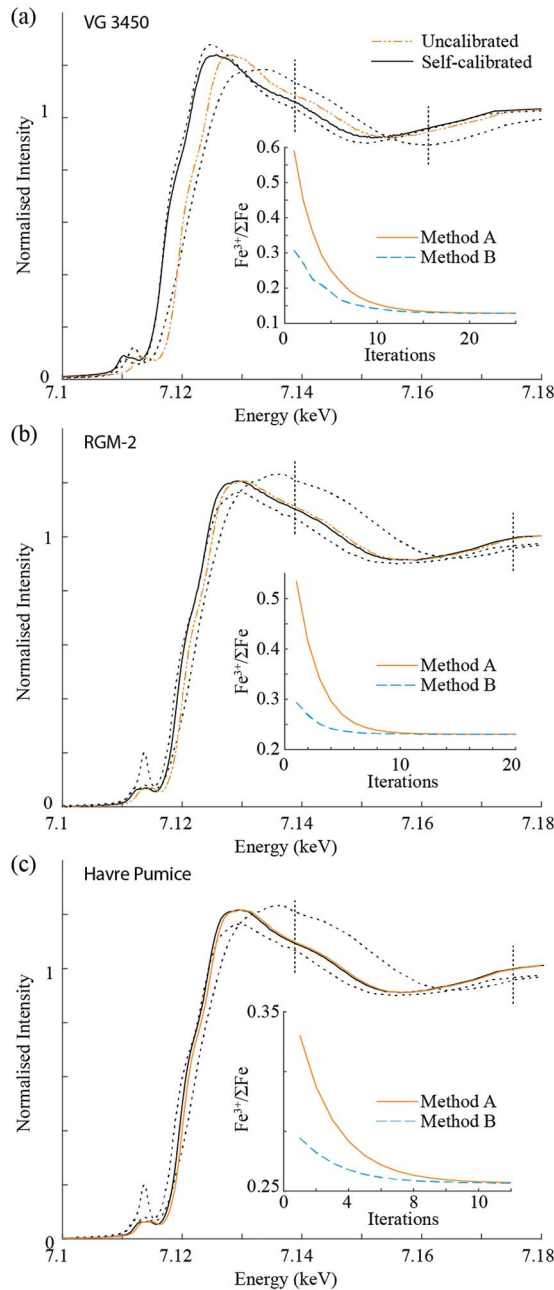
Sample	$\text{Fe}^{3+}/\Sigma\text{Fe}$			$\Delta E$ (eV)
	Uncalibrated	Self-calibrated	Expected	
MORB VG 3450	0.591 (0.018)	0.129 (0.004)	0.132	0.8
RGM-2	0.535 (0.037) <sup>†</sup>	0.231 (0.016)	0.262 (0.015) <sup>‡</sup>	0.3 <sup>§</sup>
Havre pumice	0.452 (0.031) <sup>†</sup>	0.257 (0.010)	—	0.5 <sup>§</sup>

<sup>†</sup> Manually offset to be within calibration range. <sup>‡</sup> RGM-1 values. <sup>§</sup> After manual offset.

### References

- Berry, A. J., Stewart, G. A., O'Neill, H. St C., Mallmann, G. & Mosselmans, J. F. W. (2018). *Earth Planet. Sci. Lett.* **483**, 114–123.  
 Cottrell, E., Kelley, K. A., Lanzirrotti, A. & Fischer, R. A. (2009). *Chem. Geol.* **268**, 167–179.  
 Jones, M. W. M., Mallmann, G., Wykes, J. L., Knafelc, J., Bryan, S. E. & Howard, D. L. (2020). *J. Synchrotron Rad.* **27**, 207–211.





**Figure 3**

Demonstration of iterative energy calibration correction. (a) A MORB glass spectra (Smithsonian Institute sample number VG 3450), as collected by Berry *et al.* (2018) (orange dot-dashed line), iteratively self-corrected (solid black line) to the basaltic glass standards. Also shown for reference are the spectra for the 0.011 and 0.775  $\text{Fe}^{3+}/\Sigma\text{Fe}$  ratio standards (black dotted lines). The  $\text{Fe}^{3+}/\Sigma\text{Fe}$  ratio (inset) for Method A (solid orange lines) and B (dashed blue lines) as a function of iteration number shows convergence to a single  $\text{Fe}^{3+}/\Sigma\text{Fe}$  ratio. Similar treatment is shown for the RGM-2 reference standard (b) and an experimental section of pumice from the 2012 Havre eruption (c), both iteratively self-corrected to the rhyolite glass standards (Cottrell *et al.*, 2009). Also shown for reference are the spectra for the 0.238 and 0.806  $\text{Fe}^{3+}/\Sigma\text{Fe}$  ratio standards (black dotted lines). The vertical dashed lines in (a)–(c) refer to the two points  $E_1$  and  $E_2$  in each case.