Updated Author Response 05.07.2021

Dear Luc Beaufort,

Thank you for accepting the publication following minor revision. We made very small modifications to the final files to more accurately describe the data included in the supplementary information. We also noticed that Supplementary Tables 1 and 6 were accidentally missing from the uploaded Supplementary Information.zip, so these are now included.

Best wishes, Anna Joy Drury Submitted on behalf of all co-authors.

Overview of changes to Drury et al., "Climate, cryosphere and carbon cycle controls on Southeast Atlantic orbital-scale carbonate deposition since the Oligocene (30-0 Ma)"

Dear Luc Beaufort,

We have completed the requested revisions to our manuscript, as outlined in our author comments in response to the two reviewer comments during the interactive discussion.

The revisions included carefully revisiting the manuscript language, and as such there are numerous small revisions to improve the overall clarity of the manuscript. We have summarised the main revisions to the scientific content here. We have also provided a full list of line-by-line insertions and deletions at the end of this document, and a word track changes file.

The original outcome of the manuscript remains largely unchanged, but we have clarified a few methodological reviewer questions, and expanded our discussed to incorporate some insightful suggestions from the reviewers.

Best wishes, Anna Joy Drury Submitted on behalf of all co-authors.

Summary of main changes:

1) Overall manuscript clarity:

We have thoroughly proofread through the manuscript to correct previous issues with grammar and spelling. We have also made several revisions to improve the overall clarity of the manuscript. Several relevant publications came out since we submitted the original manuscript (Westerhold et al., 2020, Science; De Vleeschouwer et al., 2020, Nature Communications; Tanner et al., 2020, Paleoceanography and Paleoclimatology), and where relevant, we have included these in our discussion.

2) Carbonate calibration, calibration uncertainty and treatment of outliers:

We found a small error in our initial calibration, so we have corrected this. This has resulted in a small change to the calibration; however, this only changes our absolute CaCO₃ by less than 0.07% and does not affect our interpretations.

Following a helpful suggestion from the reviewer, we also clarified our outlier treatment process and discussed the uncertainty associated with the calibration and the MARs. The calibration uncertainty is $\pm 2.2\%$ at 2σ . This uncertainty only pertains to the absolute %CaCO₃ values. The trends and cyclicity we observe in the calibrated CaCO₃ data are independent of this uncertainty, as these patterns are present in the raw ln(Ca/Fe) timeseries. Our interpretations are therefore not affected by this uncertainty.

3) Improved presentation of the age model and cyclicity observed in the CaCO₃ data:

The reviewers raised concerns that they could not see the cyclicity we were referring to. We have now provided better wavelet figures in the main text and the manuscript, which we feel

highlight the cyclicity better. We have also added a new figure (new figure 6), where we highlight examples of the three main cyclicities discussed in the manuscript.

4) Expanded discussion to consider winnowing and the processes that may drive the cyclicity we observe in our CaCO₃ data:

We have strengthened our discussion to address reviewers' concerns that to our discussion did not sufficiently consider winnowing or the processes that might drive Site 1264 carbonate.

We now introduce sedimentary processes like winnowing and dilution in the introduction and consider the influence that these processes may have at 1264 throughout the discussion. We conclude that dilution is minimal, and that winnowing may have had some effect, but was likely not the main driver of the trends and cycles we see, with the exception of the last 3.3 Ma.

We also have expanded our discussion in several places to discuss which mechanisms may explain the trends and patterns in carbonate deposition that we observe. We especially focus the discussion on the changes in the previously unstudied interval between 17 and 5.3 Ma. Where appropriate, we have also referred to the original publications dealing with the Oligocene-early Miocene (Liebrand et al., 2016, 2017, 2018) and Plio-Pleistocene (Bell et al., 2014, 2015), as there is already very detailed discussion of these time periods there.

5) Figures:

We have made all the revisions requested by reviewers concerning the figures, in addition to the following changes:

- We merged Figures 3 and 4, especially improving the presentation of the wavelets.
- We added the K intensity data to new Figure 3 and Figure 5 (previously Figure 6). Both the Si and K are now also described in the results.
- We present a new figure (new Figure 6) to highlight how the three distinctly different cyclicities in carbonate deposition observed at Site 1264
- We have redone all wavelets presented in the main & supplementary figures to use a more colour-blind friendly scheme.
- We have added epoch and stages to Figures 7 and 8
- We have improved the annotations of Figures 3, 5, 7 and 8.
- Made sedimentation rates m/Myr to be consistent with the main text.
- We have added two supplementary figures:
 - o one showing all calibrated XRF data now available at Site 1264
 - 4-part oversized figure showing the age-depth ties for the astrochronology in greater detail.

Revised_Drury_et_al_CPD_Site_1264_CaCO3_30Myr_(29.05.2021)_Tracked

Page 1: Deleted	Anna Joy Drury	11/05/2021 14:38:00
Icehouse		
Down 1. Townshid	Anna Jau Duum	11/05/2021 14:20:00
cryosphere	Anna Joy Drury	11/05/2021 14:58:00
eryosphere		
Page 1: Deleted	Anna Joy Drury	11/05/2021 15:56:00
over the past 30	million years (My	r)
Page 1: Deleted	Anna Joy Drury	24/05/2021 14:45:00
a		
Page 1: Deleted	Anno Joy Druny	24/05/2021 14:45:00
a a	Anna Joy Drury	24/03/2021 14:43:00
-		
Page 1: Deleted	Anna Joy Drury	24/05/2021 14:45:00
world		
Page 1: Inserted	Anna Joy Drury	11/05/2021 15:56:00
over the past 30	million years (My	r)
Page 1: Deleted	Anna Joy Drury	11/05/2021 15:53:00
; however, the ex	act development	of orbital-scale climate variability is less well understood
Angel: Deleted	Anna Joy Drury	11/05/2021 15:57:00
Aligoia Basili sid	ie of the	
Page 1: Inserted	Anna Joy Drury	11/05/2021 15:58:00
. This		
Page 1: Deleted	Anna Joy Drury	11/05/2021 15:58:00
, which		
Page 1: Deleted	Anno Joy Druny	11/05/2021 15:59:00
site	Anna SSy Drury	1100/2011 200000
Page 1: Inserted	Anna Joy Drury	11/05/2021 15:58:00
location		
Page 1: Deleted	Anna Joy Drury	28/05/2021 22:25:00
/or		
Page 1: Deleted	Anna Joy Drury	28/05/2021 22:27:00
strong		
Page 1: Inserted	Anna Joy Drury	28/05/2021 22:27:00
pervasive		
Page 1: Deleted	Anna Joy Drury	28/05/2021 22:25:00
Fage 1. Deleteu		

the increasing influence	
Page 1: Inserted Anna Joy Drury	28/05/2021 22:20:00
greater importance	
Page 1: Inserted Anna Joy Drury	28/05/2021 22:20:00
, such as increased glacial activity	and high-latitude cooling
Page 1: Inserted Anna Joy Drury	18/03/2021 13:36:00
s	
Page 1: Inserted Anna Joy Drury	11/05/2021 15:54:00
between 14-13 Ma	
Page 1: Inserted Anna Joy Drury	24/05/2021 14:48:00
recurrent	
Page 1: Deleted Anna Joy Drury	24/05/2021 14:48:00
an	
Page 1: Inserted Anna Joy Drury	24/05/2021 14:48:00
es	
Page 1: Inserted Anna Joy Drury	11/05/2021 15:50:00
Page 1: Deleted Anna Joy Drury	11/05/2021 15:50:00
-	
Page 1: Inserted Anna Joy Drury	24/05/2021 14:45:00
-early Pliocene	
Page 1: Deleted Anna Joy Drury	24/05/2021 14:46:00
, which is	
Page 1: Inserted Anna Joy Drury	24/05/2021 14:46:00
;	
Page 1: Deleted Anna Joy Drury	24/05/2021 14:47:00
, but not exactly,	
Page 1: Inserted Anna Joy Drury	11/05/2021 15:54:00
At Site 1264, the onset of the LMBI	3 roughly coincides with appearance of strong obliquity pacing of %CaCO3 reflecting
increased high latitude forcing.	
Page 1: Deleted Anna Joy Drury	28/05/2021 22:29:00
an	
Page 1: Inserted Anna Joy Drury	11/05/2021 16:02:00
, due to enhanced glacial activity ar	d increased meridional temperature gradients
Page 2: Deleted Anna Joy Drury	17/03/2021 12:17:00
icehouse	

Page 2: Inserted	Anna Joy Drury	17/03/2021 12:17:00
Coolhouse		
Page 2: Deleted	Anna Joy Drury	17/03/2021 12:17:00
bipolar		
Page 2: Inserted	Anna Joy Drury	17/03/2021 12:17:00
Icehouse		
Page 2: Deleted	Anno Joy Druny	24/05/2021 14:49:00
sheets	Anna Joy Drary	24/05/2021 14:40:00
succes		
Page 2: Inserted	Anna Joy Drury	24/05/2021 14:48:00
volumes (Liebrai	nd et al., 2017)	
Page 2: Deleted	Anna Joy Drury	11/05/2021 14:36:00
Unipolar		
Page 2: Inserted	Anna Joy Drury	11/05/2021 14:36:00
unipolar		
Page 2: Deleted	Anna Joy Drury	11/05/2021 14-36-00
icehouse	Anna Soy Brary	11/03/2021 14/30/00
Page 2: Inserted	Anna Joy Drury	24/05/2021 13:04:00
Coolhouse		
Page 2: Deleted	Anna Joy Drury	11/05/2021 14:37:00
icehouse		
Page 2: Incerted	Anna Joy Drury	11/05/2021 14-37-00
ruge zi inserteu	Anna Soy Brary	11/03/2021 14:57:00
Page 2: Deleted	Anna Joy Drury	17/03/2021 12:22:00
The evolution of	orbital-scale clim	ate and carbon cycle dynamics across this interval remains relatively unscrutinised
(Turner, 2014; D	e Vleeschouwer e	t al., 2017).
Page 2: Deleted	Anna Joy Drury	24/05/2021 16:40:00
the		
Fage 2: Inserted	nd	24/05/2021 10:40:00
Larur 5 clillate a	ilu	
Page 2: Inserted	Anna Joy Drury	17/03/2021 12:25:00
, as well as sedin	entary processes	such as winnowing and dilution
		-
Page 2: Moved to	page 2 (Move #5	 Anna Joy Drury 24/05/2021 16:42:00

Understanding past changes in surface water productivity and deep-sea dissolution can inform about past climate development, and vice versa, how global processes affected regional production and deposition of biogenic carbonates.

Page 2: Deleted Anna Joy Drury	24/05/2021 16:42:00
is a	
Page 2: Inserted Anna Joy Drury	24/05/2021 16:42:00
are	
Page 2: Inserted Anna Joy Drury	24/05/2021 16:42:00
s	
Page 2: Inserted Anna Joy Drury	28/05/2021 16:24:00
lysocline and	
Page 2: Inserted Anna Joy Drury	28/05/2021 16:28:00
at greater depths and /or	· · · ·
Page 2: Inserted Anna Joy Drury	24/05/2021 16:43:00
Changes in deep-sea currents can a	lter the composition of the sediment through processes like winnowing or dilution,
which respectively remove fine-gr	ained material or increase certain sedimentary components relative to others (e.g.,
increased dilution with terrigenous	material)
mercused unation what terrigenous	initerial).
Page 2: Moved from page 2 (Move	#5) Anna Joy Drury 24/05/2021 16:42:00
Understanding past changes in car	bonate deposition surface water productivity and deep-sea dissolution can inform
about past climate development b	y helping to disentangle , and vice versa, how global processes affected regional
production and deposition of bioge	enic carbonates.
Page 2: Inserted Anna Joy Drury	24/05/2021 16:45:00
carbonate deposition	
Page 2: Deleted Anna Joy Drury	24/05/2021 16:48:00
surface water productivity and dee	p-sea dissolution
	·
Page 2: Inserted Anna Joy Drury	24/05/2021 16:48:00
by helping to disentangle	
Page 2: Deleted Anna Joy Drury	24/05/2021 16:48:00
, and vice versa,	
Page 2: Inserted Anna Joy Drury	24/05/2021 15:03:00
,	
Page 2: Deleted Anna Joy Drury	24/05/2021 15:03:00
both	
Page 2: Deleted Anna Joy Drury	24/05/2021 15:04:00

strategic

Page 2: Inserted	Anna Joy Drury	24/05/2021 15:03:00	
was affected by			
Page 2: Deleted	Anna Joy Drury	24/05/2021 15:04:00	
has the potential	to record		
Page 2: Deleted	Anna Joy Drury	24/05/2021 15:04:00	
changes			
Page 2: Inserted	Anna Joy Drury	24/05/2021 15:04:00	
conditions			
Page 3: Incerted	Anna lov Drury	11/05/2021 15:57:00	
the Angola Basi	n side of		
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:45:00	
se			
Page 3: Inserted	Anna Joy Drury	17/03/2021 12:34:00	
resulting			
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:53:00	
, astronomically	tuned carbonate		
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:49:00	
allow us to			
Page 3: Inserted	Anna Joy Drury	28/05/2021 16:49:00	
help determine sl	hifts in		
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:42:00	
investigate how			
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:43:00	
se	Anna Joy Drury	20,00/2021 10.43:00	
Page 3: Deleted	Anna Joy Drury	28/05/2021 16:48:00	
regimes			
Page 3: Inserted	Anna Joy Drury	28/05/2021 16:43:00	
of Southeast Atla	intic CaCO3 depo	sition in	
Page 3: Inserted	Anna Joy Drury	28/05/2021 16:43:00	
ion			
Page 3: Deleted	Anna Joy Druss	28/05/2021 16:43:00	
I AND DI DEIELEU			

Page 3: Inserted	Anna Joy Drury 28/05/2021 16:46:00
We investigate h	iow widespread Miocene warmth followed by Antarctic glaciation influenced the pacing an
preservation of So	utheast Atlantic carbonate deposition. Finally, we establish the relative timing of the late Miocene
early Pliocene Bio	ogenic Bloom (LMBB; acronym from Lyle et al., 2019) in the Southeast Atlantic versus Pacifi
Oceans and explo	ore what this reveals about the global and regional driving forces of this multi-million-year
productivity event	
Page 3: Deleted	Anna Joy Drury 17/03/2021 15:38:00

composite section	n		
Page 3: Inserted	Anna Joy Drury	17/03/2021 15:38:00	
stratigraphic splic	ce was developed		
Page 3: Deleted	Anna Joy Drury	17/03/2021 15:38:00	
was developed			
Page 3: Deleted	Anna Joy Drury	29/05/2021 17:32:00	
was			
Page 3: Inserted	Anna Joy Drury	29/05/2021 17:32:00	
were			
Page 3: Inserted	Anna Joy Drury	18/03/2021 13:37:00	
an			
Page 3: Deleted	Anna Joy Drury	29/05/2021 17:32:00	
are			
Page 3: Inserted	Anna Joy Drury	29/05/2021 17:32:00	
were exceptional	ly		
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:45:00	
21			
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:45:00	
19			
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:50:00	
; LSR =			
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:50:00	
,			
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:42:00	
1			
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:43:00	
3.9			

