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Depositional environment changes during the last 20000 years based on carbon and nitrogen around the Okinawa Island

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In order to reconstructing the depositional process after last glacial maximum (LGM), we collected two gravity cores located in the eastern (GH08-2004) and western (GH10-2013) area of Okinawa Island and analyzed Total organic carbon (TOC), Total nitrogen (TN), Total inorganic carbon (TIC), ratio of TOC and TN (C/N ratio). TOC and TN of GH08-2004 show increases toward 14000 cal BP from 26000 cal BP and then decreases toward 7000 cal BP. C/N ratio shows a decrease toward 7000 cal BP from 14000 cal BP. TIC decrease between 8000-12000 cal BP, and then rapidly increase toward 3000 cal BP. While, TOC and TN of GH10-2013 decrease toward 5000 cal BP from 14000 cal BP and then increases toward the present. C/N ratio decrease to 8 from 10 during 9000 to 11000 cal BP and after that, increase toward 9 with frequent variations between 8 and 10. TIC values increase to 5% from 3.5% between 4000 and 8000 cal BP.

Variations in TOC, TN, C/N ratio and TIC indicate that the supply of terrestrial organic matter increased during the sea-level lowstand of LGM and then amount of deposited in calcium carbonate from bioclasts increased accompanying with sea-level rise in a broad way. Increase in C/N ratio of GH10-2013 after 9000 cal BP implies that terrestrial organic matters frequently supplied from surrounding islands.

Keywords: Organic carbon, C/N ratio, Inorganic carbon, sediment, sea-level change, Okinawa