

[Paleoceanography and Paleoclimatology]

Supporting Information for

[Astronomically-paced changes in paleoproductivity, winnowing, and mineral flux over Broken Ridge (Indian Ocean) since the Early Miocene]

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Contents of this file

Figures S1 to S3

Introduction

[This supporting information includes 3 supplementary figures and data sets. The supplementary figures further guarantee the validation of the paleoproductivity proxy, and show the core photo of ODP Hole 752A, 9H, 1A and 2 A. The data sets S1-S13 are used for the R code to generate figures 1-8, which can be accessed via Zenodo. S14 and S15 are the original XRF and grain size analysis results, which are also available on the PANGEA archive.]

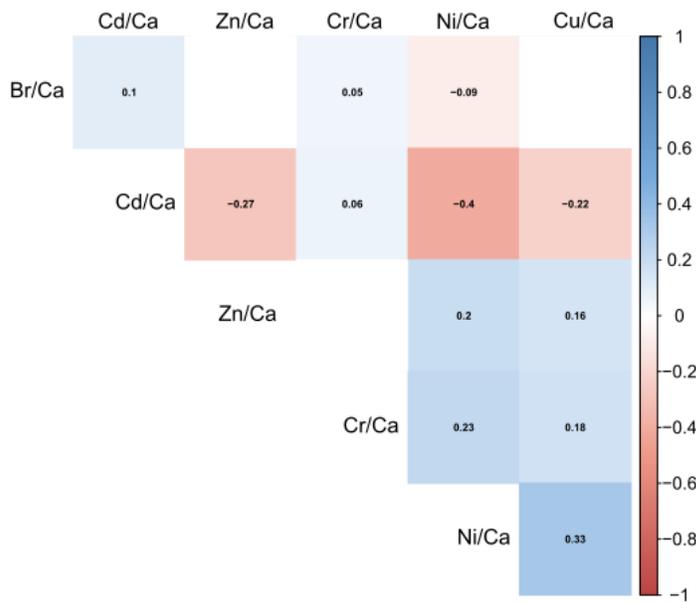


Figure S1. Co-variance matrix of paleoproductivity-related elements. The elements are divided by Ca (counts) to account for the background. This matrix shows that these elements overall positively correlated with others, which supports the validation of this proxy. However, we also noticed that there are a few elements that show a reversed correlation, which may be due to the long-term trend of micronutrient variability.

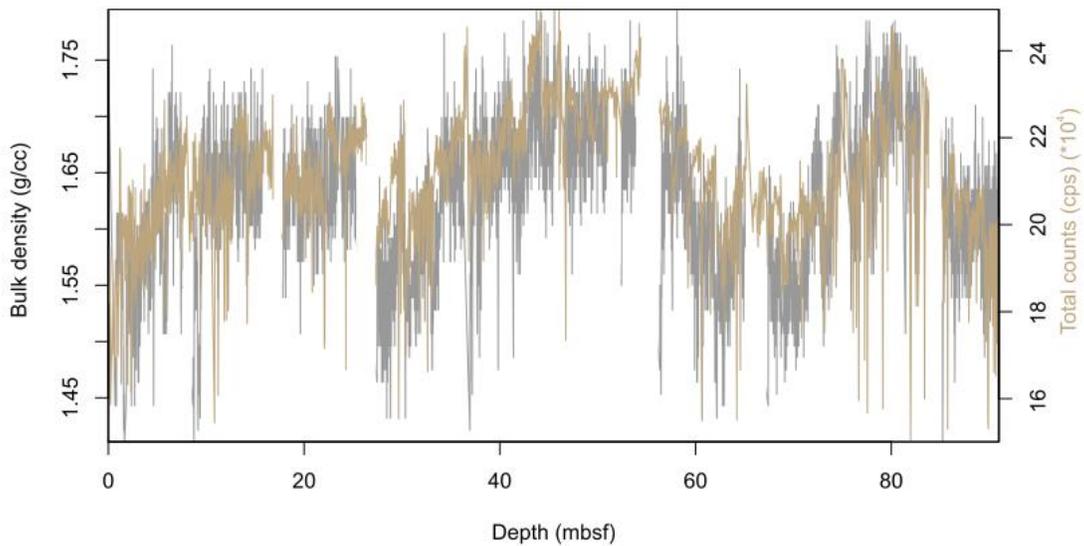


Figure S2. Core density. Total counts (brown) show a very similar trend with the shipboard GRA bulk density record, indicating that total counts relate to bulk density and therefore could serve as a winnowing proxy.



Figure S3. ODP Hole 752A, 9H, 1A and 2 A core photo. Mass transport deposits in ODP Hole 752A, 9H-1A, and the top 94 cm in ODP Hole 752A, 9H-2A.

Data Set S1. 121-752A_age_model_geochem. Following naming convention: ds01.

Data Set S2. 121-752A_chemistry carbonates. Following naming convention: ds02.

Data Set S3. 752A_XRF_CaFe. Following naming convention: ds03.

Data Set S4. 752A_XRF-Data. Following naming convention: ds04.

Data Set S5 Age_model_1. Following naming convention: ds05.

Data Set S6. Core_Recovery_752A. Following naming convention: ds06.

Data Set S7. Eolian data site752. Following naming convention: ds07.

Data Set S8. GRA bulk density. Following naming convention: ds08.

Data Set S9. grain size age. Following naming convention: ds09.

Data Set S10. Grain_size. Following naming convention: ds10.

Data Set S11. marine_PP_record_compilations. Following naming convention: ds11.

Data Set S12. Mega_splice_d18O. Following naming convention: ds12.

Data Set S13. Sedimentation rate. Following naming convention: ds13.

Data Set S14. 121_752A_Grain_size_analysis. Following naming convention: ds14.

Data Set S15. 121_752A_XRF. Following naming convention: ds15.