

*Geochemistry, Geophysics, Geosystems*

Supporting Information for

**Mg/Ca Thermometry in Planktic Foraminifera: Improving Paleotemperature Estimations for *G. bulloides* and *N. pachyderma* left**

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**Additional Supporting Information (Files uploaded separately)**

Captions for Tables S1 to S3 (if larger than 1 page, upload as separate file)

**Introduction**

This supplementary file includes Figure S1, containing plots of Mg/Ca versus Fe/Ca, Al/Ca and Mn/Ca. It contains also two caption tables: Table S1 shows Mg/Ca and calcite 18O data averaged per site, as well as seawater 18O and calculated isotopic temperature at each site (table uploaded on a separate file). Table S2 includes replicas of Mg/Ca, Al/Ca, Fe/Ca and Mn/Ca at each site (table uploaded on a separate file). Finally, Table S3 contains the correlation coefficients between Mg/Ca and different contaminating phases. Description of the analytical techniques used can be found in the main manuscript.



Figure S1. Mg/Ca versus a.) Fe/Ca, b.) Al/Ca and c.) Mn/Ca, for each measurement. Red squares: Southern Ocean *G. bulloides* sites; blue diamonds: North Atlantic *G. bulloides* sites; grey circles: Southern Ocean *N. pachyderma* left measurements.

Table S1. Average and standard deviation of measured Mg/Ca and d18Oc, and d18Osw, Tiso and annual SST data at each site. (n) = number of replicas per analysis. - = levels with no replicas due to scarcity of foraminifera.

Table S2. Mg/Ca, Al/Ca, Fe/Ca and Mn/Ca values for replicas at each core site.

|  |  |  |  |
| --- | --- | --- | --- |
| **R2** | **Mg/Ca vs Al/Ca** | **Mg/Ca vs Fe/Ca** | **Mg/Ca vs Mn/Ca** |
| *G. bulloides* S. Atlantic | 0.11 | 0.10 | 0.01 |
| *G. bulloides* N. Atlantic | 0.25 | 0.46 | 0.02 |
| *N. pachyderma* left | 0.33 | 0.00 | 0.18 |

Table S3. Correlation coefficients bewteen Mg/Ca and Al/Ca, Mn/Ca and Fe/Ca, and Mg/Ca and Mn/Ca for each dataset (South Atlantic *G. bulloides*, North Atlantic *G. bulloides* and *N. pachyderma* left).