Geophysical Research Abstracts, Vol. 9, 08615, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-08615

Nitrous oxide in the Costa Rica Dome area (eastern tropical North Pacific Ocean)

H.W. Bange (1) and S. Walter (1,2)

(1) Forschungsbereich Marine Biogeochemie, IFM-GEOMAR, Kiel, Germany (hbange@ifm-geomar.de) (2) now at Institute for Marine and Atmospheric Research, Utrecht, The Netherlands (s.walter@phys.uu.nl)

Dissolved nitrous oxide (N_2O) and were measured at 4 stations in the Costa Rica Dome area (eastern tropical North Pacific Ocean) during the R/V Sonne cruise 173/3 (September 2003). The Costa Rica Dome area is characterised by a pronounced suboxic layer in intermediate water depths (200-800m) comparable to the central suboxic zone of the Arabian Sea. The water column distribution of nitrous oxide showed two pronounced peaks (up two 45 nmol L^{-1}) at 200m and 700m, whereas in the core of the suboxic layer (400m) nitrous oxide was significantly depleted. The breakdown of the linear ΔN_2O/AOU relationships in the suboxic layers indicate that nitrous oxide was consumed, probably by denitrification.