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Supporting Information for

The deep-water oxygenation changes in the South China Sea since the last glacial period

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Introduction

The supporting information provides four figures and one table, among which Figure S1 shows the ^{14}C age-depth model of B9; Figure S2 shows one vertical dissolved oxygenation profile and the Mn enrichment in surface sediments in the southern SCS; Figure S3 shows all paleo-proxy records of core B9; and Figure S4 shows the vertical profiles of *C. wuellerstorfi* $\delta^{13}C$ for four periods in the southern South China Sea.

Table S1 provides the ^{14}C-AMS dates of core B9; Tables Set S1 provides the oxygen and carbon isotope on *C. wuellerstorfi* and elemental data of B9; and the references cited in the supplementary materials are listed in the end.

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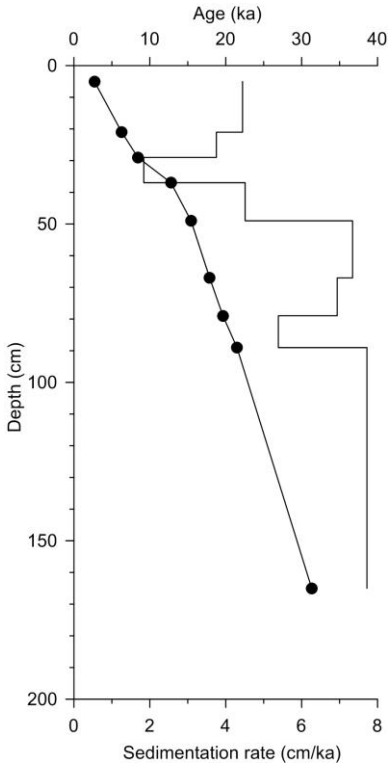

Figure **S1**. ^{14}C Age-depth model of core B9 and the estimated sedimentation rates.

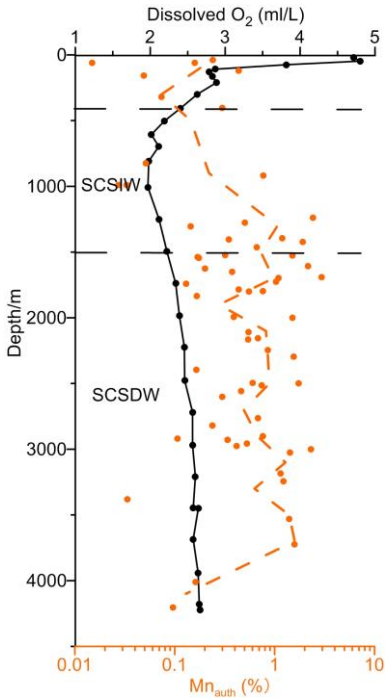

Figure S2: The vertical dissolved oxygen profile at station PA-11 (15°22'N, 115°17'E) in the central South China Sea (SCS) (Alibo & Nozaki, 2000). Mn in surface sediments in the southern SCS shows an obvious enrichment within the SCSDW than that of the SCSIW. Raw Mn data of surface sediments are from Calvert et al. (1993) and Miao (personal communication). The Mn_{auth} Concentration was calculated using the same formula outlined in the text.