Page 3: Deleted	Anna Joy Drury	24/05/2021 15:42:00
8		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:48:00
5.4		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:51:00
, average of 4.7 1	n/Myr	
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:50:00
and early Plio-P	leistocene interval	ls (3-0 Ma, 4-8 m/Myr)
Page 3: Inserted	Anna Joy Drury	17/03/2021 12:38:00
Higher shipboard	1	
Page 3: Deleted	Anna Joy Drury	17/03/2021 12:38:00
are higher		
Page 3: Inserted	Anna Joy Drury	17/03/2021 12:38:00
occurred		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:49:00
19		
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:49:00
21		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:51:00
; LSR = 5.3-9.3 i	n/Myr, average of	7.1m/Myr
Page 3: Deleted	Anna Joy Drury	17/03/2021 12:38:00
, 6-22 m/Myr		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:51:00
and early Plio-Pl	eistocene (3-0 Ma	; LSR = $4.5-7.4$ m/Myr, average of 6.0 m/Myr). The
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:52:00
and are		
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:52:00
shipboard LSR o	ccurred	
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:52:00
LSR average 15.	9 m/Myr	
Page 3: Deleted	Anna Joy Drury	24/05/2021 15:52:00
they range betwee	en	
Page 3: Inserted	Anna Joy Drury	24/05/2021 15:52:00
(7.7-30.5		

age 3: Deleted Anna Joy Drury	24/05/2021 15:53:00		
3 and 31			
Page 3: Inserted Anna Joy Drury	17/03/2021 12:38:00		
shipboard LSR for the			
4			
Page 3: Deleted Anna Joy Drury	17/03/2021 12:38:00		
shipboard LSR			
Page 3: Moved to page 4 (Move #4) Anna Joy Drury	24/05/2021 15:57:00	
(Liebrand et al., 2011, 2016, 2017,	2018; Bell et al., 2014, 20	15)	
Page 4: Moved from page 3 (Move	#4) Anna Joy Drury	24/05/2021 15:57:00	
(Liebrand et al., 2011, 2016, 2017,	2018; Bell et al., 2014, 20	15)	
Page 4: Inserted Anna Jov Drurv	17/03/2021 15:39:00		
composite			
Page 4: Deleted Anna Joy Drury	17/03/2021 15:39:00		
composite			
Page 4: Deleted Anna Joy Drury	17/03/2021 13:52:00		
each	,,		
Page 4: Inserted Anna Joy Drury	17/03/2021 13:52:00		
s			
Page 4: Deleted Anna Joy Drury	17/03/2021 13:52:00		
was	17,05,2022 15:52:00		
Page 4: Inserted Anna Joy Drury	17/03/2021 13:52:00		
were			
Page 4 Deleted Area las Deser	17/02/2021 12:20:00		
composite	17/03/2021 12:39:00		
1			
Page 4: Inserted Anna Joy Drury	17/03/2021 12:39:00		
single			
Page 4: Deleted Anna Joy Drugs	17/03/2021 13:53:00		
core	1,00,2021 13.33.00		
Page 4: Inserted Anna Joy Drury	17/03/2021 13:53:00		
for each core			
Dama 4. Jacouted Anna In. C	17/03/3031 14:05 00		
" " " " " " " " " " " " " " " " " " "	17/03/2021 14:05:00		
Page 4: Inserted Anna Joy Drury	17/03/2021 14:05:00		

Page 4: Inserted	Anna Joy Drury	17/03/2021 13:53:00
-		
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:53:00
Dama A: Dalahad	Arres Jaw Denne	17/02/2021 12-56-00
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:56:00
composite		
Page 4: Incerted	Anna Joy Drury	17/03/2021 13:56:00
individual ages		
individual core		
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:57:00
core		
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:56:00
-		
Dama de Tanas 1. 1	Anna Jaw Da	17/02/2021 12-56-00
Page 4: Inserted	Anna Joy Drury	1//03/2021 13:56:00
core-box		
Page 4: Deleted	Anna Joy Druny	17/02/2021 12:57:00
Fage 4. Deleteu	Anna Joy Drury	17/05/2021 15:57:00
CODD (
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
the "		
uic		
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:05:00
"		
Page 4: Deleted	Anna Joy Drury	1//03/2021 13:57:00
)		
Page 4: Deleted	Anna lov Dress	17/03/2021 13:57:00
· uge - Deleteu	Annu Soy Drury	1/05/2022 25:57:00
core		
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
	,,	
-		
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:57:00
composite		
mposito		
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
Page 4: Inserted core-box Page 4: Deleted	Anna Joy Drury Anna Joy Drury	17/03/2021 13:57:00 17/03/2021 13:57:00

33

Page 4: Inserted	Anna Joy Drury	17/03/2021 13:57:00
represent		
Page 4: Incorted	Anno Joy Druny	17/02/2021 12-58-00
-	Anna Joy Drury	17/05/2021 15:59:00
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:59:00
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:59:00
-		
Page 4: Inserted	Anna Joy Drury	17/03/2021 13:59:00
-		
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:59:00
composite	Anna soy brary	17/05/2021 15:55:00
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:02:00
preferentially		
Page 4: Deleted	Anna Joy Drury	17/03/2021 13:59:00
composite		
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:00:00
,		
Page 4: Deleted	Anna Joy Drury	17/03/2021 14:00:00
they visually hig	hlight	
Page 4: Deleted	Anna Joy Drury	17/03/2021 14:00:00
better		
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:00:00
is better visible in	n these images	
Page 4: Deleted	Anna Joy Drury	17/03/2021 15:39:00
composite	,	
Page 4: Incorted	Anna Joy Drees	17/03/2021 15:39:00
stratigraphic	Anna Joy Diury	1, 00, LOLL 10,05,00
Subrapine		
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:03:00
The individual c	ore-box/line-scan	core images were then combined into a single composite image along the revised
Site 1264 splice	using the "SpliceI	mages" function.
Page 4: Deleted	Anna Joy Drury	17/03/2021 14:03:00
composite		

Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:03:00
individual	
Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:02:00
-	
Page 4: Deleted Anna Joy Dr	ury 17/03/2021 14:02:00
•	
Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:02:00
-	
Page 4: Deleted Anna Joy Dr	ury 17/03/2021 14:02:00
Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:09:00
in the 1264 splice image	
Page 4: Deleted Anna Joy Dr	ury 17/03/2021 14:10:00
to form a continuous composi	te core image spanning the early Oligocene to present day
Page 4: Deleted Anna Joy Dr	ury 17/03/2021 14:10:00
,	
Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:10:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day.	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr	ury 17/03/2021 14:10:00 s spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr	rry 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr 205	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 195	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 195	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr 205	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 105 Page 4: Inserted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 195 Page 4: Inserted Anna Joy Dr 205 Page 4: Inserted Anna Joy Dr 205	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 205 Page 4: Inserted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr Was	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 29/05/2021 14:29:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr Was Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 29/05/2021 17:33:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 195 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr Was Page 4: Inserted Anna Joy Dr was	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 17/03/2021 14:29:00 ury 29/05/2021 17:33:00
Page 4: Inserted Anna Joy Dr This resulted in a continuou Oligocene to present day. Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205 Page 4: Deleted Anna Joy Dr 205 Page 4: Inserted Anna Joy Dr 205 Page 4: Inserted Anna Joy Dr Was Page 4: Inserted Anna Joy Dr Was Page 4: Inserted Anna Joy Dr Ware Page 4: Inserted Anna Joy Dr	ury 17/03/2021 14:10:00 spliced image of the sedimentary succession at Site 1264-1265 spanning the early ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:28:00 ury 17/03/2021 14:29:00 ury 12/03/2021 14:29:00 ury 29/05/2021 17:33:00 ury 29/05/2021 17:33:00 ury 17/03/2021 14:31:00

Page 4: Inserted Anna Joy Drury	17/03/2021 14:31:00
four	
Page 4: Inserted Anna Joy Drury	17/03/2021 14:31:00
2011 (195-205 rmcd),	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:02:00
directly at the core surface of Site	1264 archive halves
Page 4: Deleted Anna Joy Drury	17/03/2021 15:02:00
during	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:02:00
using	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:01:00
.2	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:02:00
down-core	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:02:00
a	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:01:00
mm down-core and	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:01:00
-	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:02:00
cross-core	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:02:00
directly at the core surface of Site	1264 archive halves
Page 4: Inserted Anna Joy Drury	17/03/2021 15:03:00
with the same slit conditions	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:12:00
during	
Page 4: Inserted Anna Joy Drury	17/03/2021 15:12:00
using	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:12:00
relatively	
Page 4: Deleted Anna Joy Drury	17/03/2021 15:13:00
splice	

	Anna Joy Drury	17/03/2021 15:13:00
accurately correla	ate between holes	
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:32:00
2011) MARUM	XRF III, 10 kV/0.	15 mA/10 s count time/Cl-Rh filter (see also
Page 4: Deleted	Anna Joy Drury	17/03/2021 14:41:00
(
Page 4: Inserted	Anna Joy Drury	17/03/2021 14:40:00
(Liebrand et al., 2	2016);	
Page 4: Inserted	Anna Joy Drury	17/03/2021 15:06:00
/Cl-Rh filter		
Page 4: Inserted	Anna Joy Drury	17/03/2021 15:08:00
/no filter		
Page 4: Deleted	Anna Joy Drury	29/05/2021 17:33:00
Page 4: Inserted	Anna Joy Drury	17/03/2021 15:08:00
/no filter		
Page 5: Inserted	Anna Joy Drury	11/05/2021 16:43:00
All data were ins	pected directly fo	llowing collection and outliers were removed if they were clearly associated with
		as a Fallowing this the ln(Co/Fa) data ware additionally described using the CODD
cracks and/or une	even sediment surf	ace. Following this, the in(Carre) data were additionally despiked using the CODD
cracks and/or une editing functions	even sediment surf	ace: ronowing this, the infCarre) data were additionally despiked using the CODD
cracks and/or une editing functions Page 5: Deleted	Anna Joy Drury	29/05/2021 17:33:00
cracks and/or une editing functions Page 5: Deleted was	even sediment surf Anna Joy Drury	ace. Following inits, me init a rej uala were additionally despiked using me CODD 29/05/2021 17:33:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted	Anna Joy Drury	ace ronowing inits, me init a rej uana were additionally despited using ine CODD 29/05/2021 17:33:00 29/05/2021 17:33:00
cracks and/or une editing functions Page 5: Deleted Was Page 5: Inserted Were	Anna Joy Drury	ace ronowing inits, me in Carrey unit were additionally despited using ine CODD 29/05/2021 17:33:00 29/05/2021 17:33:00
cracks and/or une editing functions Page 5: Deleted Was Page 5: Inserted were Page 5: Inserted	Anna Joy Drury Anna Joy Drury Anna Joy Drury	ace rolowing inits, me in Carrey data were additionally despited using the CODD 29/05/2021 17:33:00 29/05/2021 17:33:00
cracks and/or unc editing functions Page 5: Deleted was Page 5: Inserted wcre Page 5: Inserted including	Anna Joy Drury Anna Joy Drury Anna Joy Drury	ace Poliswing inits, me in Carrey uan were additionally despited using ine CODD 29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00
eracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted including Page 5: Inserted	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 14:26:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted including Page 5: Inserted and 2	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 14:26:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted including Page 5: Inserted and 2 Page 5: Inserted	Anna Joy Drury	acc Following inits, me in Carrey uain were additionality despited using ine CODD 29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 14:26:00 17/03/2021 15:52:00 29/05/2021 15:52:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted including Page 5: Inserted and 2 Page 5: Inserted	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	acc Following inits, me in Car Fej uani were administrative spinced using ine CODD 29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 14:26:00 17/03/2021 15:52:00 17/03/2021 15:52:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted and 2 Page 5: Inserted Page 5: Inserted	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 20/05/2021 15:52:00 11/05/2021 16:52:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted were Page 5: Inserted and 2 Page 5: Inserted Page 5: Inserted	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 15:52:00 11/05/2021 16:52:00
cracks and/or une editing functions Page 5: Deleted was Page 5: Inserted including Page 5: Inserted and 2 Page 5: Inserted Page 5: Inserted Page 5: Inserted	Anna Joy Drury Anna Joy Drury	acc Poliswing inits, the init car Pej data were additionally despited using the CODD 29/05/2021 17:33:00 29/05/2021 17:33:00 17/03/2021 15:08:00 29/05/2021 14:26:00 11/05/2021 16:29:00 11/05/2021 16:29:00

Page 5: Deleted Anna Joy Drury 11/05/2021 12:38:00
79.642
Page 5: Inserted Anna Joy Drury 10/05/2021 18:10:00
±1.069
Page 5: Deleted Anna Joy Drury 11/05/2021 12:38:00
Page 5: Inserted Anna Joy Drury 11/05/2021 12:40:00
2.526 ± 0.188
Page 5: Deleted Anna Joy Drury 11/05/2021 12:40:00
2.6441
Page 5: Inserted Anna Joy Drury 11/05/2021 12:47:00
0.622
Page 5: Deleted Anna Joy Drury 11/05/2021 12:47:00
0.7572
Page 5: Deleted Anna Jov Drury 29/05/2021 14:27:00
5
Page 5: Inserted Anna Joy Drury 29/05/2021 14:27:00
6
Page 5: Deleted Anna Joy Drury 11/05/2021 12:52:00
This calibration is within the 2σ uncertainty of the
Page 5: Inserted Anna Joy Drury 11/05/2021 12:51:00
The
Page 5: Inserted Anna Joy Drury 11/05/2021 12:52:00
is within the 2σ uncertainty of the new %CaCO3 calibration, which equates to ±2.2% in the calibrated %CaCO
dataset.
Page 5: Inserted Anna Joy Drury 11/05/2021 12:55:00
I ne uncertainty in the calibration likely originates from the scatter of the snipboard coulometry-derived %c.ac.
data that were used in the calibration. This uncertainty only pertains to the absolute %CaCO3 values. The trends a
cyclicity observed in the calibrated CaCO3 data are independent of this uncertainty, as these patterns are present in
raw ln(Ca/Fe) timeseries.

Page 5: Inserted Anna Joy Drury 11/05/2021 12:53:00 e new and recalibrated %CaCO3

Page 5: Deleted Anna Joy Drury 11/05/2021 12:53:00

Page 5: Inserted Anna Joy Drury	11/05/2021 12:54:00
from Site 1264	
Page 5: Deleted Anna Joy Drury	29/05/2021 17:33:00
was	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:33:00
were	
Page 5: Inserted Anna Joy Drury	11/05/2021 13:01:00
	$MAR_{detrital} = MAR_{Bulk} - MAR_{CaCO_3} $ (3)
Page 5: Deleted Anna Joy Drury	29/05/2021 17:34:00
using t	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:34:00
Т	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:34:00
was	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:34:00
Page 5: Deleted Anna Joy Drury	29/05/2021 17:34:00
and d	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:34:00
D	
Page 5: Inserted Anna Joy Drury	29/05/2021 17:34:00
was	
Page 5: Deleted Anna Joy Drury	29/05/2021 14:27:00
6	
Page 5: Inserted Anna Joy Drury	29/05/2021 14:27:00
7	

Page 5: Inserted Anna Joy Drury 17/03/2021 15:31:00 The uncertainty in the MARs is difficult to quantify. The largest uncertainties affecting bulk, CaCO₃ and detrital MARs arise from uncertainties in the ρ_{aya} , which was calculated using shipboard GRA and discrete dry density data, and the LSR, both of which are difficult to estimate. CaCO₃ MARs additionally have ±2.2% 20 calibration uncertainty. However, as %CaCO₃ is on bight a Site 1264, the %CaCO₄ calibration uncertainty will have a smaller affect compared with the changes in LSR. Because detrital MARs are low and calculated using the difference between bulk and CaCO₃ MARs, changes in detrital MARs should be treated cautiously.

