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## Upper-ocean stratification of the NE South China Sea during the last 35 ka: Implications from oxygen isotope records from planktonic foraminifera

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The sedimentation rate in the northeastern South China Sea (SCS) is high and it therefore offers an opportunity for a high-resolution paleoceanographic study. This study is based on high-resolution AMS <sup>14</sup>C dating on forams and oxygen isotope data of two planktonic foraminifera species (*Globigerinoides ruber* and *Neogloboquadrina dutertrei*) from the sediment core, MD18-3568, collected from the northeastern SCS, to reconstruct upper-ocean stratification since 35 ka.

The marine sediment core MD18-3568 is located on the accretionary wedge off SW Taiwan at a water depth of 1,315 m, the whole core is dominated by hemipelagic sediments and is of 20.7 m in length. Samples for AMS <sup>14</sup>C dating were selected at roughly 2 ka interval with a total of 16 samples. The ages show a continuously younging-upward trend with bottom of this core around 35,000 years BP. Samples for high-resolution oxygen isotope measurements were selected at a nominal 500-year age interval. The difference in  $\delta^{18}\text{O}$  between *G. ruber* (mixed layer dwelling species) and *N. dutertrei* (thermocline dwelling species) is used to reconstruct the upper ocean stratification with large difference indicating significant ocean stratification and vice versa. The results show moderate upper ocean stratification during 35-24 ka, and it became less stratified during the Last Glacial Maximum (LGM, 23-19 ka). During the deglacial stage, the stratification gradually became stronger until the early Holocene (12-9 ka), and it has kept strong upper-ocean stratification since 9 ka. Literature has documented less rainfall intensity during the LGM and heavy rainfall during the Holocene in southern Taiwan. We interpret the upper-ocean stratification in the NE South China Sea near Taiwan is linked to the amount of freshwater inputs from Taiwan. Less Taiwan freshwater input during the LGM led to a weak stratified upper ocean and a large amount of freshwater input from Taiwan led to a strong upper-ocean stratification during the Holocene.