Spatial variability of radiocarbon content in organic carbon of surface sediment offshore eastern Taiwan

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A large amount of pre-aged organic carbon (OC) exported from rivers of eastern Taiwan to the ocean has been reported before [1], but the distribution and the composition of these pre-aged organic matters after transportation and deposition on the seafloor still remain ambiguous. Here we report the results of the abundance, the radiocarbon content, stable carbon and nitrogen isotopes of OC, and the surface area of 12 surface (0-1 cm) sediment samples collected from eastern Taiwan offshore during the MD214/EAGER cruise in June 2018. The radiocarbon content and stable isotopes of OC in the finer fraction (<63μm) of surface sediments show spatial variability, with more terrestrial contribution ($\delta^{13}C$=-22.4‰ ~ -23.0‰, $\delta^{15}N$=3.0‰ ~ 3.8‰) and older OC ($\Delta^{14}C$=-721‰ ~ -854‰) in the Huatung Basin and the Nanao Basin, and relatively younger OC ($\Delta^{14}C$=-854‰ ~ -780‰) and more marine contribution ($\delta^{13}C$=-21.6‰ ~ -21.9‰, $\delta^{15}N$=3.9‰ ~ 4.9‰) on the Ryukyu accretionary prism and in the Hateruma Basin. Compared with the finer fraction, the preservation of OC in the coarser fraction (>63μm) is more sensitive to the transport process [2]. Thus, in order to understand the mechanism of terrestrial OC burial at eastern Taiwan offshore, the comparable analyses for coarser fractions will be incorporated later.

[1] Hilton *et al*. (2011) *Geology*, **39**, 71-74. [2] Bao *et al*. (2019) *Earth Planet. Sci. Lett.*, **505**, 76-85.