

**Auxiliary Material for
Vertical oxygen minimum zone oscillations since 20 ka in Santa Barbara Basin:
A benthic foraminiferal community perspective**

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Paleoceanography

Introduction

This data set contains text details regarding the radiocarbon and isotopic chronology of cores MV0811-15JC, MD02-2503 and MD02-2504. Age model generation, isotopic tie points and the resulting sedimentation rates are enumerated (Text01.txt)

Additionally, the data also include four supplementary figures (FS01.PDF, FS02.PDF, FSO3.PDF, FS04.PDF) and associated figure labels.

Text01.txt Chronology and Age Model Generation

FS01.PDF Histogram of benthic foraminiferal densities (individuals cm⁻³) by percent of sediment samples for cores MV0811-15JC, MD02-2504 and MD02-2503. Densities are sorted from smallest to largest and depict the range of densities across all samples.

FS02.PDF Benthic foraminiferal species log density (individuals cm⁻³), Shannon diversity index (H') and Pielou's evenness index (J') for cores MV0811-15JC, MD02-2504 and MD02-2503.

FS03.PDF Schematic diagrams of reconstructed OMZ and basin-enhanced hypoxia fluctuations of Santa Barbara Basin and the California Margin, based upon benthic foraminiferal records from MV0811-15JC, MD02-2504, MD02-2503, and ODP Site 893A [Cannariato et al., 1999] and 1017 [Cannariato and Kennett, 1999]. Schematic shading represents vertical oxygenation regimes during (A) the Holocene, 7 ka, (B) the Younger Dryas, 12.5 ka, (C) the Bolling-Allerod, 14.7 ka, and (D) the Last Glacial Maximum, 18 ka. Deglacial sea level rise (in mbsl, meters below sea level) depicted for each interval as dashed surface line; sea level change estimated from concatenated eustatic sea level curves [Fleming et al., 1998; Milne et al., 2005].

FS04.PDF Santa Barbara Basin oxygen profile with schematic diagrams of foraminiferal markers species and their oxygenation affiliation, along with foraminiferal and metazoan community structure metrics. O₂ profile (Dissolved Oxygen ml L⁻³; Station 31.3 41.9) from California Cooperative Oceanic Fisheries Investigations (CALCOFI) Cruise 1104, Spring 2011. Foraminiferal marker species and placed in association to oxygenation categories, as cited in Table 2. Foraminiferal diversity, evenness and density and metazoan diversity diagrams follow existing ecological theories, derived from modern observation, on the changing foraminiferal and metazoan community structure through oxygen gradients [Levin et al., 1991; Levin et al., 2000; Levin et al., 2001; Levin, 2003].