Auxiliary Material for

**Timing of the descent into the last ice age determined by the bipolar seesaw**

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Introduction

The text and data presented here include supplementary figures and text covering age models for the Cape Basin cores and effects of dissolution on planktonic faunal assemblages. The spreadsheet contains all datasets presented in the study, including new data from TNO57-21 and revised age models for several other datasets reproduced in the study.

1. text01.pdf Supplementary information on alignment of the Cape Basin cores and potential dissolution artefacts.

2. data01.xlsx Datasets presented in the study

2.1 Tab ‘This study’

2.1.1 Column “Event”, Descriptor

2.1.2 Column “TNO57-21 depth (m)”, Depth of transition in TNO57-21

2.1.3 Column “Age (kyr)”, Age of ice core transition

2.1.4 Column “depth error (m)”, Half width of transition within TNO57-21 (2)

2.1.5 Column “age error (kyr)”, 2 age uncertainty corresponding to ice core transition

2.1.6 Column “Depth in TNO57-21 (m)”

2.1.7 Column “Age GICC05/NALPSSpeleo (Kyr)”

2.1.8 Column “whole shells/g”, Number of unbroken shells of planktonic forams per gram of bulk dried sediment

2.1.9 Column “Species diversity”, Number of species of planktonic foram present in sample

2.1.10 Column “%Cold”, Total of *T. quinqueloba* plus *N. pachyderma* (sin) plus N. pachyderma (dex)

2.1.11 Column “% Polar”, Total of *T. quinqueloba* plus *N. pachyderma* (sin)

2.1.12 Column “%NPS/totPD”, % NPS over total N. pachyderma

2.1.13 Column “% Warm”, Total *G. ruber* + *O. universa* +, *G. hirsuta* + *G. truncatulinoides* (dex)

2.1.14 Column “G. bulloides d18O”, ‰, 18O of *G. bulloides*

2.1.15 Column “stdev”, 1 error on 18O measurement

2.2 Tab ‘Other data from TNO57-21

2.2.1 Column “Depth (meters)”, depth in TNO57-21

2.2.2 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.2.3 Column “13C Cib. wuellerstorfi TNO57-21”, from [*Ninnemann et al.*, 1999]

2.2.4 Column “18O Cib. wuellerstorfi TNO57-21” from [*Ninnemann et al.*, 1999]

2.2.5 Column “Depth (m)”, depth in TNO57-21

2.2.6 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.2.7 Column “13C.250-425.Gbull TNO57-21”, from [*Mortyn et al.*, 2002]

2.2.8 Column “18O.250-425.Gbull TNO57-21”, from [*Mortyn et al.*, 2002]

2.2.9 Column “13C.250-425.Gtrun TNO57-21”, from [*Mortyn et al.*, 2002]

2.2.10 Column “18O.250-425.Gtrun TNO57-21”, from [*Mortyn et al.*, 2002]

2.2.11 Column “Depth (m)”, depth in TNO57-21

2.2.12 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.2.13 Column “%CaCO3 hi res TNO57-21”, from [*Sachs and Anderson*, 2005]

2.2.14 Column “Depth (m)”, depth in TNO57-21

2.2.15 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.2.16 Column “εNd TNO57-21”, from [*Piotrowski et al.*, 2005]

2.2.17 Column “± error”, from [*Piotrowski et al.*, 2005]

2.3 Tab ‘ODP 1089’

2.3.1 Column “ODP 1089 Depth (modified mcd)”, Depth in ODP 1089

2.3.1 Column “Depth on TNO57-21”, Equivalent depth in TNO57-21

2.3.1 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.3.1 Column “d18O G. bulloides (permil) ODP1089”, from [*Hodell et al.*, 2003]

2.3.1 Column “d18O G. bulloides (permil) (ODP 1089) adjusted ODP1089”, from [*Hodell et al.*, 2003]

2.3.1 Column “d13C G. bulloides (permil) ODP1089”, from [*Hodell et al.*, 2003]

2.3.1 Column “d18O Cibicidoides (permil) ODP1089”, from [*Hodell et al.*, 2001]

2.3.1 Column “d13C Cibicidoides (permil) ODP1089”, from [*Hodell et al.*, 2001]

2.3.1 Column “CaCO3 (wt%) ODP1089”, from [*Hodell et al.*, 2001]

2.4 Tab ‘RC11-83’

2.4.1 Column “RC11-83 Depth (m)”, Depth in RC11-83

2.4.2 Column “Depth on TNO57-21”, Equivalent depth in TNO57-21

2.4.3 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.4.4 Column “%carb RC11-83”, from [*Charles et al.*, 1996]

2.4.5 Column “N.pachd18O RC11-83”, from [*Charles et al.*, 1996]

2.4.6 Column “N.pachd13C RC11-83”, from [*Charles et al.*, 1996]

2.4.7 Column “C.mund.d13C RC11-83”, from [*Charles et al.*, 1996]

2.4.8 Column “C.mund.d18O RC11-83”, from [*Charles et al.*, 1996]

2.4.9 Column “RC11-83 Depth (m)”, Depth in RC11-83

2.4.10 Column “Depth on TNO57-21”, Equivalent depth in TNO57-21

2.4.11 Column “GICC05/NALPSSpeleoAge”, Age on GICC05/NALPS age scale

2.4.12 Column “εNd RC11-83”, from [*Piotrowski et al.*, 2005]

2.4.13 Column “± error”, from [*Piotrowski et al.*, 2005]

2.5 Tab ‘Ice core data’

2.5.1 Column “EDCGICC05/NALPSSpeleoAge kyr b195”, Age in EDC

2.5.1 Column “EDC Deuterium”, from [*Jouzel et al.*, 2007]

2.5.1 Column “GICC05/NALPS Age b1950”, Age in NGRIP

2.5.1 Column “NGRIP 18O”, from [*NGRIP\_members*, 2004]

2.5.1 Column “GICC05/NALPS b1950”, Age in EDC

2.5.1 Column “EDC DustFlux(mg/m2/a)”, from [*Lambert et al.*, 2012]

2.5.1 Column “GICC05/NALPS kyr b1950”, Age in Byrd

2.5.1 Column “Byrd CO2”, ppmv, from [*Ahn and Brook*, 2008]

2.5.1 Column “GICC05/NALPS kyr b1950”, Age in EDC

2.5.1 Column “EDML CO2 (ppmv)”, from [*Bereiter et al.*, 2012]

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