

## SUPPLEMENTARY INFORMATION

### **200-years ice core bromine reconstruction at Dome C (Antarctica): observational and modelling results**

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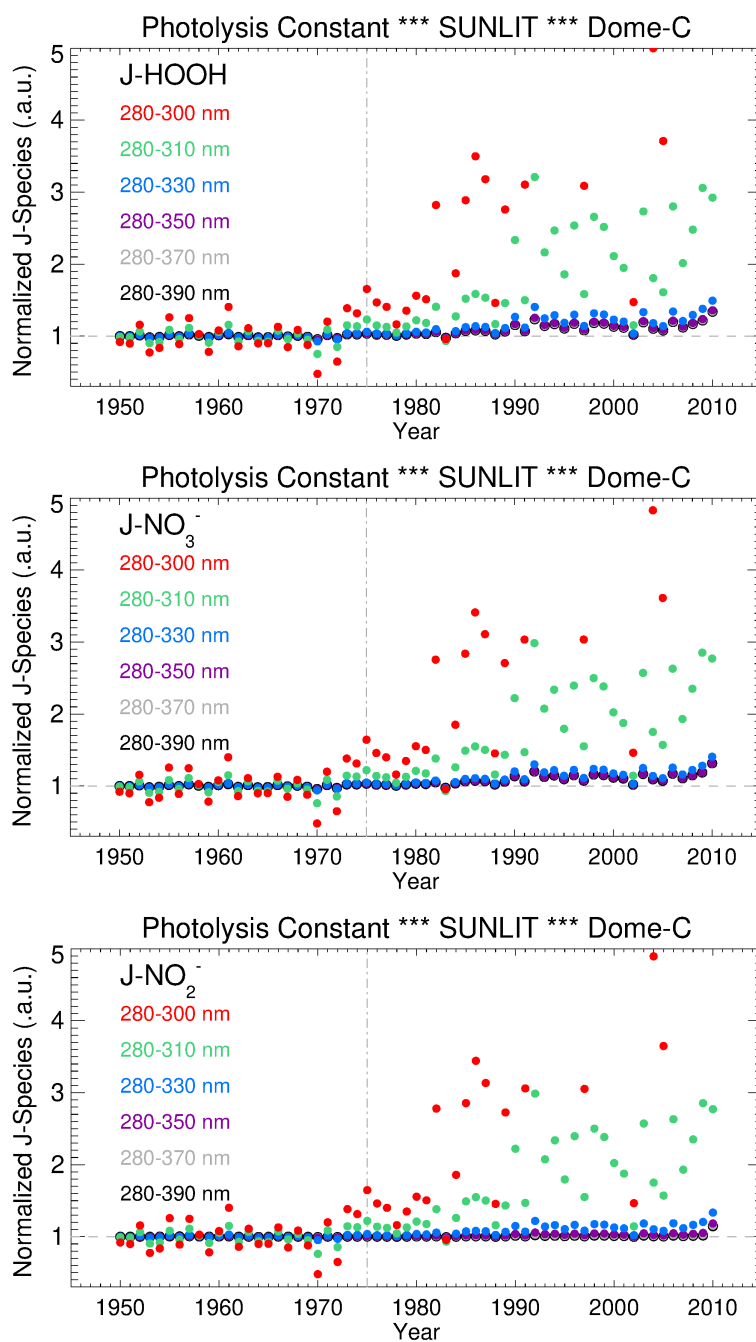
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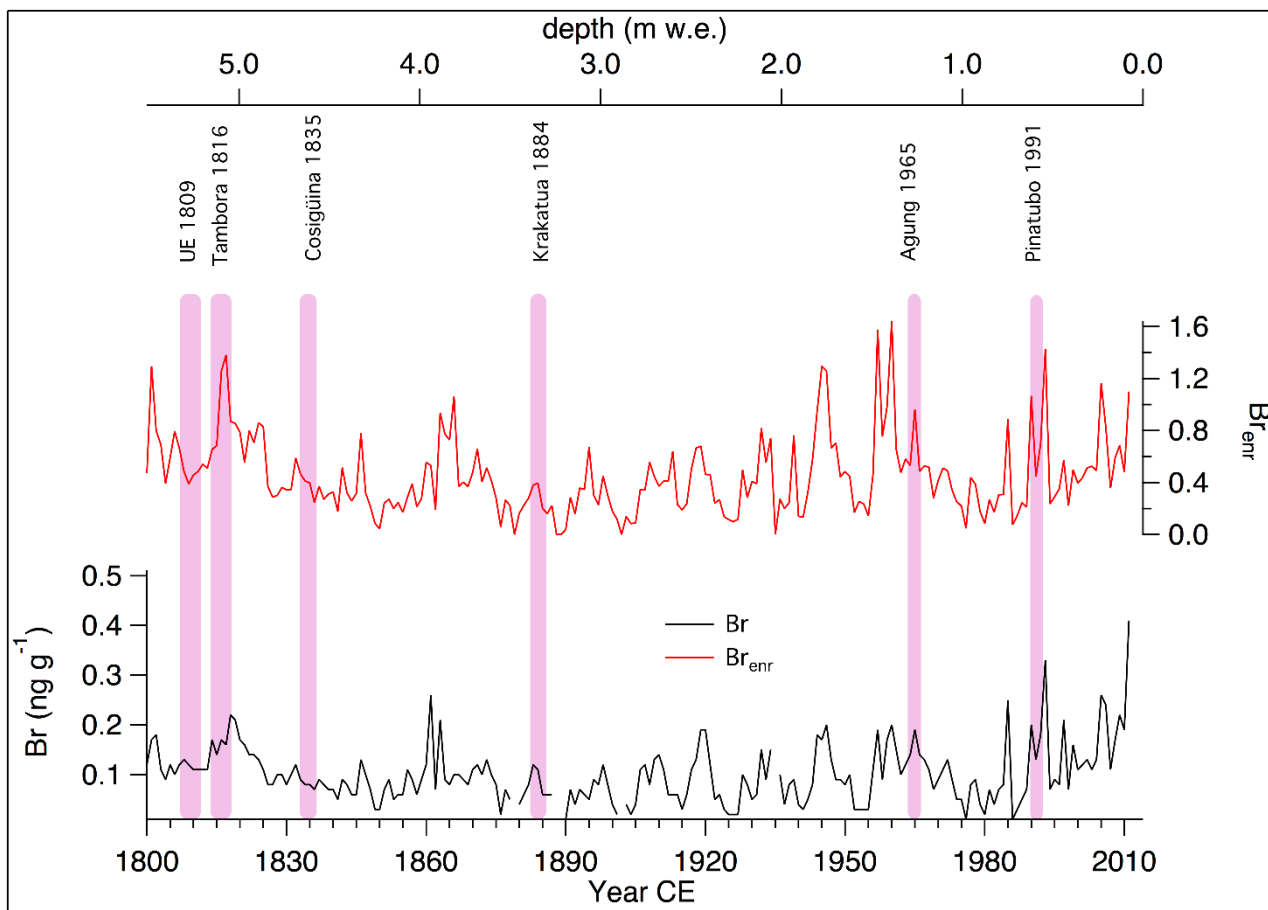
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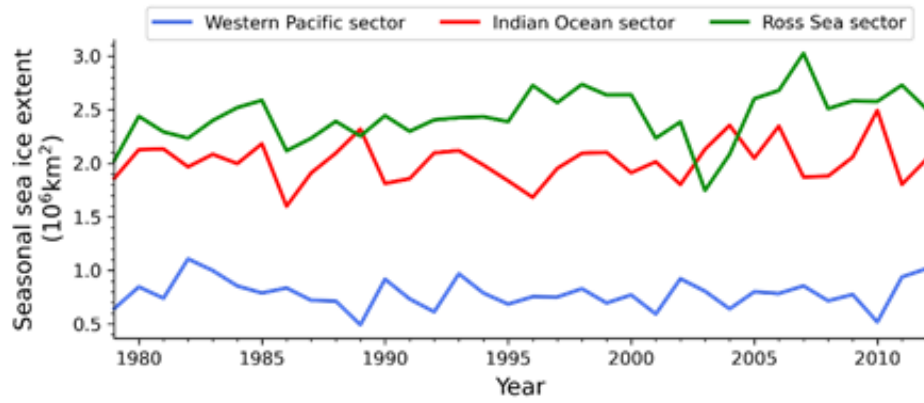
SUPPORTING INFORMATION SUMMARY: we provide further information about the photolysis rate at different wavelength ranges and additional figures that show the negligible role of volcanic eruptions in affecting bromine preservation at Dome C and sea-ice variability in East Antarctica (1979-2012)



**Figure S1** - The photolysis rate (normalized J-value) is reported for H<sub>2</sub>O<sub>2</sub> (upper panel), NO<sub>3</sub><sup>-</sup> (middle panel) and NO<sub>2</sub><sup>-</sup> (bottom panel) calculated over different wavelength ranges (see main text for more details).



**Figure S2** -  $Br_{enr}$  (top, red curve),  $Br$  (bottom, black curve) records and volcanic eruptions (highlighted with pink vertical bar). Ice core depth is expressed as meters of water equivalent (m w.e.).



**Figure S3** – Sea ice extent in  $10^6 \text{ km}^2$  for the Western Pacific (blue line), Indian Ocean (red line) and Ross Sea (green line) sectors. Data from Parkinson et al., 2012.

Parkinson, C. L., and D. J. Cavalieri, 2012: Antarctic sea ice variability and trends, 1979-2010, *The Cryosphere*, 6, 871-880, doi:10.5194/tc-6-871-2012.