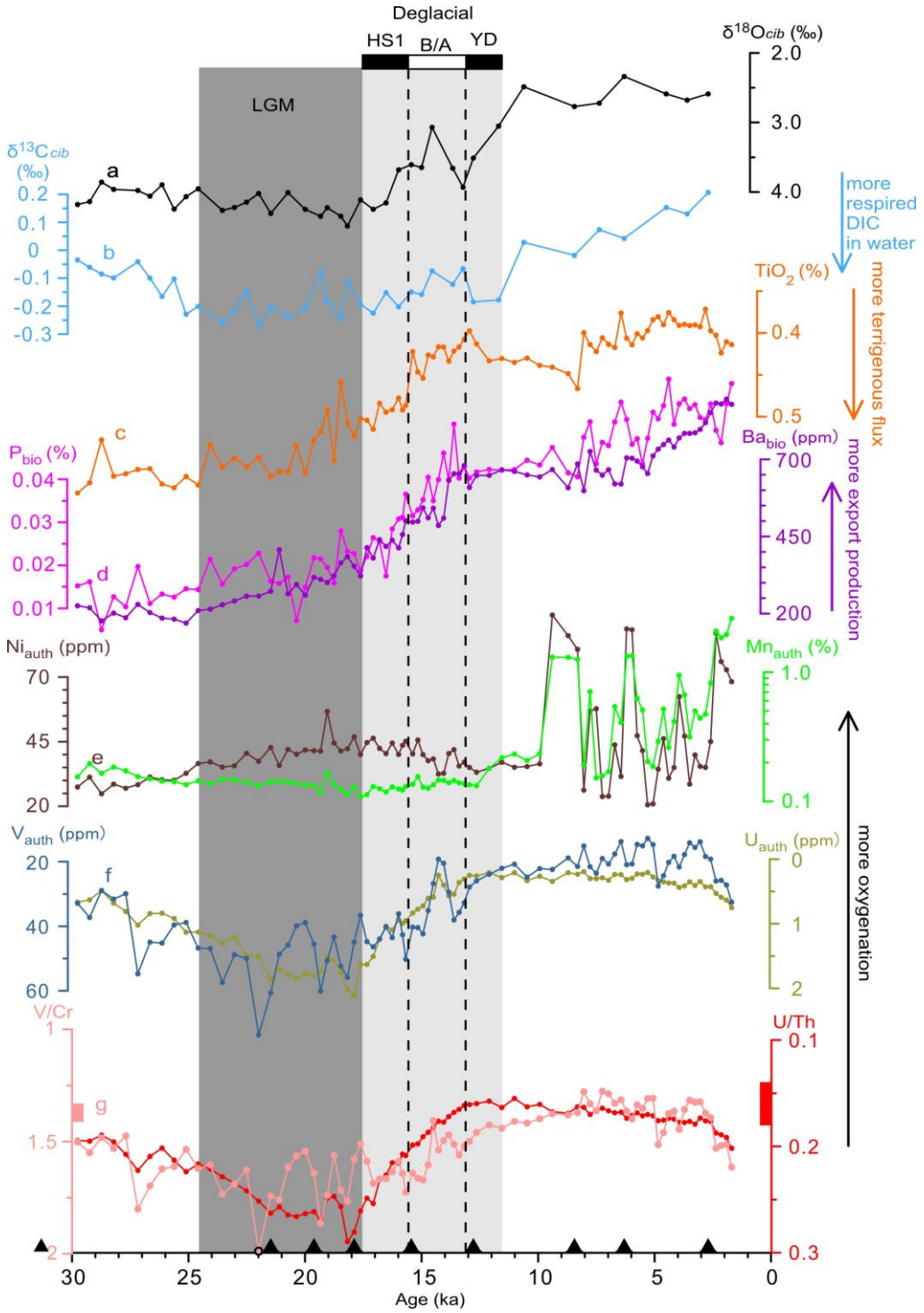

Figure S3: Paleo-proxy records of cores B9 showing proxies for the dissolved inorganic carbon concentration, benthic redox conditions and marine productivity during the last 30 ka. (a and b) $\delta^{18}O$ and $\delta^{13}C$ on *C. wuellerstorfi*, c) TiO_2, d) biogenic Ba and P, e) authigenic Mn and Ni, f) authigenic U and V and g) U/Th and V/Cr. The U/Th and V/Cr values of terrigenous sediment are marked by bars on the y-axis. The Last Glacial Maximum (LGM) and the deglacial period, including the Heinrich Stadial 1 (HS1), Younger Dryas (YD), and Bølling/Allerød Interstadial (B/A) are highlighted by gray vertical bars.

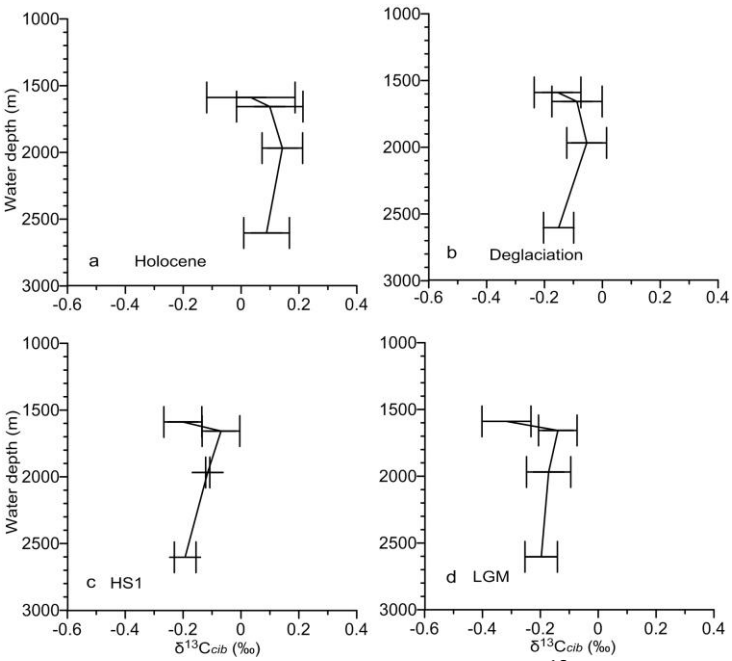

Figure S4: The vertical profiles of benthic foraminiferal $\delta^{13}C$ for four periods using four cores in southern SCS from 1589 m to 2603 m water depth. GIK17961 (Wang et al., 1999); MD97-2151 (Wei et al., 2006); MD05-2896 (Wan & Jian, 2014); and B9 (this study).

Table S1

Planktonic Foraminiferal ^{14}C-AMS Dates of Core B9

Lab ID	Depth (cm)	Foraminiferal Species	Uncorrected ^{14}C age (yr.) ±σ	Cal yr. BP 1σ range
Beta447279	4-6	*G. sacculifer*	2,910±30	2,703/+29-24
Beta483272	20-22	*G. sacculifer*	5,890±30	6,306/+35-38
Beta451314	28-30	*G. sacculifer*	7,880±40	8,437/+38-36
Beta483273	36-38	*G. sacculifer*	11,320±30	12,778/+57-64
Beta445387	48-50	*G. sacculifer*	13,330±40	15,438/+101-117
Beta487832	66-68	*G. sacculifer* mixed with *G. ruber*	15,100±40	17,890/+86-75
Beta483275	78-80	*G. sacculifer*	16,660±40	19,620/+71-90
Beta445388	88-90	*G. sacculifer*	18,140±60	21,476/+120-124
Beta445389	164-166	*G. sacculifer* mixed with *G. ruber*	27,930±130	31,319/+104-110

Data Set S1: Benthic foraminiferal *C. wuellerstorfi* $\delta^{18}O$ and $\delta^{13}C$ and elemental data of core B9.

References

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