

Publication**A mid-Holocene transition in the nitrogen dynamics of the western equatorial Pacific : evidence of a deepening thermocline?****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 57322**Author(s)** Kienast, M.; Lehmann, M. F.; Timmermann, A.; Galbraith, E.; Bolliet, T.; Holbourn, A.; Normandeau, C.; Laj, C.**Author(s) at UniBasel** [Lehmann, Moritz](#) ;**Year** 2008**Title** A mid-Holocene transition in the nitrogen dynamics of the western equatorial Pacific : evidence of a deepening thermocline?**Journal** Geophysical research letters**Volume** 35**Number** 23**Pages / Article-Number**

Sedimentary delta N-15 records from the oligotrophic western equatorial Pacific (WEP) off Mindanao show that late Holocene sedimentary delta N-15 is substantially lower than that of the early Holocene, following a gradual >3 parts per thousand decrease that occurred between 7 and 3 kyrs ago. Analyses of modern day nitrate isotope profiles from the same region indicate the sensitivity of the WEP N pools towards (1) the advection of N-15-enriched nitrate from the Eastern Equatorial Pacific (EEP) by the North Equatorial Current (NEC) and the Mindanao Current in subsurface waters and, (2) at shallow depths, the input of new and N-15-depleted nitrate through N₂ fixation. We suggest that the Holocene decrease in sedimentary delta N-15 reflects a diminished relative input of N-15-enriched nitrate to the surface biota, either through an increase of regional nitrogen fixation, a change in nitrate consumption along the advective path of nitrate supply, or a decrease in the vertical supply of N-15-enriched nitrate from the NEC. The latter mechanism is consistent with a Holocene deepening of the WEP nitracline/thermocline. Citation: Kienast, M., M. F. Lehmann, A. Timmermann, E. Galbraith, T. Bolliet, A. Holbourn, C. Normandeau, and C. Laj (2008), A mid-Holocene transition in the nitrogen dynamics of the western equatorial Pacific: Evidence of a deepening thermocline?, Geophys. Res. Lett., 35, L23610, doi: 10.1029/2008GL035464.

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