# dFe(II) variability across hydrothermal vents in the Mid Atlantic Ridge

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**Introduction**

Dissolved iron(II) (dFe(II)) is thermodynamically unstable in oxic waters [1], oxidising to Fe(III) in a period of minutes to days [2]. However, dFe(II) is present in oceanic water which reflects sustained production or input of dFe(II) from photochemical or biological reduction of dFe or particulate Fe, release from cell lysis or grazing and external inputs (dust, sediments or hydrothermal vents) [3]. dFe(II) was determined during the FRidge cruise (Figure 1) across the Mid Atlantic Ridge crossing numerous hydrothermal vents.

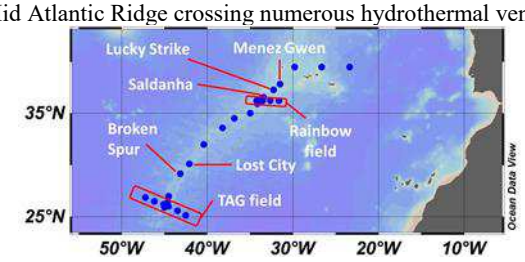


**Figure 1:** Map showing measured stations and hydrothermal vents during FRidge, GEOTRACES GA13

**Discussion of Results**

Dissolved Fe(II) concentrations at stations with no active hydrothermal emissions were < 150 pM throught the whole water column, in accordance with previous work [3]. Samples obtained within or close to the hydrothermal plumes revealed orders of magnitude higher concentrations (~70 nM; 36% of the dFe(II) + dFe(III)) at Rainbow. At TAG, dFe(II) data will be discussed alongside high resoluion dFe data obtained during the HERMINE cruise.

[1] Millero et al. (1987) *Geochim. Cosmochim. Acta* **51,** 4, 793-801. [2] Santana-Casiano et al. (2005) *Environ Sci Technol* **39**, 7, 2073-2079. [3] Sedwick et al. (2015) *Deep Sea Res. II*, **116**, 166-175.