Page 6: Deleted	Anna Joy Drury	17/03/2021 15:33:00
composite		
Page 6: Inserted	Anna Joy Drury	17/03/2021 15:33:00
core		
Page 6: Inserted	Anna Joy Drury	17/03/2021 15:33:00
, leading to dupli	cated and/or miss	ing intervals in the shipboard
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:33:00
and		
Page 6: Incorted	Anna Joy Drumy	17/02/2021 15:24:00
ese misalignmen	Is state	17/03/2021 13:34:00
ese misuigninen		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:34:00
is		
Page 6: Inserted	Anna Joy Drury	17/03/2021 15:34:00
are		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:34:00
is		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:35:00
Using		
Dama C. Tanantad	Anna Jaw Davan	17/07/2021 15:26:00
Predominantly	Anna Joy Drury	17/05/2021 15:56:00
Treatminiantry		
Page 6: Inserted	Anna Joy Drury	17/03/2021 15:36:00
using		
Page 6: Deleted	Anna Joy Drury	18/03/2021 13:59:00
190.13		
Page 6: Inserted	Anna Joy Drury	18/03/2021 13:59:00
205	11	
Page 6: Deleted	Anna Joy Drury	29/05/2021 14:27:00
2		
		20/07/2024 4 4 22 00
Page 6: Inserted	Anna Joy Drury	29/05/2021 14:27:00
5		
Page 6: Deleted	Anna Joy Drury	29/05/2021 17:34:00
was		
Page 6: Inserted	Anna Joy Drury	29/05/2021 17:34:00

were

Page 6: Deleted	Anna Joy Druny	28/0E/2021 14:27:00
2	Allia Joy Dialy	29/03/2021 14:27:00
2		
Page 6: Inserted	Anna Joy Drury	29/05/2021 14:27:00
3		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:36:00
and splice		
Page 6: Deleted	Anna Joy Drury	24/05/2021 16:16:00
Hole		
Page 6: Inserted	Anna Joy Drury	24/05/2021 16:16:00
Core		
Page 6: Inserted	Anna Joy Drury	24/05/2021 16:16:00
Н		-,,
Page 6: Deleted	Anno Joy Druny	24/05/2021 16:16:00
Fage 0. Deleteu	Anna Joy Drury	24/05/2021 10:10:00
Hole		
Page 6: Inserted	Anna Joy Drury	24/05/2021 16:16:00
Core		
Page 6: Inserted	Anna Joy Drury	24/05/2021 16:16:00
Н		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:37:00
in order		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:37:00
composite		
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:37:00
and		
•		
Page 6: Inserted	Anna Joy Drugy	17/03/2021 15:37:00
new	the set of brand	
Page 6: Incorted	Anno Joy Druny	17/02/2021 15:27:00
. age o. msetted	Anna Joy Didry	1, 100/ LOLL 10:01:00
and		
Page 6: Deleted	Anna Joy Drury	1//03/2021 15:37:00
, together with th	e	
Page 6: Deleted	Anna Joy Drury	17/03/2021 15:37:00
composite		

Page 6: Inserted Anna Joy Drury ary Page 6: Deleted Anna Joy Drury column Page 6: Inserted Anna Joy Drury	17/03/2021 15:40:00 17/03/2021 15:40:00
Page 6: Inserted Anna Joy Drury ary Page 6: Deleted Anna Joy Drury column Page 6: Inserted Anna Joy Drury	17/03/2021 15:40:00 17/03/2021 15:40:00
ary Page 6: Deleted Anna Joy Drury column Page 6: Inserted Anna Joy Drury	17/03/2021 15:40:00
Page 6: Deleted Anna Joy Drury column Page 6: Inserted Anna Joy Drury	17/03/2021 15:40:00
column Page 6: Inserted Anna Joy Drury	
Page 6: Inserted Anna Joy Drury	
	17/03/2021 15:40:00
succession (0-205 rmcd)	
Page 6: Inserted Anna Joy Drury	17/03/2021 15:41:00
Site 1264	
Page 6: Inserted Anna Joy Drury	17/03/2021 15:41:00
, stratigraphic	
Page 6: Deleted Anna Joy Drury	17/03/2021 15:41:00
/	
Page 6: Deleted Anna Joy Drury	29/05/2021 14:27:00
3	
Page 6: Inserted Anna Joy Drury	29/05/2021 14:27:00
4	
Page 6: Inserted Anna Joy Drury	11/05/2021 14:39:00
, which were	
Page 6: Deleted Anna Joy Drury	11/05/2021 14:39:00
Page 6: Inserted Anna Joy Drury	17/03/2021 15:44:00
filled with new isotope data (Weste	rhold et al., 2020).
Page 6: Inserted Anna Joy Drury	12/05/2021 11:51:00
XRF intensities,	
Page 6: Deleted Anna Joy Drury	11/05/2021 13:15:00

Page 6: Inserted Anna Joy Drury 18/03/2021 13:22:00 The range of observed %CaCO, variability is close to the 2.2% uncertainty associated with the calibration. However, we are confident that both the long-term trends and short-term variability discussed below represent true changes in carbonate content, as these patterns originate in the original ln(Ca/Fe) ratio. The calibration uncertainty is most relevant to the absolute carbonate content.

Page 7: Inserted	Anna Joy Drury	18/03/2021 13:39:00
span 93-96%		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:39:00
span 93-96%		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:39:00
is	and soy brary	10/03/2021 10:05:00
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:39:00
agrees		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:39:00
or		
Page 7: Inserted	Anna Jov Drurv	18/03/2021 13:39:00
with	,,	
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:39:00
s		
		10/02/2021 12 10 00
Page 7: Deleted 7	Anna Joy Drury	18/03/2021 13:40:00
especially		
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:40:00
especially		
Page 7: Inserted A	Anna Joy Drury	18/03/2021 13:40:00
s		
Page 7: Incerted	Anna Joy Drury	18/03/2021 13:41:00
s	ania soy stary	20/05/2022 25:42:00
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:41:00
s		
Dana 7. Innard	and low Dec	24/05/2021 17:52:00
(mid Miocana)	anna Joy Drury	24/05/2021 17:55:00
(min mocene)		
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:42:00
then		
Page 7: Inserted A	Anna Joy Drury	18/03/2021 13:42:00
es		
Page 7: Inserted	Anna Joy Drury	24/05/2021 17:54:00
0		-,-,
-		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:42:00
%		

Page 7: Inserted	Anna Joy Drury	18/03/2021 13:42:00
the		
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:42:00
content		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:42:00
remains		
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:42:00
decreases slightly	y to	
Page 7: Inserted	Anna Joy Drury	24/05/2021 17:54:00
(early Pliocene)		
Page 7: Inserted	Anna Joy Drury	24/05/2021 17:54:00
-early Pliocene		
Page 7: Deleted	Anna Joy Drury	29/05/2021 17:35:00
,		
Page 7: Inserted	Anna Joy Drury	24/05/2021 17:58:00
s		
Page 7: Inserted	Anna Joy Drury	24/05/2021 17:54:00
(Pleistocene)		
Page 7: Inserted	Anna Joy Drury	12/05/2021 11:52:00
The Si and K in	tensities are comp	arable throughout the record, although Si is generally slightly higher than K (Fig
3). Both element	s, together with F	e and Ti intensities, display the same short-term variability and long-term trends
(Fig 3 and Suppl	ementary Figure 2), indicating that these elements reflect changes in aluminosilicates. As the trends
of Si and K are in	iverse to those see	n in the CaCO3 content, this supports that Site 1264 is predominantly composed of
carbonate and cla	ay, with minimal i	influence of biogenic silica. The amplitude of changes in Si and K becomes much
smaller relative t	o CaCO3 content o	changes between ~115-0 rmcd compared to ~315-115 rmcd.
Page 7: Inserted	Anna Joy Drury	18/03/2021 13:50:00
Because		
Page 7: Deleted	Anna Joy Drury	18/03/2021 13:50:00
. As a result		
Page 7: Deleted	Anna Joy Drury	11/05/2021 14:00:00
sedimentation rat	les	
Page 7: Inserted	Anna Joy Drury	11/05/2021 14:00:00
LSR		

Page 7: Inserted	i Anna Joy Drury	11/05/2021 14:00:00
LSR also strong	ly affect detrital M	IARs; however, these remain low throughout at Site 1264 (0.01-0.2 g/cm ² /ky
Page 7: Inserted	d Anna Joy Drury	18/03/2021 13:52:00
CaCO ₃		
Page 7: Deleted	Anna Joy Drury	11/05/2021 14:07:00
variability		
Page 7: Inserted	i Anna Joy Drury	11/05/2021 14:07:00
changes		
Page 7: Inserted	i Anna Joy Drury	11/05/2021 14:06:00
; however, this v	/ariability is smalle	er than that variability
Page 7: Deleted	Anna Joy Drury	11/05/2021 14:07:00
superimposed u	ipon variability	
Page 7: Inserted	d Anna Joy Drury	11/05/2021 14:07:00
(see section 4.2)	
Page 7: Inserted	d Anna Joy Drury	29/05/2021 14:36:00
(Fig 3)		
Page 7: Deleted	Anna Joy Drury	18/03/2021 14:00:00
record		
Page 7: Deleted	Anna Joy Drury	18/03/2021 14:00:00
sequence recove	red	
Page 7: Inserted	d Anna Joy Drury	18/03/2021 14:00:00
succession		
Page 7: Inserted	d Anna Joy Drury	18/03/2021 14:00:00
1		
Page 7: Deleted	Anna Joy Drury	18/03/2021 14:00:00
3		
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:35:00
•		
Page 8: Inserted	i Anna Joy Drury	18/03/2021 14:01:00
u		
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:36:00
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:36:00

	Anna Joy Drury	29/05/2021 14:28:00
7		
Page 8: Inserted	Anna Joy Drury	29/05/2021 14:28:00
8		,,
Page 8: Deleted	Anna Joy Drury	29/05/2021 14:28:00
0		
Page 8: Inserted	Anna Joy Drury	29/05/2021 14:28:00
9		
Page 8: Inserted	Anna Joy Drury	29/05/2021 14:37:00
; Fig 4 and Supp	lementary Figure	10
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:36:00
	Annu Soy Drury	23/03/2022 27/30/30
Page 8: Deleted	Anna Joy Drury	18/03/2021 14:02:00
Lunological cycl	ies broadly varyin	g around 2 and 0.5 m length are present in the
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:02:00
The depth-doma	in	
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:25:00
between 205 and	190 rmcd highlig	hts the lithological cycles in %CaCO3, which broadly varies around 2 and 0.5 m
length		
Page 8: Deleted	Anna Joy Drury	18/03/2021 14:03:00
Page 8: Deleted for the interval	Anna Joy Drury	18/03/2021 14:03:00
Page 8: Deleted for the interval	Anna Joy Drury Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and	Anna Joy Drury Anna Joy Drury 190 rmcd	18/03/2021 14:03:00 18/03/2021 14:25:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and	Anna Joy Drury Anna Joy Drury 190 rmcd	18/03/2021 14:03:00 18/03/2021 14:25:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4	Anna Joy Drury Anna Joy Drury 190 rmcd Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4	Anna Joy Drury Anna Joy Drury 190 rmcd Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted	Anna Joy Drury Anna Joy Drury 190 rmcd Anna Joy Drury Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3	Anna Joy Drury Anna Joy Drury 190 rmed Anna Joy Drury Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3 Page 8: Deleted	Anna Joy Drury Anna Joy Drury 1190 rmcd Anna Joy Drury Anna Joy Drury Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00 18/03/2021 14:04:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3 Page 8: Deleted decreases to low	Anna Joy Drury Anna Joy Drury 190 rmed Anna Joy Drury Anna Joy Drury Anna Joy Drury values that	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00 18/03/2021 14:04:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3 Page 8: Deleted decreases to low Page 8: Deleted	Anna Joy Drury Anna Joy Drury 190 med Anna Joy Drury Anna Joy Drury values that Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00 18/03/2021 14:04:00 24/05/2021 18:17:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3 Page 8: Deleted decreases to low Page 8: Deleted 0.	Anna Joy Drury Anna Joy Drury 190 rmcd Anna Joy Drury Anna Joy Drury Anna Joy Drury values that Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00 18/03/2021 14:04:00 24/05/2021 14:17:00
Page 8: Deleted for the interval Page 8: Deleted between 205 and Page 8: Deleted 4 Page 8: Inserted 3 Page 8: Deleted decreases to low Page 8: Deleted 0.	Anna Joy Drury Anna Joy Drury 190 rmcd Anna Joy Drury Anna Joy Drury values that Anna Joy Drury	18/03/2021 14:03:00 18/03/2021 14:25:00 24/05/2021 20:44:00 24/05/2021 20:44:00 18/03/2021 14:04:00 24/05/2021 18:17:00

Page 8: Deleted	Anna Joy Drury	24/05/2021 18:18:00	
kyr			
Page 8: Inserted	Anna Joy Drury	24/05/2021 18:18:00	
Myr			
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:36:00	
125			
Page 8: Inserted	Anna Joy Drury	29/05/2021 17:36:00	
110			
Page 8: Deleted	Anna Joy Drury	12/05/2021 17:18:00	
cyclicity			
Page 8: Inserted	Anna Joy Drury	12/05/2021 17:18:00	
variability			
Page 8: Deleted	Anna Joy Drury	18/03/2021 14:05:00	
e.g.,			
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:05:00	
which shows			
Page 8: Inserted	Anna Joy Drury	21/03/2021 14:36:00	
~			
Page 8: Inserted	Anna Joy Drury	21/03/2021 14:36:00	
(e.g. the ~95 and	~125 kyr cycles)	with	
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:06:00	
longer			
Page 8: Deleted	Anna Joy Drury	24/05/2021 20:45:00	
,4			
Page 8: Deleted	Anna Joy Drury	24/05/2021 20:46:00	
5			
Page 8: Inserted	Anna Joy Drury	24/05/2021 20:46:00	
4			
Page 8: Deleted	Anna Joy Drury	29/05/2021 17:36:00	
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:26:00	
respectively			
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:06:00	

Page 8: Deleted Anna Joy Drury	18/03/2021 14:06:00
about	
Page 8: Deleted Anna Joy Drury	18/03/2021 14:06:00
approximately	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:06:00
~	
Page 8: Deleted Anna Joy Drury	18/03/2021 14:07:00
in the range of	
-	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:07:00
from ~	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:07:00
~	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:26:00
in the depth-domain wavelet analy	vsis of the CaCO3 data
Page 8: Deleted Anna Joy Drury	24/05/2021 20:45:00
4	
Page 8: Inserted Anna Joy Drury	24/05/2021 20:45:00
3	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:27:00
gradually shifting,	
Page 8: Deleted Anna Joy Drury	18/03/2021 14:07:00
are resultant from	
Page 8: Inserted Anna Joy Drury	18/03/2021 14:07:00
reflect	
Page 8: Deleted Anna Joy Drury	18/03/2021 14:07:00
, that vary	
Page 8: Inserted Anna Joy Drury	24/05/2021 18:18:00
0	
Page 8: Deleted Anna Joy Drury	24/05/2021 18:18:00
c	
Page 8: Inserted Anna Joy Drury	24/05/2021 18:18:00
M	
Page 8: Deleted Anna Joy Drury	24/05/2021 18:18:00

Page 8: Deleted	Anna Joy Drury	24/05/2021 18:18:00
Page 8: Deleted	Anna Joy Drury	24/05/2021 18:18:00
с		
Page 8: Inserted	Anna Joy Drury	24/05/2021 18:18:00
М		
Page 8: Deleted	Anna Joy Drury	24/05/2021 18:18:00
k		
-		
Dago 9: Incorted	Anna Joy Druny	18/02/2021 14:27:00
Fage 6. Thiserteu	Anna Joy Drury	16/05/2021 14:27:00
,		
Page 9: Deleted	Anno Joy Druny	18/02/2021 14:08:00
Page 6: Deleteu	Anna Joy Drury	18/03/2021 14:08:00
can		
Dama Or Terrented	Anna Inu Doum	18/02/2021 14:08:00
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:08:00
~		
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:08:00
~		
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:08:00
~		
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:08:00
~		
Page 8: Deleted	Anna Joy Drury	29/05/2021 14:29:00
8		
Page 8: Inserted	Anna Joy Drury	29/05/2021 14:29:00
9		
Page 8: Deleted	Anna Joy Drury	18/03/2021 14:27:00
cycle		
-		
Page 8: Inserted	Anna Joy Drury	24/05/2021 18:01:00
of these cycles		
Page 8: Inserted	Anna Joy Drury	18/03/2021 14:08:00
,		
Page 8: Deleted	Anna lov Drury	18/03/2021 14:08:00
is still	Anna Joy Drury	10/03/2022 21:00:00
10 0000		

