Indonesian Throughflow variability through the Makassar Strait during the last glacial cycle

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To reconstruct climate variability and changes in the intensity of the Indonesian Throughflow (ITF), we generated proxy data of terrigenous flux, sea surface hydrography and bottom current intensity in sediment Core SO217-18526 (3°36.875' S, 118°10.013' E, water depth: 1524 m), recovered from the Makassar Strait in 2011. The preliminary age model for this core is currently based on six AMS radiocarbon dates, measured in the surface dwelling planktonic foraminifer *Globigerinoides ruber*, with a marine reservoir correction of 400 years. The doubling of the sedimentation rate from the LGM to the Holocene most likely reflects regional changes in terrigenous supply, related to monsoonal precipitation intensity.
Combined oxygen isotope and Mg/Ca measurements of *G. ruber* show a decrease in $\delta^{18}O$ values of 1.5‰ and a sea surface temperature increase of 3-4 °C between the Last Glacial Maximum (LGM) and the Holocene. We attribute the prominent surface freshening at ~10 ka to the opening of the shallow seaway connection with the South China Sea. The "Sortable Silt Mean" as proxy of bottom current intensity, measured by laser diffraction grain size analysis, exhibits a sudden increase at ~ 7 ka, probably related to intensification of the ITF. X-ray fluorescence scanning measurements additionally suggest an increase in grain size at about 7 ka, supporting sortable silt data. In contrast, we relate relatively high LGM values to higher input of coarse grained material from a more proximal source during the prolonged LGM sea level lowstand.