

TITLE: Intermediate-water dynamics and ocean ventilation effects on the Indonesian Throughflow during the past 15,000 years: Ostracod evidence

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ABSTRACT:

Research Article| May 16, 2018 Intermediate-water dynamics and ocean ventilation effects on the Indonesian Throughflow during the past 15,000 years: Ostracod evidence Hokuto Iwatani; Hokuto Iwatani * 1School of Biological Sciences and Swire Institute of Marine Science, The University of Hong Kong, Kadoorie Biological Sciences Building, Pokfulam Road, Hong Kong SAR, China *E-mails: hokuto.iwatani@gmail.com; moriakiyasuhara@gmail.com Search for other works by this author on: GSW Google Scholar Moriaki Yasuhara; Moriaki Yasuhara * 1School of Biological Sciences and Swire Institute of Marine Science, The University of Hong Kong, Kadoorie Biological Sciences Building, Pokfulam Road, Hong Kong SAR, China *E-mails: hokuto.iwatani@gmail.com; moriakiyasuhara@gmail.com Search for other works by this author on: GSW Google Scholar Yair Rosenthal; Yair Rosenthal 2Institute of Marine and Coastal Sciences, and Department of Geology, Rutgers, The State University of New Jersey, 71 Dudley Road, New Brunswick, New Jersey 08901, USA Search for other works by this author on: GSW Google Scholar Braddock K. Linsley Braddock K. Linsley 3Lamont-Doherty Earth Observatory of Columbia University, 61 Route 9W, Palisades, New York 10964, USA Search for other works by this author on: GSW Google Scholar Geology (2018) 46 (6): 567?570. <https://doi.org/10.1130/G40177.1> Article history received: 19 Oct 2017 rev-recd: 18 Apr 2018 accepted: 19 Apr 2018 first online: 16 May 2018 Cite View This Citation Add to Citation Manager Share Icon Share Facebook Twitter LinkedIn MailTo Tools Icon Tools Get Permissions Search Site Citation Hokuto Iwatani, Moriaki Yasuhara, Yair Rosenthal, Braddock K. Linsley; Intermediate-water dynamics and ocean ventilation effects on the Indonesian Throughflow during the past 15,000 years: Ostracod evidence. Geology 2018;; 46 (6): 567?570. doi: <https://doi.org/10.1130/G40177.1> Download citation file: Ris (Zotero) Refmanager EasyBib Bookends Mendeley Papers EndNote RefWorks BibTex toolbar search Search Dropdown Menu toolbar search search input Search input auto suggest filter your search All ContentBy SocietyGeology Search Advanced Search Abstract The Indonesian Throughflow (ITF) is thought to influence thermohaline circulation dynamics and is important for understanding global climate and the marine ecosystem. The physical and chemical properties of North Pacific Intermediate Water (NPIW) and the underlying deep water incorporated into the ITF appear to be the result of climate-related preconditioning in the North and South Pacific. Thus, these high-latitude source waters play an important role in the Indo-Pacific oceanography. Here, we present the results of down-core faunal analyses of fossil ostracods (Crustacea) that we argue reflect NPIW variability in the central part of the Makassar Strait in the ITF over the past 15 k.y. The results show that the warm-water and low-oxygen?water fauna, and species diversity, rapidly increased at ca. 12 ka, reaching maxima during the Younger Dryas (YD). We interpret the faunal change and the diversity maximum at ca. 12 ka as a response to the stagnation of intermediate water due to the decline in ITF intensity during the YD. After ca. 7 ka, the ostracod faunal composition clearly changed from a relatively shallower, warmer, and low-oxygen fauna to a relatively deeper, colder, and high-oxygen fauna. Our interpretation is that the ostracod fauna was responding to the deglacial?early Holocene sea-level rise and the ventilation variations due to the mixing of the NPIW and the underlying deep water. The intermediate-water environment and the ecosystem in the ITF could have been driven by the intensification of the influence of the underlying deep water, caused by changes in the southern high-latitude source due to the latitudinal displacements of the southwesterly winds. You do not have access to this content, please speak to your institutional administrator if you feel you should have access.

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