Page 9: Terrented Arms Jan Deven 18/0	2/2021 14:00:00
Page 8: Inserted Anna Joy Drury 18/0	5/2021 14:08:00
remains the	
Page 8: Inserted Anna Joy Drury 18/0	3/2021 14:09:00
cycle	
Page 8: Inserted Anna Joy Drury 18/0	3/2021 14:10:00
in line with the strong ~110-kyr eccentric	zity cycles observed
Page 8: Deleted Anna Joy Drury 18/0	3/2021 14:10:00
similar to the older interval	
Page 8: Inserted Anna Joy Drury 18/0	3/2021 14:10:00
~110-kyr	
Page 9: Deleted Anna Joy Drury 29/0	5/2021 17:36:00
•	
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:12:00
Because of several splice revisions in the	upper 55 rmcd of Site 1264 (see Section 3.1.),
B	
Page 9: Deleted Anna Joy Drury 18/0	3/2021 14:13:00
Annough detailed depin and age models	are available for upper 55 fined of Sile 1204 (Ben et al., 2014), resulting
from several splice revisions (see Section	13.1.)
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:13:00
, even though detailed investigations were	e previously made (Bell et al., 2014)
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:32:00
Visible inspection of the CaCO ₃ content	data and t
Page 9: Deleted Anna Joy Drury 18/0	3/2021 14:28:00
Т	
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:28:00
associated	
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:21:00
depth-domain	
-	
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:32:00
both	
Page 9: Deleted Anna Joy Drurv 18/0	3/2021 14:29:00
of the CaCO3 data in the stratigraphic dep	pth domain between 115 and 35 rmcd
3	
Page 9: Inserted Anna Joy Drury 18/0	3/2021 14:30:00
that there is	

Page 9: Deleted	Anna Joy Drury	18/03/2021 14:30:00
clear		
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
short-term		
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
present in the dat	a between 115 an	d 35 rmcd
Page 9: Deleted	Anna Joy Drury	24/05/2021 20:45:00
4		
Page 9: Inserted	Anna Joy Drury	24/05/2021 20:45:00
3		
Page 9: Deleted	Anna Joy Drury	18/03/2021 14:33:00
in comparison to	the previous dept	h intervals
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:33:00
in comparison to	the previous dep	th intervals
Page 9: Deleted	Anna Joy Drury	18/03/2021 14:30:00
and		
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
which means that	t	
Page 9: Deleted	Anna Joy Drury	18/03/2021 14:33:00
none of		
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:33:00
not		
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
above the 95% le	evel	
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
-		
Page 9: Deleted	Anna Joy Drury	18/03/2021 14:30:00
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:30:00
wavelet analyse	ŝ	
Page 9: Deleted	Anna Joy Drury	18/03/2021 14:30:00
above the 95% l	evel	
Page 9: Inserted	Anna Joy Drury	18/03/2021 14:34:00

Page 9: Inserted Anna Joy Drury	18/03/2021 14:34:00
-	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:34:00
to	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:34:00
-	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:34:00
18	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:34:00
From the bio-/magnetostratigraphi	19/99/1021119/00
· · · · · · · · · · · · · · · · · · ·	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:34:00
W	
Page 9: Inserted Anna Joy Drury	24/05/2021 18:17:00
0	
Page 9: Inserted Anna Joy Drury	24/05/2021 18:17:00
0	
Page 0. Deleted Arms Inc. Down	24/05/2021 10.17.00
Page 9: Deleted Anna Joy Drury	24/05/2021 18:17:00
ciii	
Page 9: Inserted Anna Joy Drury	24/05/2021 18:17:00
m	
Page 9: Deleted Anna Joy Drury	24/05/2021 18:17:00
kyr	
Page 9: Inserted Anna Joy Drury	24/05/2021 18:17:00
Myr based on the bio-/magnetostr	tigraphic ages
Press 0: Deleted Arms 1: D	18/03/2021 14:24:00
pariodicities	10/03/2021 14:34:00
periodicities	
Page 9: Inserted Anna Jov Drury	18/03/2021 14:34:00
depth cycles	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:34:00
in the depth domain	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:35:00
respectively	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:34:00

(~0.5 m)

Page 9: Inserted Anna Joy Drury	18/03/2021 14:35:00
(~1 m)	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:36:00
(~3-4 and ~10-12 m)	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:36:00
Page 9: Deleted Anna Joy Drury	18/03/2021 14:35:00
respectively	
1 5	
Page 9: Inserted Anna Joy Drury	29/05/2021 14:31:00
Fig 3:	25/05/2022 14/52/00
Page 9: Deleted Anna Joy Drury	29/05/2021 14-31-00
6	23/05/2022 24/52/00
0	
Page 9: Incorted Anna Joy Drugs	20/05/2021 14:21:00
Page 5. Tilserteu Allia Joy Diury	25/05/2021 14.51.00
8	
	20/05/2024 4 4 24 40
Page 9: Deleted Anna Joy Drury	29/05/2021 14:31:00
8	
Page 9: Inserted Anna Joy Drury	29/05/2021 14:31:00
9	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:40:00
В	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:39:00
For part of this depth interval (55-3	35 rmcd), both CaCO ₃ estimate data and benthic foraminiferal δ^{18} O data is available
Page 9: Inserted Anna Joy Drury	18/03/2021 14:39:00
etween 55 and 35 rmcd	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:40:00
w	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:40:00
and w	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:39:00
CaCO3 content data and benthic for	raminiferal δ ¹⁸ O data
Page 9: Deleted Anna Joy Drury	18/03/2021 14:41:00
these two proxy records	

Page 9: Deleted Anna Joy Drury	29/05/2021 14:29:00
9	
Page 9: Inserted Anna Joy Drury	29/05/2021 14:29:00
11	
Page 9: Deleted Anna Joy Drury	29/05/2021 17:36:00
Page 9: Deleted Anna Joy Drury	29/05/2021 17:36:00
Page 9: Deleted Anna Joy Drury	18/03/2021 14:41:00
In general, clear	
At Site 1264 place	10/03/2021 14:42:00
At Site 1204, cidar	
Page 9: Incorted Appa Ic.: Down	18/02/2021 14:41:00
cenerally	10/03/2021 14:41:00
generally	
Page 9: Incerted Anna Joy Drury	18/03/2021 14:42:00
depth-domain CaCO ₂ content	10/05/2022 1442.00
depin donam cucoy content	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:42:00
of the Site 1264 CaCO3 content	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:42:00
apart from	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:42:00
except for	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:42:00
somewhat	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:42:00
occasional	
	10/00/2004 11 10 00
Page 9: Inserted Anna Joy Drury	18/03/2021 14:43:00
~1.0-1.5 m	
Rado & Deleted Appa low Drunk	18/02/2021 14:42:00
with pariodicities of 1.0 to 1.5 m	10/03/2021 14.43.00
with periodicities of 1.0 to 1.5 Ill	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:43:00
are able to	
are usie to	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:43:00
can	

Page 9: Deleted Anna Joy Drury 18/03/2021 14:43:00
se
Page 9: Inserted Anna Joy Drury 18/03/2021 14:43:00
CaCO ₃ content
Page 9: Deleted Anna Joy Drury 18/03/2021 14:43:00
ir
Page 9: Inserted Anna Joy Drury 18/03/2021 14:43:00
of these cycles
Page 9: Deleted Anna Joy Drury 18/03/2021 14:44:00
not as pronounced
Page 9: Inserted Anna Joy Drury 18/03/2021 14:44:00
muted
Page 9: Deleted Anna Joy Drury 18/03/2021 14:44:00
interval
Page 9: Inserted Anna Joy Drury 18/03/2021 14:44:00
cycles observed
Page 9: Moved to page 9 (Move #1) Anna Joy Drury 18/03/2021 14:51:00
We derive averaged LSR of <1 cm/kyr for this interval based on the initial bio-/magnetostratigraphic age model.
Page 9: Inserted Anna Joy Drury 18/03/2021 14:51:00
appear to
Page 9: Inserted Anna Joy Drury 18/03/2021 14:51:00
in the upper 35 m
Page 9: Moved to page 9 (Move #2) Anna Joy Drury 18/03/2021 14:53:00
Based on the initial age model we note absence of clear precession and obliquity paced cyclicity in both benthic
for aminiferal $\delta^{18}O$ and CaCO3 content records during the last 2.5 Ma (Supplementary Figure 8).
Page 9: Moved from page 9 (Move #1) Anna Joy Drury 18/03/2021 14:51:00
We derive averaged LSR of <10 cm/Mkyr for this0-35 mcd interval based on the initial bio-/magnetostratigraphic
ana madal
age model.
Page 9: Inserted Anna Joy Drury 24/05/2021 18:19:00
0
Page 9: Deleted Anna Joy Drury 24/05/2021 18:19:00
c
Page 9: Inserted Anna Joy Drury 24/05/2021 18:19:00
M

Page 9: Deleted Anna Joy Drury	24/05/2021 18:19:00
k	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:52:00
this	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:52:00
0-35 rmcd	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:52:00
interval	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:52:00
observed	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:52:00
periodicity	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:52:00
cycles	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:52:00
is	
Page 9: Inserted Anna Joy Drury	18/03/2021 14:52:00
are	
Page 9: Deleted Anna Joy Drury	18/03/2021 14:52:00
either	
Page 9: Inserted Anna Joy Drury	24/05/2021 18:28:00
(Bailey et al., 2013)	
Page 9: Moved from page 9 (Move	e #2) Anna Joy Drury 18/03/2021 14:53:00
Based on the initial age model v	ve note absence of clear precession and obliquity paced cyclicity in both benthic
for aminiferal $\delta^{18}O$ and CaCO3 con	ntent records during the last 2.5 Ma (Supplementary Figure 89).
Page 9: Deleted Anna Joy Drury	29/05/2021 14:32:00
8	
Page 9: Inserted Anna Joy Drury	29/05/2021 14:32:00
9	
Page 9: Deleted Anna Joy Drury	29/05/2021 17:37:00
•	
Page 9: Inserted Anna Joy Drury	21/03/2021 14:23:00
(

Page 9: Deleted An	na Joy Drury 21/03/	/2021 14:23:00
between		
Dama (), Dalahad An	1 D 21/02/	(2021 14:22:00
Page 9: Deleted An	na Joy Drury 21/03/	2021 14:23:00
and		
Page 9: Incorted An	no lov Drumy 21/02/	/2021 14:22:00
to	11a Joy Diary 21/03/	2021 14:23:00
10		
Page 9: Inserted An	na Joy Drury 21/03/	/2021 14:23:00
)		
Page 9: Deleted An	na Joy Drury 21/03/	/2021 14:22:00
%		
Page 9: Inserted An	na Joy Drury 21/03/	/2021 14:22:00
content		
Page 9: Deleted An	na Joy Drury 21/03/	/2021 14:23:00
spanning		
Page 9: Inserted An	na Joy Drury 21/03/.	2021 14:23:00
(
Page 9: Inserted An	na Joy Drury 21/03/	/2021 14:23:00
)		
,		
Page 9: Inserted An	na Joy Drury 21/03/	/2021 14:23:00
a		
Page 9: Inserted An	na Joy Drury 24/05/	/2021 18:26:00
on		
Page 9: Deleted An	na Joy Drury 24/05/	/2021 18:26:00
ng		
Dama Or Taxanda Am		(2021 14-22-00
batwaan	na Joy Drury 21/03/.	2021 14:25:00
between		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:24:00
Because of the splice	e revisions between 27	and 149 rmcd at Site 1264, we re-evaluated t
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:24:00
Т		
-		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:26:00
has to be re-evaluate	d	
Dana 10. Dalati	Anna Jau P	21/02/2021 14:26:00
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:26:00

Page 10: Inserted	Anna Joy Drury	21/03/2021 14:26:00
/		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:26:00
(
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:26:00
), resulting from the spl	lice revisions betwee	en 27 and 149 rmcd at Site 1264
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:28:00
we updated		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:28:00
were updated		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:28:00
cumulative		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:28:00
shift in the revised		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:28:00
cumulative		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:28:00
composite		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:29:00
shift due to depth mode	el/splice revisions in	
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:29:00
of		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:30:00
in the depth-domain		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:29:00
%		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:29:00
record		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:29:00
content record		
Page 10: Inserted	Anna Joy Drury	11/05/2021 14:32:00
using the flexible best-	practice quidelines of	outlined in Sinnesael et al. (2019)

Page 10: Deleted	Anna Joy Drury	21/03/2021 14:30:00
However,		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:30:00
В		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:30:00
b		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:34:00
orbital forcing		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:34:00
of eccentricity (E), obl	iquity (T) and preces	ssion (P)
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:30:00
single and		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:30:00
to		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:30:00
for		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:31:00
we employed		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:31:00
were employed		
Page 10: Inserted	Anna Joy Drury	29/05/2021 14:33:00
and Figure 10		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:31:00
tuned		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:33:00
;		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:33:00
, with o		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:33:00
0		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:33:00
ŋ		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:35:00

0			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:33:00	
is			
Ð.			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:32:00	
(
ŋ			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:32:00	
)			
ŋ.			
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:29:00	
tuned			
La)			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:33:00	
eccentricity			
La)			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:33:00	
E			
La)			
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:29:00	
tuned			
Laj			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:32:00	
(/benthic 810O)			
0			
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:29:00	
tuned			
1			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:32:00	
(visually aided by 8"O	, where available)		
Desce 10: Incented	Arres Jaw Daver	24/05/2021 18:20:00	
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:29:00	
tuned			
Dama 10: Incented	Arres Jaw Daver	21/02/2021 14:25:00	
Retween 20.17 Mo	Anna Joy Drury	21/03/2021 14:35:00	
Between 50-17 Ma,			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:35:00	
between 30-17 Ma	Anna soy brary	21/05/2021 14:55:00	
con 50 17 Ma			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:36:00	
are both antiphase			
Page 10: Deleted	Anna Joy Drurv	21/03/2021 14:36:00	
in turn have an inverse	relationship		
	1		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:36:00	
(e.g. the ~95 and ~125	kyr cycles)		
	/		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:39:00	

Page 10: Deleted	Anna Joy Drury	21/03/2021 14:39:00	
T			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:39:00	
t			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:39:00	
,			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:39:00	
•			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:39:00	
w			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:39:00	
W			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:39:00	
therefore			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:44:00	
across the			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:39:00	
between			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:40:00	
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:40:00	
interval and			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:40:00	
We therefore also emp	ploy the Liebrand et a	d. (2016)	
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:40:00	
ing strategy of			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:40:00	
e			
Page 10: Inserted	Anna Joy Drury	29/05/2021 17:37:00	
e			
Page 10: Deleted	Anna Joy Drury	29/05/2021 17:37:00	

Page 10: Inserted	Anna Joy Drury	21/03/2021 14:45:00
between 17-8 Ma		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:42:00
(La2004)		
Page 10: Deleted	Anna Joy Drury	24/05/2021 20:46:00
5		
Page 10: Inserted	Anna Joy Drury	24/05/2021 20:46:00
4		
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:31:00
When benthic foramin	iferal stable isotope r	ecords become available for the interval between 17-8 Ma,
Page 10: Deleted	Anna Joy Drury	24/05/2021 18:31:00
Future work can indep	endently test whethe	r
Page 10: Inserted	Anna Jov Drurv	24/05/2021 18:32:00
stability of the		
Page 10: Deleted	Anna Joy Drury	24/05/2021 18:30:00
early		
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:30:00
late		
Page 10: Deleted	Anna Joy Drury	24/05/2021 18:30:00
derived		
Page 10: Inserted	Anna Joy Drury	24/05/2021 18:31:00
can be tested.		
Page 10: Deleted	Anna Joy Drury	24/05/2021 18:31:00
remains stable until 8	Ma,	
Page 10: Deleted	Anna Jov Drurv	21/03/2021 14:55:00
Our		
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:55:00
The CaCO3 content to	eccentricity	
Page 10: Inserted	Anna Joy Drurv	21/03/2021 14:56:00
is		
Page 10: Deleted	Anna Joy Drury	21/05/2021 14:56:00
e		
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:56:00
of the ~110 kyr eccent	ricity cycles are	

