

## **Chronology and Age Model Generation**

Radiocarbon dates for MV0811-15JC were analyzed at the Lawrence Livermore National Laboratory Center for Accelerator Mass Spectrometry and calibrated to calendar dates using CALIB (version 6.0) [Stuvier and Reimer, 1993]. Two radiocarbon samples of mixed planktonic Foraminifera were prepared: a combined sample from 0-1 cmbsf (cm below seafloor) and 12-13 cmbsf combined (analyzed as one sample), and a second from 301-303 cmbsf; sediments contained limited numbers of planktonic foraminifera for radiocarbon analyses, so this was the best possible resolution for the age model. A modern SBB regional reservoir correction of  $233 \pm 60$   $^{14}\text{C}$  yr [Ingram and Southon, 1996] was applied (Table 1). The age model is based on linear interpolation between two radiocarbon dates and three oxygen isotope tie-points (782, 602 and 482 cmbsf) to ODP Site 893A [Hendy *et al.*, 2002; Sarnthein *et al.*, 2007] corresponding to the calibrated calendar ages of Termination IA (14.7 ka), the beginning of the Younger Dryas (YD; 12.9 ka) and Termination IB (11.7 ka) (Fig. 2). We modified published age models for MD02-2504 and MD02-2503 [Hill *et al.*, 2006a, 2006b] to include the same three deglacial isotopic tie-points to the well-dated ODP Site 893A record, and linearly interpolated sedimentation rates between tie-points. Deglacial tie-points to core ODP 893A for MD02-2504 were placed at 1863.5, 1493.5 and 1338.5 cmbsf, and for MD02-2503 were placed at 2129.5, 1801.5 and 1576.5 cmbsf, corresponding to Termination IA (14.7 ka), the beginning of the Younger Dryas (12.9 ka) and Termination IB (11.7 ka), respectively.

Interpolated sedimentation rates for MV0811-15JC range from 74.2 cm kyr<sup>-1</sup> in the late Holocene (between two radiocarbon dates, ages 7.4 ka and 3.5 ka), to 42.2 cm kyr<sup>-1</sup> in the early Holocene (between one radiocarbon date and one isotopic tie-point, ages 7.4 ka and 11.7 ka), 100.0 cm kyr<sup>-1</sup> through the YD episode (between two isotopic tie-points, ages 12.9 ka and 11.7 ka) and again 100.0 cm kyr<sup>-1</sup> through the B/A episode (between two isotopic tie-points, ages 14.7 ka and 12.9 ka). Interpolated sedimentation rates for MD02-2504 range from 114.4 cm kyr<sup>-1</sup> (Holocene), 129.2 cm kyr<sup>-1</sup> (YD) to 205.6 cm kyr<sup>-1</sup> (B/A and LGM). Interpolated sedimentation rates for MD02-2503 range from 134.7 cm kyr<sup>-1</sup> (Holocene), 187.5 cm kyr<sup>-1</sup> (YD), 182.2 cm kyr<sup>-1</sup> (B/A), to 142 cm kyr<sup>-1</sup> (LGM). These revised sedimentation rates are similar to previously published rates of ~130 cm kyr<sup>-1</sup> [Hill *et al.*, 2006a, b].