Page 10: Inserted	Anna Joy Drury	21/03/2021 14:56:00	
is			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:56:00	
more			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:56:00	
The imprint of			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:56:00	
0			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:56:00	
o			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:58:00	
becomes			
Page 10: Inserted	Anna Joy Drury	21/03/2021 14:58:00	
is apparent			
Page 10: Deleted	Anna Joy Drury	21/03/2021 14:56:00	
more prevalent			
Page 10: Deleted	Anna Joy Drury	21/03/2021 15:03:00	
prior to			
Page 10: Inserted	Anna Joy Drury	21/03/2021 15:03:00	
before			
Page 10: Inserted	Anna Joy Drury	24/05/2021 20:46:00	
4 1.0			
Page 10: Deleted	Anna Joy Drury	24/05/2021 20:46:00	
5			
La)	Arres Jav Denne	24/05/2021 20:46:00	
4	Anna Joy Drury	24/03/2021 20:40:00	
La)			
Page 11: Deleted	Anna Joy Drury	24/05/2021 20:46:00	
5			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:01:00	
the obliquity solution us	sed in I.b) approach	is currently	
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:01:00	
available in the			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:01:00	

Page 11: Deleted	Anna Joy Drury	21/03/2021 15:01:00
has the obliquity solu	tion used in I.b) appr	bach
Page 11: Inserted	Anna Joy Drury	24/05/2021 18:33:00
solution		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:01:00
has the obliquity solu	tion used in I.b) appro	ach
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:01:00
There was potential to	o develop an astrochro	nology at precession-level, as
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:02:00
Т		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:02:00
t		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:03:00
record		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:03:00
CaCO3 content		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:01:00
(see Section 4.1)		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:03:00
, so there was potentia	il to develop an astroc	hronology at precession-level
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:03:00
older than		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:03:00
before		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:04:00
chose a		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:04:00
were		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:04:00
strategy of		

Page 11: Incorted	Anno Joy Druny	21/02/2021 15:04:00
rage 11. Inserceu	Anna Joy Drury	21/03/2021 13:04:00
only		
Page 11: Deleted	Anna Joy Druny	21/02/2021 15:04:00
Fage 11. Deleteu	Anna Joy Drury	21/03/2021 13:04:00
oniy		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:05:00
After 8 Ma, t		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:05:00
Т		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:08:00
strong		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:06:00
the %		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:06:00
record		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:06:00
content		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:05:00
is		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:05:00
decreases		,,
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:06:00
, whilst the imprint of		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:05:00
reduced after 8 Ma. Spec	ctral analyses show	v that
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:06:00
are		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:06:00
is		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:06:00
after 8 Ma until around		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:06:00
between 8 and		
Dana 11, Incented	Anna Jau Davan	21/02/2021 15-02-00
raye 11: Inserted	Anna Joy Drury	21/03/2021 13:07:00

therefore			
Page 11: Incerted	Anna Joy Drury	21/03/2021 15:08:00	
and	Anna Soy Brary	21/05/2021 15:00:00	
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:08:00	
-			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:07:00	
to accommodate the ch	ange in		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:07:00	
, because the	Anna Soy Brary	21/05/2021 15:07:00	
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:07:00	
%			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:07:00	
data			
rage 11: Inserted	Anna Joy Drury	21/03/2021 15:07:00	
conclit			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:07:00	
changes			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:10:00	
A change in the relation	nship between t		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:10:00	
Т			
rage 11: Inserted	Anna Joy Drury	21/03/2021 15:11:00	
ional ional of the second			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:10:00	
%			
Page 11: Deleted	Anna Joy Drurv	21/03/2021 15:10:00	
data			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:10:00	
coment			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:12:00	
Plio			
Page 11: Incorted	Anna Joy Druny	21/02/2021 15:12:00	
latest Miocene	Anna Joy Drury	21/03/2021 15:12:00	_

Page 11: Deleted	Anna Joy Drury	21/03/2021 15:11:00	
a change in			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:11:00	
different			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:11:00	
es			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:11:00	
is			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:12:00	
are			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:13:00	
(6.0-3.3 Ma;			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:18:00	
latest Miocene-Pleistoce	me		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:17:00	
overlapping			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:12:00	
%			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:12:00	
content			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:18:00	
is			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:18:00	
are both			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:15:00	
6.0			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:15:00	
5.3			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:17:00	
(
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:19:00	
positive			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:19:00	
Oligocene-early Miocen	ie		

Page 11: Inserted	Anna Joy Drury	21/03/2021 15:19:00	
between			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:19:00	
display in the Oligocene	e-early Miocene		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:19:00	
late Miocene-Pleistocen	ie		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:22:00	-
for this time interval			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:31:00	
tuned			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:31:00	
coinciding with			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:31:00	-
to			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:32:00	
As			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:32:00	
Considering			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:32:00	-
relationship between			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:32:00	_
inverse			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:32:00	
-			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:32:00	
and			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:34:00	
relationship			
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:32:00	
is inverse			
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:32:00	
5.3			

Page 11: Deleted	Anna Joy Drury	21/03/2021 15:33:00
intervai		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:33:00
interval		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:34:00
benthic δ18O and CaO	O3 content	
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:34:00
datasets		
Page 11: Deleted	Anna Joy Drury	21/03/2021 15:34:00
As such, we		
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:34:00
We therefore		
Page 11: Deleted	Anna Joy Drury	11/05/2021 14:35:00
(i.e., Southern Hemisp	ohere insolation minin	na) (uncertainty up to ± 10 kyr),
Page 11: Inserted	Anna Joy Drury	21/03/2021 15:35:00
uncertainty up to ±10	kyr;	
Page 11: Inserted	Anna Joy Drury	24/05/2021 20:46:00
4		
Page 11: Deleted	Anna Joy Drury	24/05/2021 20:46:00
5		
Page 11: Inserted	Anna Joy Drury	24/05/2021 20:46:00
4		
Page 11: Deleted	Anna Joy Drury	24/05/2021 20:46:00
5		
Page 12: Deleted	Anna Joy Drury	29/05/2021 17:37:00
1		
Page 12: Inserted	Anna Joy Drury	29/05/2021 17:37:00
3		
Page 12: Delated	Arres Jav D	21/02/2021 15-25-00

Because no changes were made to the shipboard splice in the upper 27 rmcd (3.5 Myr), w

Page 12: Inserted	Anna Joy Drury	21/03/2021 15:35:00
W		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:35:00
could use		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:35:00
used		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:36:00
in this interval		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:36:00
between 3.3 and 0 Ma,	because no changes	were made to the shipboard splice in the upper 27 rmcd (3.5 Myr)
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:36:00
confirmed		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:36:00
validated		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:36:00
two		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:36:00
1264 and CR		
Page 12: Inserted	Anna Joy Drury	24/05/2021 20:47:00
4		
Page 12: Deleted	Anna Joy Drury	24/05/2021 20:47:00
5		
Page 12: Deleted	Anna Joy Drury	12/05/2021 11:17:00
5 Discussion		
Page 12: Inserted	Anna Joy Drury	17/01/2021 17:07:00
Page 12: Deleted	Anna Joy Drury	10/05/2021 13:50:00
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:39:00
are an excellent		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:39:00

the orbital climate variab	ility	
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:39:00
er		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:39:00
the		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:39:00
orbital climate variability		
Page 12: Deleted	Anna Joy Drury	12/05/2021 12:29:00
ed		
Page 12: Deleted	Anna Joy Drury	11/05/2021 14:37:00
icehouse		
Page 12: Inserted	Anna Joy Drury	11/05/2021 14:37:00
Coolhouse		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:40:00
for full discussion, see		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:41:00
Atlantic benthic δ13C grad	dients indicate that	North Atlantic Deep Water (NADW) heavily influenced
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:42:00
the		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:42:00
S		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:42:00
s		
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:42:00
east		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:42:00
was heavily influenced by	y North Atlantic D	eep Water (NADW)
Page 12: Inserted	Anna Joy Drury	21/03/2021 15:41:00
for full discussion, see		
Page 12: Inserted	Anna Joy Drury	21/03/2021 16:03:00
complete and		
Page 12: Inserted	Anna Joy Drury	24/05/2021 20:55:00
; Fig 3		

Page 12: Inserted	Anna Joy Drury	24/05/2021 20:55:00
; Fig 4		
Page 12: Deleted	Anna Joy Drury	12/05/2021 12:29:00
for the entirety of Site	1264	
Page 12: Inserted	Anna Joy Drury	12/05/2021 12:29:00
at Site 1264		
Page 12: Deleted	Anna Joy Drury	24/05/2021 20:55:00
6		
Page 12: Inserted	Anna Joy Drury	24/05/2021 20:55:00
5		
Page 12: Deleted	Anna Joy Drury	12/05/2021 12:31:00
allows for the unprece	dented	
Page 12: Inserted	Anna Joy Drury	12/05/2021 12:31:00
enable		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:44:00
have		
Page 12: Deleted	Anna Joy Drury	21/03/2021 15:44:00
for the interval		
Page 12: Deleted	Anna Joy Drury	21/03/2021 16:07:00
remains		
Page 12: Inserted	Anna Joy Drury	21/03/2021 16:07:00
is		
Page 12: Deleted	Anna Joy Drury	24/05/2021 20:56:00
6		
Page 12: Inserted	Anna Joy Drury	24/05/2021 20:56:00
5		
Page 12: Deleted	Anna Joy Drury	21/03/2021 16:07:00
Carbonate content var	ies between about 92	-96% during the Oligocene to early late Miocene (30-8 Ma).
Page 12: Inserted	Anna Joy Drury	12/05/2021 15:52:00
CaCO3 content varied g/cm ² /kyr and are disc	between 94-96% du ussed in greater detai	ring the Oligocene-early Miocene (30-18.5 Ma), with MARs of ${\sim}1{-}2.5$ l in Liebrand et al. (2016).
Page 12: Deleted	Anna Joy Drugy	21/03/2021 16:07:00
Carbonate varied betw	anna Joy Drury	a Oligogene early Miccane (30-18-5 Ma: Liabrand et al. 2016)
Caroonaac varieu betw	cen 94-96% during u	te ongocene-carry whocene (50-16.5 Wat, Elebrand et al., 2010)

Page 12: Inserted	Anna Joy Drury	28/05/2021 17:20:00
Broadly concurrent with	cooling in the lead	d up to the mid Miocene climate Transition (mMCT; ~13.9 Ma), CaCO3
content increases and rem	ains between 94-9	δ% during

Page 12: Deleted	Anna Joy Drury	12/05/2021 15:58:00
and		
Page 12: Inserted	Anna Joy Drury	28/05/2021 17:21:00
(see Section 5.2 for discu	ission)	
B		
Page 12: Deleted	Anna Joy Drury	21/03/2021 16:08:00
are found		
Page 12: Inserted	Anna Joy Drury	21/03/2021 16:08:00
occur		
Page 12: Deleted	Anna Joy Drury	24/05/2021 20:56:00
6		
F		
Page 12: Inserted	Anna Joy Drury	24/05/2021 20:56:00
5		
Page 12: Incerted	Anna Joy Drury	21/03/2021 16:22:00
potentially	Anna soy brary	
1 ,		
Page 12: Inserted	Anna Joy Drury	24/05/2021 18:37:00
-early Pliocene		
Page 12: Inserted	Anna Joy Drury	24/05/2021 18:37:00
acronym from		
Page 12: Incorted	Anna Joy Druny	05/05/2021 14:45:00
further	Anna Joy Drury	03/03/2021 14.43.00
Page 12: Inserted	Anna Joy Drury	12/05/2021 15:59:00

Carbonate deposition is strongly affected by the balance between biogenic carbonate productivity (mostly in the surface water) and carbonate dissolution in the water column/at the sea floor. Sedimentary processes, such as dilution with terrigenous material and/or the removal of fine-grained material through winnowing, can affect both the amount and composition of the carbonate preserved. The relative importance of biogenic productivity versus dissolution is discussed in detail in Liebrand et al. (2016) for the Oligocene to early Miocene, in Section 5.2 for the early-mid Miocene, and in Section 5.3 for the late Miocene-early Pliocene. Over the last 30 Myr, detrital MARs are low, indicating that dilution with terrigenous material was not a major contributing factor in controlling carbonate deposition at Site 1264. Winnowing may have removed fine fraction material, including occolith arbonate, thereby reducing earbonate deposition at Site 1264. By comparing MARs between nearby sites recovered during DSDP Leg 74, Shackleton et al. (1984) suggested that winnowing may have affected parts of the Walvis Ridge. They suggested that winnowing was especially pronounced at DSDP Site 526 (1054 m water depth) since the late Oligocene. Site 1264 is situated on a very gentle slope above the lysocline and carbonate compensation depth (palaeowater depths: 2-2.5 km). Winnowing likely had less effect on Site 1264 compared to Site 526, as Site 1264 is not positioned on the shallowest parts of the Walvis Ridge bathymetry. Nonetheless, Shackleton et al. (1984) also found some indication of winnowing at DSDP Site 525 (2467 m water depth) since the late Pliocene. Independent constraints on winnowing are not available for the entire 30 Myr interval; however, detailed fine fraction weights are available between 30 and 17 Ma (Liebrand et al., 2016; their Fig. 2). If these data are interpreted as a proxy for winnowing, this would suggest that winnowing is modest during the "mid" Oligocene, increasing during late Oligocene warming and relatively high across the Oligocene-Miocene Transition (Fig 5). During the early Miocene (post OMT, pre-mid Miocene) winnowing is comparable to late Oligocene values (Fig 5). There is evidence for winnowing to have increased towards the condensed middle Miocene part of the Site 1264 record, as there is an increase in both high-resolution and lowresolution percent >63 µm coarse fraction (%CF) (Liebrand et al., 2016; Keating-Bitonti and Peters, 2019) (Fig 5). However, between 18.5 and 8 Ma, the Site 1264 %CF varies within a 5% range, suggesting the amount of winnowing remained stable (Fig 5; Keating-Bitonti and Peters, 2019). After ~3 Ma, %CF gradually increases from 20 to 40% (Fig 5), which is the largest increase seen in the entire record and could indicate that Site 1264 is affected by winnowing at this time. The presence of winnowing is also supported by the fact that deeper Walvis Ridge Sites 1266 and 1267 both have higher sedimentation rates than Site 1264 in the last 3 Ma, whereas the opposite would be expected if deepsea dissolution alone was considered (productivity should affect all sites similarly).

Page 13: Inserted Anna Joy Drury 12/05/2021 12:34:00

Т		
Page 13: Deleted	Anna Joy Drury	12/05/2021 12:34:00
Liebrand et al. (2016) c	ould not observe a u	uniform imprint of t
Page 13: Inserted	Anna Joy Drury	12/05/2021 12:31:00
imprint of the		
Page 13: Inserted	Anna Joy Drury	12/05/2021 12:32:00
was not constant		
Page 13: Inserted	Anna Joy Drury	12/05/2021 12:33:00
(Liebrand et al., 2016)		
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:12:00
For periodicities shorter	than 405 kyr,	
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:12:00
W		
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:12:00
w		
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:12:00

variability in			
vanaonity in			
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:12:00	
short-term %			
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:12:00	
content			
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:12:00	
variability			
Page 13: Deleted	Anna Joy Drury	24/05/2021 20:56:00	
6			
Page 13: Inserted	Anna Joy Drury	24/05/2021 20:56:00	
5; Fig 6			
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:13:00	
prevails as the dominant	forcing		
- D	-		
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:13:00	
is the dominant driver			
Page 13: Inserted	Anna Joy Drury	29/05/2021 17:23:00	
(Fig 6.A)			
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:13:00	
,			
Page 13: Incerted	Anna Joy Drury	21/03/2021 16-14-00	
are the main	Anna Joy Drary	21/03/2021 10.14.00	
1) 1)			
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:14:00	
r			
1) December 10, December 1			
Page 13: Deleted	Anna Joy Drury	21/03/2021 16:14:00	
ne nam			
Page 13: Inserted	Anna Joy Drury	21/03/2021 16:14:00	
of			
ŋ			
Page 13: Inserted	Anna Joy Drury	29/05/2021 17:23:00	
(rig 6.B)			
Page 14: Deleted	Anna Joy Drurv	21/03/2021 16:14:00	
the			
1)			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:14:00	
a			
0			

Page 14: Inserted	Anna Joy Drury	29/05/2021 17:23:00	
(Fig 6.C)			
Page 14: Deleted	Anna Joy Drury	12/05/2021 12:35:00	
see			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:14:00	
in imprinted cyclicity			
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:17:00	
(see Section 4.1)			
Page 14: Inserted	Anna Joy Drury	12/05/2021 12:35:00	
that the shifts			
Page 14: Deleted	Anna Joy Drury	12/05/2021 12:35:00	
they			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:17:00	
(see Section 4.1 and Sup	pplementary Figure	9)	
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:18:00	
the			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:18:00	
over the last 30 Myr			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:53:00	
At Site 1264,			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:54:00	
Т			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:54:00	
t			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:54:00	
at Site 1264			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:53:00	
parallels			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:53:00	
is in line with			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:54:00	
pacing of			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:54:00	
variability at Site 1264			

Page 14: Deleted	Anna Joy Drury	24/05/2021 20:56:00
6		
Page 14: Inserted	Anna Joy Drury	24/05/2021 20:56:00
5 and Fig 6.A		
Page 14: Inserted	Anna Joy Drury	28/05/2021 18:38:00
for further defail see		
Page 14: Inserted	Anna Joy Drury	28/05/2021 18:31:00
e prevalence of ~110ky	r eccentricity pacing	s at Site 1264
Page 14: Deleted	Anna Joy Drury	28/05/2021 18:31:00
is		
Page 14: Deleted	Anna Joy Drury	12/05/2021 12:36:00
that	. and soy stury	
Page 14: Inserted	Anna Joy Drury	28/05/2021 18:35:00
wider understanding th	hat	
Page 14: Deleted	Anna Joy Drury	05/05/2021 14:54:00
ice house		
Page 14: Inserted	Anna Joy Drury	05/05/2021 14:54:00
Coolhouse		
Page 14: Deleted	Anna Joy Drury	12/05/2021 12:36:00
was		
Page 14: Inserted	Anna Joy Drury	28/05/2021 18:35:00
was		
Dana 14. Tasartad	Anna Jau Davas	28/05/2021 17-50-00
The strong ~110.4c	vr cyclicity observe	d in marine archives is attributed to eccentricity-driven changes in ice
volume and/or deen ser	temperatura likely	are objected with changes in atmocrategy CO ₂ (Palike et al. 2006; Holbourn
et al. 2015: Liebrand a	t al 2017: Greenon	et al. 2019)
er al., 2013, Eleofalid e	, 2017, Greenop	er all, 2017).
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:25:00
However, t		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:25:00
Т		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:25:00
with		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:25:00
when		

Page 14: Inserted	Anna Joy Drury	21/03/2021 16:25:00
e		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:25:00
ing		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:40:00
These precession cycle	es remain the main d	lriver of carbonate deposition until ~8 Ma, although obliquity cycles
visible		
Page 14: Moved from p	age 14 (Move #3)	Anna Joy Drury 21/03/2021 16:40:00
Dduring the 2.4 Myr e	centricity minima fr	om ~12.6- to 12.2 Ma and ~9.7- to 9.3 Ma, when the imprint of preces
and ~110 kyr eccentric	ity imprint is muted	(Fig 5 and 6.B), and obliquity paces %CaCO3 variability.
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:41:00
D		
Page 14: Incerted	Anna Joy Drusy	21/03/2021 16:41:00
d	Anna Joy Drury	21/03/2021 10.41.00
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:41:00
-		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:41:00
10		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:41:00
-		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:41:00
to		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:42:00
when		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:42:00
imprint of		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:41:00
and ~110 kyr eccentric	ity	
Page 14: Deleted	Anno Joy Drugy	21/02/2021 16:42:00
imprint	Junia Joy Drury	L1/05/2022 20:72:00
mpini		
Page 14: Inserted	Anna Joy Drury	29/05/2021 17:51:00
(Fig 5 and 6.B)		
Page 14: Deleted	Anna Joy Drupy	21/02/2021 16:42:00

Page 14: Inserted Anna Joy Drury 28/05/2021 18:56:00		
Strong obliquity was also observed in benthic $\delta^{18}O$ data from the South China Sea during the ~9.7-9.3 Ma node		
(Holbourn et al., 2013). The strong obliquity intervals observed across multiple marine archives support that obliquity		
exerts greater control on the climate system as a whole when the orbital configuration is characterised by long-term		
eccentricity minima coincident with long-term obliquity maxima		
Page 14: Inserted Anna Joy Drury 28/05/2021 19:12:00		

Page 14: Inserted	Anna Joy Drury	28/05/2021 19:12:00	
(Holbourn et al., 2013, 20	018; Drury et al., 2	017; Levy et al., 2019).	
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:43:00	
e			
Press 14: Delated	Arres Jan Denne	21/02/2021 16:42:00	
rage 14: Deleted	Anna Joy Drury	21/03/2021 10:43:00	
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:43:00	
to stronger precession pac	cing		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:25:00	
aic			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:25:00	
were			
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:25:00	
previously			
Page 14: Inserted	Anna Joy Drury	12/05/2021 12:36:00	
,			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:31:00	
superimposed on larger ~	110 kyr eccentrici	ty cycles,	
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:31:00	
at Site 1264			
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:26:00	
,			
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:31:00	
at Site 1264			
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:31:00	
superimposed on larger ~	110 kyr eccentrici	ty cycles	
Page 14: Deleted	Anna Joy Drury	24/05/2021 20:56:00	
6			

Page 14: Inserted	Anna Joy Drury	24/05/2021 20:56:00
5		
-		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:29:00
relative amplitude of ecc	entricity and preces	ssion is different in the mid-late Miocene compared to the Oligocene-early
Miocene. In the Oligoce	ne-early Miocene, t	the amplitude of the
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:27:00
in CaCO3 content		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:26:00
are		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:26:00
were		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:27:00
in amplitude		
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:27:00
-driven CaCO3 content		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:28:00
concurrent with the incre	ease in precession p	power in the %CaCO3 data after 14 Ma,
Page 14: Inserted	Anna Joy Drury	21/03/2021 16:28:00
concurrent with the stroi	ig precession-pacin	g of the CaCO3 content between 14 and 8 Ma
Page 14: Deleted	Anna Joy Drury	24/05/2021 20:56:00
6		
Page 14: Inserted	Anna Joy Drury	24/05/2021 20:56:00
5		
Page 14: Inserted	Anna Joy Drury	28/05/2021 19:18:00
The influence of early-m	id Miocene climate	e evolution on Southeast Atlantic carbonate deposition is discussed further
in Section 5.2.		
Page 14: Moved to page	14 (Movo #2)	Anna Joy Druny 21/02/2021 16:40:00
During the 2.4 Myr ecce	antricity minima fre	om ~12.6-12.2 Ma and ~9.7-9.3 Ma, the precession imprint is muted, and
ahlimity mass % CoCO		the precession imprint is mated, and
obliquity paces %CaCO	s variability.	
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:57:00
on		
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:57:00
seen in		
Page 14: Deleted	Anna Joy Drury	21/03/2021 16:48:00

Page 14: Deleted	Anna Joy Drury	21/03/2021 16:48:00	
variability	Annu Soy Brury	21,05,2021 10:000	
Page 14: Incorted	Anno Joy Druny	21/02/2021 16:49:00	
content	Anna Joy Drury	21/03/2021 10.48.00	
Dens 14. Treasted	Anna 3 D	20/05/2021 17-52-00	
C	Anna Joy Drary	29/03/2021 17.52.00	
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:57:00	
of %CaCO3			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:57:00	
that we			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:58:00	
d			
Page 14: Inserted	Anna Joy Drury	10/05/2021 13:58:00	
at Site 1264			
Page 14: Deleted	Anna Joy Drury	10/05/2021 13:58:00	
in the Site 1264 %CaCC)3 record		
Page 15: Inserted	Anna Joy Drury	28/05/2021 21:02:00	
, such as enhanced glaci	al activity and high	latitude cooling	
Page 15: Deleted	Anna Joy Drury	28/05/2021 20:55:00	
)			
Page 15: Inserted	Anna Joy Drury	28/05/2021 20:55:00	
; see also Section 5.3)			
Page 15: Deleted	Anna Joy Drury	21/03/2021 16:59:00	
5.3			
Page 15: Inserted	Anna Joy Drury	21/03/2021 16:59:00	
6.0			
Page 15: Inserted	Anna Joy Drury	21/03/2021 16:59:00	
6.0			
Page 15: Deleted	Anna Joy Drury	21/03/2021 16:59:00	
5.3			
		24/05/2021 20:47:00	

Page 15: Inserted	Anna Joy Drury	24/05/2021 20:47:00	
4			
Page 15: Inserted	Anna Joy Drury	21/03/2021 17:00:00	
in CaCO3 content			
Page 15: Deleted	Anna Joy Drury	21/03/2021 17:00:00	
%			
Page 15: Deleted	Anna Joy Drury	21/03/2021 17:00:00	
values			
Page 15: Inserted	Anna Joy Drury	21/03/2021 17:00:00	
content			
Page 15: Inserted	Anna Joy Drury	10/05/2021 13:59:00	
After 3.3 Ma, t			
Page 15: Deleted	Anna Joy Drury	10/05/2021 13:59:00	
Т			
Page 15: Deleted	Anna Joy Drury	10/05/2021 13:59:00	
after 3.3 Ma			
Page 15: Inserted	Anna Joy Drury	21/03/2021 17:02:00	
s			
Page 15: Deleted	Anna Joy Drury	24/05/2021 20:56:00	
6			
Page 15: Inserted	Anna Joy Drury	24/05/2021 20:56:00	
5			
Page 15: Inserted	Anna Joy Drury	05/05/2021 15:11:00	
at nearby Site 1267, whe	re it is		
Page 15: Deleted	Anna Joy Drury	05/05/2021 15:11:00	
at nearby Site 1267			
Page 15: Inserted	Anna Joy Drury	12/05/2021 17:02:00	
Alternatively, winnowing	g may have obscur	ed some of the cyclicity at Site 1264, considering the indication that both	
Sites 1264 and 525 (both	~2.4-2.5 km water	depth) were affected by winnowing in the late Pliocene-early Pleistocene.	
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:02:00	
However			
Page 15: Commented [AJD1] Anna Joy Drury 05/05/2021 15:18:00			
Improve sentence link.			
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:02:00	

Nonetheless		
Page 15: Inserted	Anna Joy Drury	24/05/2021 18:39:00
~110		
Page 15: Deleted	Anna Joy Drury	24/05/2021 18:39:00
100		
Page 15: Deleted	Anna Joy Drury	24/05/2021 20:57:00
6		
Page 15: Inserted	Anna Joy Drury	24/05/2021 20:57:00
5		
Page 15: Deleted	Anna Joy Drury	12/05/2021 12:40:00
has been seen		
Page 15: Inserted	Anna Joy Drury	24/05/2021 18:39:00
~110		
Page 15: Deleted	Anna Joy Drury	24/05/2021 18:39:00
100		
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:05:00
6.0		
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:05:00
5.3		
Page 15: Deleted	Anna Joy Drury	24/05/2021 20:47:00
5		
Page 15: Inserted	Anna Joy Drury	24/05/2021 20:47:00
4		
Page 15: Deleted	Anna Joy Drury	29/05/2021 14:32:00
9		
Page 15: Inserted	Anna Joy Drury	29/05/2021 14:32:00
11		
Page 15: Deleted	Anna Joy Drury	12/05/2021 12:40:00
at		
Page 15: Inserted	Anna Joy Drury	12/05/2021 12:40:00
to		
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:05:00
Plio		

Page 15: Inserted	Anna Joy Drury	10/05/2021 14:05:00
late Miocene		
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:05:00
and		
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:05:00
compared to		
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:06:00
on ~110 kyr periodicitie	25	
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:06:00
seen		
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:06:00
observed		
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:10:00
Considering the three p	hases with distinctly	y different orbital controls on CaCO3 deposition at Site 1264,
Page 15: Inserted	Anna Joy Drury	10/05/2021 14:10:00
I		
Page 15: Deleted	Anna Joy Drury	10/05/2021 14:10:00
i		
Page 16: Inserted	Anna Joy Drury	05/05/2021 15:19:00
, with Northern hemisph	here high-latitude pr	rocesses steadily growing in importance in the latest Miocene
Page 16: Inserted	Anna Joy Drury	11/05/2021 15:44:00
; De Vleeschouwer et a	ıl., 2020	
Page 16: Deleted	Anna Joy Drury	11/05/2021 14:37:00
icehouse		
Page 16: Deleted	Anna Joy Drury	29/05/2021 17:40:00
s		
Page 16: Inserted	Anna Joy Drury	24/05/2021 18:44:00
yet		
Page 16: Deleted	Anna Joy Drury	12/05/2021 12:41:00
at Site 1264		
Page 16: Deleted	Anna Joy Drury	10/05/2021 16:37:00
, which display strong ~	110 kyr eccentricity	y pacing,
Page 16: Deleted	Anna Joy Drury	10/05/2021 16:37:00
CaCO ₃		

Page 16: Deleted	Anna Joy Drury	24/05/2021 20:57:00
6C		
Page 16: Inserted	Anna Joy Drury	24/05/2021 20:57:00
5C		
Page 16: Deleted	Anna Joy Drury	10/05/2021 18:04:00
Little change in		
Page 16: Inserted	Anna Joy Drury	10/05/2021 18:04:00
Low		
Page 16: Inserted	Anna Joy Drury	10/05/2021 14:15:00
The low detrital MARs	at Site 1264 (avera	ge 0.09 g/cm ² /kyr) are comparable to the non-carbonate MARs of nearby
sites drilled during Leg	74, particularly DSI	DP Site 525 (Shackleton et al., 1984). Dilution was therefore not the main
driving factor of		
driving factor of		
Page 16: Deleted	Anna Joy Drury	10/05/2021 16:34:00
Т		
Page 16: Inserted	Anna Joy Drury	10/05/2021 16:34:00
t		
Page 16: Deleted	Anna Joy Drury	10/05/2021 16:33:00
se		
Page 16: Incorted	Anna Joy Druny	10/05/2021 16:22:00
early-mid Miocene	Anna Joy Diary	10/05/2021 10:55:00
carry man modelic		
Page 16: Inserted	Anna Joy Drury	10/05/2021 16:34:00
at Site 1264.		
Page 16: Inserted	Anna Joy Drury	10/05/2021 16:34:00
Winnowing could have	removed the <63 μm	fraction at Site 1264 (Fig 5); however, such winnowing also tends to remove
both small CaCO3 and	detrital particles, ult	imately raising the overall CaCO3 content but lowering the CaCO3 MAR
Monoantonio at al. 201	 A 109/ in analysis 	in the mercant >67 upp against function (9/CE) offer 18 5 Ma (Eig 5)
warcantonio et al., 201	+j. A 10% increase	in the percent ~05 µm coarse fraction (%CF) after ~18.5 Ma (Fig 5;

 Page 16: Inserted
 Anna Joy Drury
 10/05/2021 16:45:00

 Licbrand et al., 2016) indicates some winnowing occurred. However, between 18.5 and 8 Ma, the Site 1264 %CF varies within a 5% range, but never increases to the high %CF values seen in the Plio-Pleistocene (Fig 5; Keating-Bliothi and Peters, 2019). This

Page 16: Deleted	Anna Joy Drury	10/05/2021 17:03:00
therefore		

Page 16: Inserted	Anna Joy Drury	10/05/2021 17:04:00
s		

Page 16: Inserted	Anna Joy Drury	10/05/2021 17:04:00
and/		
Page 16: Inserted	Anna Joy Drury	10/05/2021 17:04:00
likely also drove the e	arly-mid Miocene lo	w CaCO3 content
Page 17: Deleted	Anna Joy Drury	10/05/2021 17:04:00
, rather than dilution		
Page 17: Inserted	Anna Joy Drury	10/05/2021 17:05:00
An increase of B/Ca co	oncentration at Sites 1	264 and 1266 after 15.5 Ma (Kender et al., 2014) indicates that dissolution
influenced the early-m	id Miocene low CaC	O3 content at Site 1264.
Page 17: Inserted	Anna Joy Drury	10/05/2021 14:55:00
Page 17: Deleted	Anna Joy Drury	10/05/2021 15:02:00
especially		
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:02:00
\$		
Page 17: Deleted	Anna Joy Drury	24/05/2021 20:57:00
6		
Page 17: Inserted	Anna Joy Drury	24/05/2021 20:57:00
5		
Page 17: Deleted	Anna Joy Drury	10/05/2021 15:02:00
(DSDP 574; IODP U1:	335-U1338)	
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:02:00
; DSDP Site 574; IODI	P Sites U1335-U133	8
Page 17: Deleted	Anna Joy Drury	10/05/2021 15:03:00
and		
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:03:00
before		
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:24:00
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:26:00

 Page 17: Inserted
 Anna Joy Drury
 10/05/2021 15:26:600

 This dissolution horizon has been traced regionally across the equatorial Pacific as the "Lavender" seismic unconformity, with the dissolution potentially linked to the intensification of proto-NADW formation leading to increased corrosive Antarctic Bottom Water (AABW) reaching the Pacific (Mayer et al., 1985). This hypothesis could not be tested at the time due to the absence of any comparable Atlantic carbonate records. However, the new evidence

of low %CaCO₃ and CaCO₃ MARs at Site 1264 in the Southeast Atlantic indicates that dissolution occurred in the Atlantic and the Pacific during the early to mid-Miocene. Increased dissolution across ocean basins indicates a global forcing, supporting suggestions that t

Page 17: Deleted	Anna Joy Drury	10/05/2021 17:13:00
Т		
Page 17: Inserted	Anna Joy Drury	10/05/2021 17:13:00
seen in the Pacific		
Page 17: Deleted	Anna Joy Drury	10/05/2021 17:13:00
hae been		
nas occii		
Dama 17: Incented	Anna Jau Davas	10/05/2021 17:12:00
Page 17: Inserted	Anna Joy Drury	10/05/2021 17:13:00
was		
Page 17: Inserted	Anna Joy Drury	10/05/2021 15:17:00
Page 17: Inserted	Anna Joy Drury	10/05/2021 17:16:00
is dissolution driven (e.g.	, see also (Kender	et al., 2014), rather than reflecting a decrease
Page 17: Deleted	Anna Joy Drury	10/05/2021 17:22:00
(
`		
Page 17: Deleted	Anna Joy Drury	10/05/2021 17:17:00
also reflect increased carb	onate dissolution	rather than a reduction
also reflect mercased cart	sonate dissolution	ration than a reduction
Dama 17: Dalahad	Anna Jau Davas	12/05/2021 12:45:00
Page 17: Deleted	Anna Joy Drury	12/05/2021 12:45:00
may		
Page 17: Inserted	Anna Joy Drury	29/05/2021 17:53:00
6A, B and		
Page 17: Inserted	Anna Joy Drury	24/05/2021 13:20:00
of		
Page 17: Inserted	Anna Joy Drury	24/05/2021 20:57:00
5 and 6B		
Page 17: Deleted	Anna Joy Drury	24/05/2021 20:57:00
6		
v		
Dama 10, Dalahad	Anna Jau Davan	28/05/2021 21-17-00
Page to: Deleted	Anna Joy Drury	20/05/2021 21:17:00
However,		
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:17:00
Т		

Page 18: Deleted	Anna Joy Drury	28/05/2021 21:17:00
t		
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:17:00
e	Anna Soy Brary	10/05/1011 11/100
Page 18: Deleted	Anna Joy Drury	28/05/2021 21:17:00
15		
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:18:00
towards strong precessio	n-pacing	
Page 18: Deleted	Anna Joy Drury	28/05/2021 21:18:00
also		
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:22:00
as carbonate content reco	overs	
		20/05/2001 01 00 00
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:22:00
Page 18: Deleted	Anna Joy Drury	28/05/2021 21:22:00
, which is characterised a	at	
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:22:00
likely experienced increa	ased carbonate dep	osition during the MCO as indicated
Page 18: Deleted	Anna Joy Drury	28/05/2021 21:23:00
Page 18: Inserted	Anna Joy Drury	28/05/2021 21:23:00
between 18.5-14.4 Ma		
Page 18: Deleted	Anna Joy Drury	28/05/2021 21:23:00
that may also be indicati	ve of increased car	bonate dissolution
Page 18: Deleted	Anna Joy Drury	10/05/2021 17:25:00
If dissolution is the dom	inant control on Ca	CO3 content at Site 1264,
Page 19: Incorted	Anno Joy Druny	10/05/2021 17:24:00
T	Anna 30y Drury	10/03/2021 17.24.00
Page 18: Deleted	Anna Joy Drury	10/05/2021 17:24:00
t		
Page 18: Deleted	Anna Joy Drury	10/05/2021 17:29:00
cooler,		
Page 18: Inserted	Anna Joy Drury	10/05/2021 17:29:00

which is supported by the increase in B/Ca at Sites 1264 and 1266 (Kender et al., 2014). This deep-water change would have enabled

Page 18: Deleted	Anna Joy Drury	10/05/2021 17:30:00	
allowing for the			
Page 18: Deleted	Anna Joy Drury	10/05/2021 17:28:00	
than			
Page 18: Inserted	Anna Joy Drury	10/05/2021 17:31:00	
after the mMCT compared	d to		
Page 18: Deleted	Anna Joy Drury	10/05/2021 17:28:00	
during			
Page 18: Inserted	Anna Joy Drury	10/05/2021 17:28:00	
early-			
Page 18: Deleted	Anna Joy Drury	12/05/2021 11:25:00	
sedimentary and geochem	ical		
Page 18: Deleted	Anna Joy Drury	12/05/2021 11:26:00	
event is referred to as the			
Page 18: Inserted	Anna Joy Drury	24/05/2021 18:52:00	
as defined by			
Page 18: Deleted	Anna Joy Drury	24/05/2021 18:53:00	
and			
Page 18: Inserted	Anna Joy Drury	24/05/2021 18:53:00	
s			
Page 18: Deleted	Anna Joy Drury	24/05/2021 20:58:00	
6			
Page 18: Inserted	Anna Joy Drury	24/05/2021 20:58:00	
5			
Page 18: Deleted	Anna Joy Drury	12/05/2021 11:26:00	
which means			
Page 18: Inserted	Anna Joy Drury	12/05/2021 11:26:00	
so			
Page 19: Deleted	Anna Joy Drury	11/05/2021 14:59:00	
at this time			
Page 19: Inserted	Anna Joy Drury	11/05/2021 14:59:00	
between 7.2-6.6 Ma			

Page 19: Inserted	Anna Joy Drury	24/05/2021 20:58:00
5		
Page 19: Deleted	Anna Joy Drury	24/05/2021 20:58:00
6		
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:00:00
During the latest Mioco	ene-early Pliocene (~	-8-3 Ma), t
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:00:00
Т		
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:33:00
has		
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:33:00
displays		
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:00:00
during the late Miocen	e-early Pliocene	
Page 19: Inserted	Anna Joy Drury	24/05/2021 20:58:00
5		
Page 19: Deleted	Anna Joy Drury	24/05/2021 20:58:00
6		
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:00:00
Specifically,		
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:01:00
Т		
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:01:00
t		
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:01:00
specifically		
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:31:00
Through the mid-late N	fiocene and early Pli	ocene, the LSR at Site 1264 are either similar or higher at Site 1264 (2505
m) relative to deeper Si	ite 1266 (3806 m). Th	ne available %CF and %CaCO3 from Site 1264 also do not display a strong
relationship prior to 8	Ma. This suggests th	hat any winnowing at Site 1264 was minimal and stable for the mid-late
Miocene to early Plioc	ene.	
Page 19: Deleted	Anna Joy Drurv	11/05/2021 15:38:00
This		

Page 19: Inserted	Anna Joy Drury	11/05/2021 15:38:00	
The			
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:34:00	
%CF-%CaCO ₃			
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:35:00	
therefore could			
Page 19: Deleted	Anna Joy Drury	11/05/2021 15:35:00	
S			
Page 19: Inserted	Anna Joy Drury	24/05/2021 20:58:00	
5			
Page 19: Deleted	Anna Joy Drury	24/05/2021 20:58:00	
6	,,		
Page 19: Deleted	Anna Joy Drury	28/05/2021 21:26:00	
Conversely,			
Page 19: Inserted	Anna Joy Drury	28/05/2021 21:27:00	
There is evidence for dyn	amic ice sheet act	vity, although	
Page 19: Deleted	Anna Joy Drury	28/05/2021 21:27:00	
relative to those seen mid	Miocene and Plei	stocene, indicating	
Page 19: Inserted	Anna Joy Drury	28/05/2021 21:57:00	
suggesting			
Page 19: Inserted	Anna Joy Drury	28/05/2021 21:57:00	
long-term			
Page 19: Deleted	Anna Joy Drury	28/05/2021 21:58:00	
large			
Page 19: Inserted	Anna Joy Drury	11/05/2021 15:40:00	
, ranner et al., 2020			
Page 20: Inserted	Anna Joy Drury	11/05/2021 15:56:00	
in the Southeast Atlantic			
Page 20: Deleted	Anna Joy Drucy	11/05/2021 15:56:00	
at Site 1264	Anna 55y brury	11,00,2021 10:03:00	
Page 20: Inserted	Anna Joy Drury	24/05/2021 20:58:00	
5			
Page 20: Deleted	Anna Joy Drury	24/05/2021 20:58:00	
(

Page 20: Inserted	Anna Joy Drury	28/05/2021 21:36:00
shortly after 8 Ma		
Page 20: Inserted	Anna Joy Drury	28/05/2021 21:35:00
climate		
Page 20: Incerted	Anna Joy Drury	28/05/2021 21:35:00
, such as increased glac	ial activity and high	-latitude cooling
		ř.
Page 20: Deleted	Anna Joy Drury	28/05/2021 21:36:00
shortly after 8 Ma		
Page 20: Deleted	Anna Joy Drury	28/05/2021 22:05:00
This increased high-lat	itude influence may	be caused by
Page 20: Inserted	Anna Joy Drury	28/05/2021 22:05:00
There is widespread ev	idence that	
Page 20: Deleted	Anna Joy Drugy	28/0E/2021 22-06-00
, which	Anna Joy Drury	20/03/2021 22:00:00
Page 20: Inserted	Anna Joy Drury	28/05/2021 22:06:00
B		
Page 20: Inserted The growing importan	Anna Joy Drury	28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deen-se
Page 20: Inserted The growing importan stable δ ¹³ C and δ ¹⁸ O s	Anna Joy Drury ace of the high-latitu	28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deep-se ase to anti-obse on eccentricity timescales (Kirland Turner, 2014; D
Page 20: Inserted The growing importan stable δ ¹³ C and δ ¹⁸ O s Vleeschouwer et al. 20	Anna Joy Drury ace of the high-latitu witched from in-ph	28/05/2021 21:56:00 ides in the latest Miocene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D minental carbon reservoirs shrithing ultring culd periods due to increase
Page 20: Inserted The growing importan stable δ ¹³ C and δ ¹⁸ O s Vleeschouwer et al., 20 extent of low-carbon A	Anna Joy Drury tee of the high-latitu witched from in-ph (20), as a result of co retic biomes, such a	28/05/2021 21:56:00 ides in the latest Miocene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Tumer, 2014; D mtinental carbon reservoirs shiniking during cold periods due to increase sice sheets, not deserts and tundra Too Velves-choware ral. 2020)
Page 20: Inserted The growing importan stable δ ¹³ C and δ ¹⁸ O s Vleeschouwer et al., 20 extent of low-carbon A	Anna Joy Drury ace of the high-latitu witched from in-ph 120), as a result of cc rctic biomes, such a	28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deep-se ace to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D uttinental carbon reservoirs shrinking during cold periods due to increase s ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020).
Page 20: Inserted The growing important stable δ ¹³ C and δ ¹⁸ O stable Vleeschouwer et al., 20 extent of low-carbon A Page 20: Inserted	Anna Joy Drury tee of the high-latitu witched from in-ph (20), as a result of cc retic biomes, such a Anna Joy Drury	28/05/2021 21:56:00 des in the latest Miccene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D mitnental carbon reservoirs shrinking during cold periods due to increase s ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00
Page 20: Inserted The growing importan stable δ^{13} C and δ^{18} O s Vleeschouwer et al., 20 extent of low-carbon A Page 20: Inserted ,	Anna Joy Drury tee of the high-latitu witched from in-ph (20), as a result of co retic biomes, such a Anna Joy Drury	28/05/2021 21:56:00 ides in the latest Niocene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D nitinental carbon reservoirs shrinking during cold periods due to increase is es heets, polar deserts and tundra (De Vlesschouwer et al., 2020). 28/05/2021 21:38:00
Page 20: Inserted The growing importan stable δ^{13} C and δ^{18} O s Vleeschouwer et al., 20 extent of low-carbon A Page 20: Inserted , Page 20: Inserted	Anna Joy Drury ace of the high-latitu witched from in-ph 120), as a result of co retic biomes, such a Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deep-se act on ant-phase on eccentricity timescales (Kirtland Turner, 2014; D untinental carbon reservoirs shrinking during cold periods due to increase sice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00
Page 20: Inserted The growing importan stable δ^{11} C and δ^{16} O s Vleeschouwer et al., 200 extent of low-carbon A Page 20: Inserted in the latest Miocene	Anna Joy Drury ece of the high-latitu witched from in-ph 20), as a result of co retic biomes, such a Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 des in the latest Miccene is further supported by evidence that deep-se ace to anti-phase on eccentricity timescales (Kirtland Tumer, 2014; E ntinental carbon reservoirs shrinking during cold periods due to increase s ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00
Page 20: Inserted The growing importan table 6 ^{3/C} and 6 ^{3/K} 0 s Vleeschouwer et al., 20 extent of low-carbon A Page 20: Inserted , Page 20: Inserted in the latest Miocene Page 20: Deleted	Anna Joy Drury cce of the high-latitu viitched from in-ph 120), as a result of cc retic biomes, such a Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 28/05/2021 21:56:00 des in the latest Miccene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D minental carbon reservoirs shrinking during cold periods due to increase s ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00
Page 20: Inserted The growing important stable ö ¹¹ C and õ ¹¹ O s Viceschouwer et al., 20 extent of low-carbon A Page 20: Inserted , Page 20: Inserted in the latest Miocene Page 20: Deleted in explaining	Anna Joy Drury see of the high-latit witched from in-ph 20), as a result of ce retic biomes, such a Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D initiantial carbon reservoirs shrinking during cold periods due to increase s ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00 12/05/2021 12:48:00
Page 20: Inserted Table 870 wing important Stable 87C and 670 o Vilesschouwer et al., 20 vilesschouwer et al., 20 vil	Anna Joy Drury cec of the high-latin witched from in-ph 20), as a result of ce 20), as a result of ce Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 des in the Latest Miocene is further supported by evidence that deep-se act onat-phase on eccentricity timescales (Kirtland Turner, 2014; D nutinental carbon reservoirs shrinking during cold periods due to increase sice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00 12/05/2021 12:48:00
Page 20: Inserted The growing important suble 3°C and 3°L os Viceschouwer et al., 20 extent of low-carbon A Page 20: Inserted in the latest Miocene Page 20: Inserted in explaining Page 20: Inserted In explaining	Anna Joy Drury cee of the high-lattic twitched from in-ph 20), as a result of ce retic biomes, such a Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 ides in the latest Miccene is further supported by evidence that deep-sease to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D nutinental carbon reservoirs shrinking during cold periods due to increase si ce sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 12/05/2021 12:48:00
Page 20: Inserted The growing important suble 3 ¹⁰ C and 6 ¹¹ O s VIceschouwer et al., 20 extent of low-carbon A Page 20: Inserted in the latest Miccene Page 20: Inserted in cxplaining Page 20: Inserted to explain	Anna Joy Drury ace of the high-latit witched from in-ph 20), as a result of ce retic biomes, such a Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 28/05/2021 21:56:00 des in the latest Micecen is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D initiantial carbon reservoirs shrinking during cold periods due to increase si ce sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00 12/05/2021 12:48:00
Page 20: Inserted The growing important Stable 5°C and 6°C o Viceschouwer et al., 20 viceschouwer et al., 20 viceschouwer et al., 20 viceschouwer et al., 20 Page 20: Inserted in the latest Miccene Page 20: Inserted in explaining Page 20: Inserted to explain Page 20: Deleted	Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 des in the latest Miocene is further supported by evidence that deep-se act onat-phase on eccentricity timescales (Kirtland Turner, 2014; D nutinental carbon reservoirs shrinking during cold periods due to increase sice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 22:08:00 12/05/2021 12:48:00 12/05/2021 12:48:00
Page 20: Inserted The growing important shok 5°C and 6 ²¹ 0 s viceschouwer et al., 20 viceschouwer et al., 20 vectors of low-carbon A Page 20: Inserted in the latest Miocene Page 20: Inserted in explaining Page 20: Inserted to explain Page 20: Inserted will be	Anna Joy Drury cee of the high-lattic tech of the high-lattic twitched from in-ph 20), as a result of ce retic biomes, such a Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 ides in the latest Miccene is further supported by evidence that deep-se act onat-phase on cocentricity timescales (Kirtland Turner, 2014; D ntinental carbon reservoirs shrinking during cold periods due to increase is ice sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 12/05/2021 12:48:00 12/05/2021 12:48:00 12/05/2021 12:55:00
Page 20: Inserted The growing important she ö ¹⁷ C and õ ¹¹ O s Viceschouwer et al., 20 extent of low-carbon A Page 20: Inserted in caplaining Page 20: Inserted in caplaining Page 20: Inserted to explain Page 20: Deleted will be Page 20: Deleted will be	Anna Joy Drury ce of the high-latifu victhed from in-ph 20), as a result of ce retic biomes, such a Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury Anna Joy Drury	28/05/2021 21:56:00 28/05/2021 21:56:00 des in the latest Miccene is further supported by evidence that deep-se ase to anti-phase on eccentricity timescales (Kirtland Turner, 2014; D initiantial carbon reservoirs shrinking during cold periods due to increase si ce sheets, polar deserts and tundra (De Vleeschouwer et al., 2020). 28/05/2021 21:38:00 28/05/2021 12:48:00 12/05/2021 12:48:00 12/05/2021 12:55:00 12/05/2021 12:55:00

hieve ge 21: Deleted Anna Joy Drury 12/05/2021 12:52:00 m ge 21: Inserted Anna Joy Drury 12/05/2021 12:52:00 ge 21: Deleted Anna Joy Drury 12/05/2021 12:53:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:52:00
gg 21: Deleted Anna Joy Drury 12/05/2021 12:52:00 m gg 21: Inserted Anna Joy Drury 12/05/2021 12:52:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 clocr. gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 1 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 1 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 and fig and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude conling gg 21: Inserted Anna Joy Drury 12/05/2021 12:51:00 and fig and fig and the increased influence of high-latitude processes, such enhanced fig and high-latitude conling gg 21: Inserted Anna Joy Drury 12/05/2021 12:51:0	achieve		
m gg 21: Inserted Anna Joy Drury 12/05/2021 12:52:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 16:09:00 gg 21: Inserted Anna Joy Drury 12/05/2021 16:09:00 olcr, gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:0	Page 21: Deleted	Anna Joy Drury	12/05/2021 12:52:00
gg 21: Inserted Anna Joy Drury 12/05/2021 12:52:00 mcwork gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 c gg 21: Inserted Anna Joy Drury 24/05/2021 18:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 11/05/2021 12:54:00 older, gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 older, gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 mtent ge 22: Inserted Anna Joy Drury 12/05/2021 12:51:00 mthere work will be needed to disentangle global versus regional productivity patterns and explore causal links in cater detail. ge 21: Inserted Anna Joy Drury 24/05/2021 18:54:00 T	aim		
mmework ge 21: Iseleted Anna Joy Drury 12/05/2021 12:53:00 ge anna Joy Drury 24/05/2021 18:53:00 gimning of the ge 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 oler, anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 of of ge 21: Inserted Anna Joy Drury ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:51:00	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:52:00
gg 21: Deleted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 24/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 rtent gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 rtent gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling gg 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 erbareed et ii. gg 22: Deleted Anna Joy	framework		
e ge 21: Inserted Anna Joy Drury 12/05/2021 18:53:00 ginning of the gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 cler, ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 cler cler ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 cler cler cler cler cler cler cler cler	Page 21: Deleted	Anna Joy Drury	12/05/2021 12:53:00
gg 21: Inserted Anna Joy Drury 24/05/2021 18:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 oler.	the		
ginning of the gge 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gge 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 olcr, gge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 22: Inserted Anna Joy Drury 11/05/2021 12:54:00 gge 22: Inserted Anna Joy Drury 11/05/2021 12:54:00 gge 22: Inserted Anna Joy Drury 11/05/2021 12:54:00 gge 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 23: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 24: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 25: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 25: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 25: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 26: Inserted Anna Joy Drury 12/05/2021 12:54:00 gge 27: Inserted Anna Joy Drury 12/05/2021 18:54:00 gge 27: Deleted Anna Joy Drury 12/05/2021 18:54:00 gg	Page 21: Inserted	Anna Joy Drury	24/05/2021 18:53:00
ge 21: Inserted Anna Joy Drury 11/05/2021 12:53:00 ige 21: Inserted Anna Joy Drury 11/05/2021 12:54:00 ige 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ige 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 18:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 18:54:00 ge 21: Drue Anna Joy Drury 12/0	beginning of the		
ge 21: Deleted Anna Joy Drury 11/05/2021 16:09:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ethanced glacial activity and high-latitude cooling ge ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 ethanced glacial activity and high-latitude cooling ge ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 ethanced glacial activity and high-latitude cooling ge ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:53:00
gg 21: Deleted Anna Joy Drury 11/05/2021 16:09:00 oler,	s		
oler, ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:51:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 writer work will be needed to disentangle global versus regional productivity patterns and explore causal links in cater detiil. ge 21: Inserted ge 21: Inserted Anna Joy Drury 12/05/2021 12:51:00 writer work will be needed to disentangle global versus regional productivity patterns and explore causal links in cater detiil. Anna Joy Drury ge 22: Inserted Anna Joy Drury 12/05/2021 18:54:00	Page 21: Deleted	Anna Joy Drury	11/05/2021 16:09:00
gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 entent gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 22: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 22: Inserted Anna Joy Drury 12/05/2021 12:51:00 urther work will be needed to disentangle global versus regional productivity patterns and explore causal links in cater deill. gg 22: Inserted gg 22: Inserted Anna Joy Drury 12/05/2021 12:51:00 urther work will be needed to disentangle global versus regional productivity patterns and explore causal links in cater deill. gg 22: Inserted gg 22: Inserted Anna Joy Drury 24/05/2021 18:54:00 gg 22: Inserted	cooler,		
ading to gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Deleted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 etcol gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 etcol gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 etcol gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 etcol gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:51:00 enhanced glacial activity and high-latitude cooling gg 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 etcol disentangle global versus regional productivity patterns and explore causal links in eater detail. gg 22: Inserted Anna Joy Drury 12/05/2021 18:54:00 ar ar ar Anna Joy Drury 12/05/2021 18:54:00 ar	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:54:00
gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Deleted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 ntent gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 ntent gg 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 16:09:00 which suggests a link between the conset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling gg 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 rther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. gg 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	leading to		
ion of ge 21: Deleted Anna Joy Drury 12/05/2021 12:54:00 g g2 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 intent ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 16:90:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 inther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00 ~	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:54:00
gg 21: Deleted Anna Joy Drury 12/05/2021 12:54:00 gg 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 intent Integration of the state of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling gg 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 inthe work will be needed to disentangle global versus regional productivity patterns and explore causal links in acter deiil. gg 22: Inserted gg 22: Inserted Anna Joy Drury 12/05/2021 12:51:00	ation of		
ge 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 entent ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 11/05/2021 12:54:00 ge 22: Inserted Anna Joy Drury 11/05/2021 12:51:00 with a stage start with a	Page 21: Deleted	Anna Joy Drury	12/05/2021 12:54:00
ge 21: Inserted Anna Joy Drury 12/05/2021 12:53:00 intent ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 irther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	ing		
antant Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 rther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:53:00
ge 21: Inserted Anna Joy Drury 12/05/2021 12:54:00 ge 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 which suggests a link between the omset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 rther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	content		
Anna Joy Drury 11/05/2021 16:09:00 wich suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling	Page 21: Inserted	Anna Joy Drury	12/05/2021 12:54:00
ge 21: Inserted Anna Joy Drury 11/05/2021 16:09:00 which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 urther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted anna Joy Drury 24/05/2021 18:54:00 anna Joy Drury	s		
which suggests a link between the onset of the LMBB and the increased influence of high-latitude processes, such enhanced glacial activity and high-latitude cooling gg 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 Infler work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. gg 22: Inserted Anna Joy Drury 24/05/2021 18:54:00 24/05/2021 18:54:00	Page 21: Inserted	Anna Joy Drury	11/05/2021 16:09:00
enhanced glacial activity and high-latitude cooling ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 Ther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	, which suggests a link	between the onset o	f the LMBB and the increased influence of high-latitude processes, such
ge 22: Deleted Anna Joy Drury 12/05/2021 12:51:00 urther work will be needed to disentangle global versus regional productivity patterns and explore causal links in eater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	as enhanced glacial act	ivity and high-latitud	le cooling
trither work will be needed to disentangle global versus regional productivity patterns and explore causal links in atter detail. 22 Inserted Anna Joy Drury 24/05/2021 18:54:00	Page 22: Deleted	Anna Joy Drury	12/05/2021 12:51:00
cater detail. ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	Further work will be n	eeded to disentangle	global versus regional productivity patterns and explore causal links in
ge 22: Inserted Anna Joy Drury 24/05/2021 18:54:00	greater detail.		
	Page 22: Inserted	Anna Joy Drury	24/05/2021 18:54:00
	LL,		

Page 22: Deleted	Anna Joy Drury	24/05/2021 18:54:00
Page 22: Inserted	Anna Joy Drury	24/05/2021 18:55:00
LL's part of the resear	ch was carried ou	it under the program of the Netherlands Earth System Science Centr
(NESSC), financially su	pported by the Dute	ch Ministry of Education, Culture and Science (OCW).
Page 22: Deleted	Anna Joy Drury	29/05/2021 17:41:00
(tables marked with an '	* are also archived	on PANGAEA)
Page 23: Deleted	Anna Joy Drury	29/05/2021 17:41:00
D		
Page 23: Deleted	Anna Joy Drury	29/05/2021 17:41:00
• 1)		
Page 23: Deleted	Anna Joy Drury	29/05/2021 17:41:00
* D		
Page 23: Deleted	Anna Joy Drury	29/05/2021 17:41:00
*		
1)		
*	Anna Joy Drury	29/05/2021 17:41:00
ŋ		
Page 23: Deleted	Anna Joy Drury	29/05/2021 17:41:00
*		
Page 23: Inserted	Anna Joy Drury	29/05/2021 14:22:00
 Downcore interest 	ercalibrated XRF	data from Site 1264, including ln(Ca/Fe), Si, Fe, K, Ti, and Mn
Page 23: Inserted	Anna Joy Drury	29/05/2021 14:24:00
 Oversized pane 	ls showing depth to	age tie points and age model generation
Page 33: Inserted	Anna Joy Drury	12/05/2021 14:43:00
magnetic susceptibility (
Page 33: Inserted	Anna Joy Drury	12/05/2021 14:43:00
)		
Page 33: Deleted	Anna Joy Drury	29/05/2021 14:34:00
2		
Page 33: Inserted	Anna Joy Drury	29/05/2021 14:34:00
3		
Page 33: Incorted	Anna Joy Drusy	12/05/2021 14:47:00
age 33. Inserted	Anna Joy Drury	11/03/2022 21.17/.00





Page 24: Incorted	Anna Joy Druny	12/05/2021 15:22:00
-	Anna Joy Drury	12/05/2021 13:22:00
-		
Page 24: Deleted	Anna Joy Druny	12/05/2021 15:22:00
respectively	Anna Joy Drury	12/03/2021 13:23:00
, respectively		
Page 34: Inserted	Anna Joy Drury	12/05/2021 15:23:00
bulk =		
Page 34: Deleted	Anna Joy Drury	12/05/2021 15:23:00
and		
Page 34: Inserted	Anna Joy Drury	12/05/2021 15:23:00
; CaCO ₃ = dark		
Page 34: Deleted	Anna Joy Drury	12/05/2021 15:23:00
, respectively		
Page 34: Deleted	Anna Joy Drury	24/05/2021 18:22:00
c		
Page 34: Inserted	Anna Joy Drury	24/05/2021 18:22:00
M		
Page 34: Deleted	Anna Joy Drury	24/05/2021 18:22:00
k		
Page 34: Inserted	Anna Joy Drury	29/05/2021 18:27:00
light		
Page 34: Inserted	Anna Joy Drury	24/05/2021 20:38:00
The depth-domain way	elet spectra are show	n for the %CaCO3 data after it was detrended to remove all cycles greater



The depth-domain wavelet spectra are shown for the %CaCO, data after it was detrended to remove all cycles greater than 2 m (G) or greater than 4 m (B). The periods are highlighted in m. The wavelets were generated using the code from Torrence and Compo (1998) and Grinsted et al. (2004). The approximate stratigraphic location of the MCO and the LMBB are highlighted by shaded grey areas.

Page 34: Deleted Anna Joy Drury 24/05/2021 20:37:00













 Page 37: Inserted
 Anna Jay Drury
 24/05/2021 22:37:00

 Figure 6: Zoomed in panets highlighting the three distinctly different orbital controls on Southeast Atlantic CaCO, deposition. A): Example of strong eccentricity (E) pancing present between 30 and 13 Ma; B) Example of the prevalent eccentricity-modulated precession pacing present between 41 and 8 Ma; C) Example of the prevalent present between 8 and -33 Ma. An example of stronger obliquity appearing in a 2.4 My recentricity minimum, when eccentricity-modulated precession is muted, is also shown in B. CaCO, minima correlate with eccentricity maxima between 30 and 8 Ma (An da B). Between 8 and 9 Ma, CaCO, maxima correlate with obliquity maxima (C).



Page 38: Inserted Anna Joy Drury 25/05/2021 14:16:00





4.0 Age (Ma

