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EDITORIAL COMMENT

Welcome to INTCAL98, the last calibration issue of the present millennium. This 1998 calibration volume is the third of a series published in *RADIOCARBON*, amending and extending the previous issues (28(2B), 1986 and 35(1), 1993). The advisability of publishing a third calibration issue was agreed upon at the 16th International Radiocarbon Conference in Groningen, June 1997, following a thorough review of the existing tree-ring data sets by a working group meeting in Heidelberg in late 1996 (Kromer *et al.* 1996).

Calibration is the conversion of radiocarbon ages (BP) into calibrated ages (cal BC, cal AD, or cal BP). For INTCAL98, we used paired data sets of 1) tree rings dated by ^{14}C and by dendrochronological counting, and 2) corals dated by ^{14}C and uranium-series, as we did in the previous 1993 calibration issue. In both cases, considerably more measurements have become available in the past few years. We present here an INTCAL98 calibration curve based upon tree rings for its more recent segment, and upon corals for its older section. In addition, as an exception to the rule, it was decided to include Late Glacial marine varves because this newly developed data set strengthens the coral/tree-ring link considerably.

Other paired datings (between ^{14}C and other dating methods using, *e.g.*, thermoluminescence, speleothems and various laminated sediments) are not included in INTCAL98. Instead, *RADIOCARBON* has planned a "comparison issue" in the near future that will contain these records. Their future incorporation into the INTCAL data set is foreseen when discrepancies among the records are resolved.

The major revisions here to the dendrochronological calibration involve the German oak chronology from Hohenheim, corrected by intercomparison with the Göttingen dendrochronology. The important record from the floating German Preboreal pine chronology has been extended and shifted with respect to previous publications.

Since the publication of the 1993 calibration issue, there has been some disagreement about which tree-ring data set to use—the 1986 version, which carried the status "recommended" (Mook 1986), or the more recent, but never formally recommended, 1993 version. Some of the corrections applied to the 1986 data and included in 1993 were questioned as reflecting possible local effects. This question has not really been resolved, but we stress here that these effects are very small (15 ^{14}C years or less) and for most practical purposes negligible. (For further details, see the discussion and references in Stuiver *et al.* "INTCAL98 Radiocarbon Age Calibration", in this issue.)

The INTCAL98 data set is decadal, *i.e.* has a time resolution of 10 calendar years, in its tree-ring portion. For certain time spans, higher-resolution data sets are available, such as a 3-yr curve for the 3rd and 4th millennia BC from Pretoria/Groningen and an annual curve for the last three centuries from Seattle. For use of these particular records, we refer to the original publications.

The tree-ring part of the INTCAL 98 data set is based on the ^{14}C determinations of several radiocarbon laboratories. The dendrodated samples for which ^{14}C ages are available do not always overlap between laboratories (Fig. 1).

The new INTCAL98 calibration curve has more detail than the 1993 curve (Fig. 2). This is mainly due to the incorporation of a larger coral and varve data set (corrected for a 500 ^{14}C yr reservoir defi-

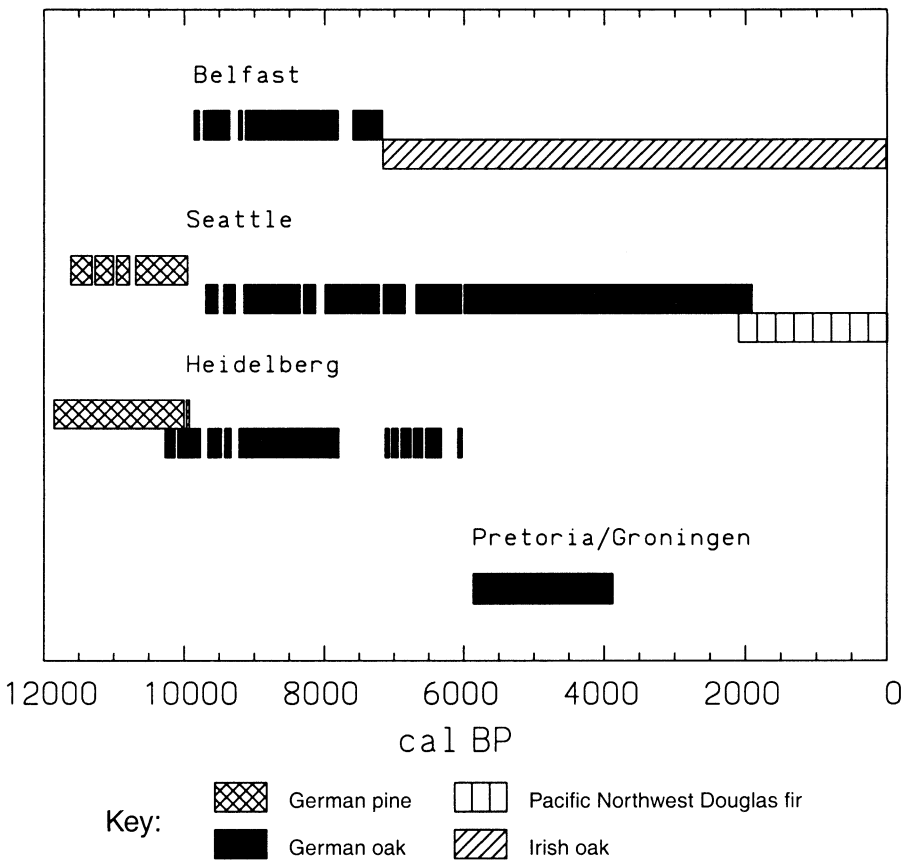

Fig. 1. Age ranges of tree-ring samples used for the construction of the INTCAL98 calibration curve

ciency) for the pre-11,800 cal BP portion. Century-scale shifts of the 11,800–7200 cal BP interval were introduced by the dendrochronological reassessment of the German oak series. The calibration curve differences are limited to a decade, or less, for the 7200–0 cal BP interval.

With all mentioned constraints in mind, the INTCAL98 calibration curve is recommended for general use from now until further notice. Both the data used to generate it and the CALIB computer program can be downloaded *via* the Internet from the Quaternary Isotope Laboratory (QIL) in Seattle, Washington (http://depts.washington.edu/qil/). Calibration programs must be upgraded with the new data set.

We appreciate the efforts of the many researchers who have contributed to the present work, and hope that you will find their results useful.

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Guest editors

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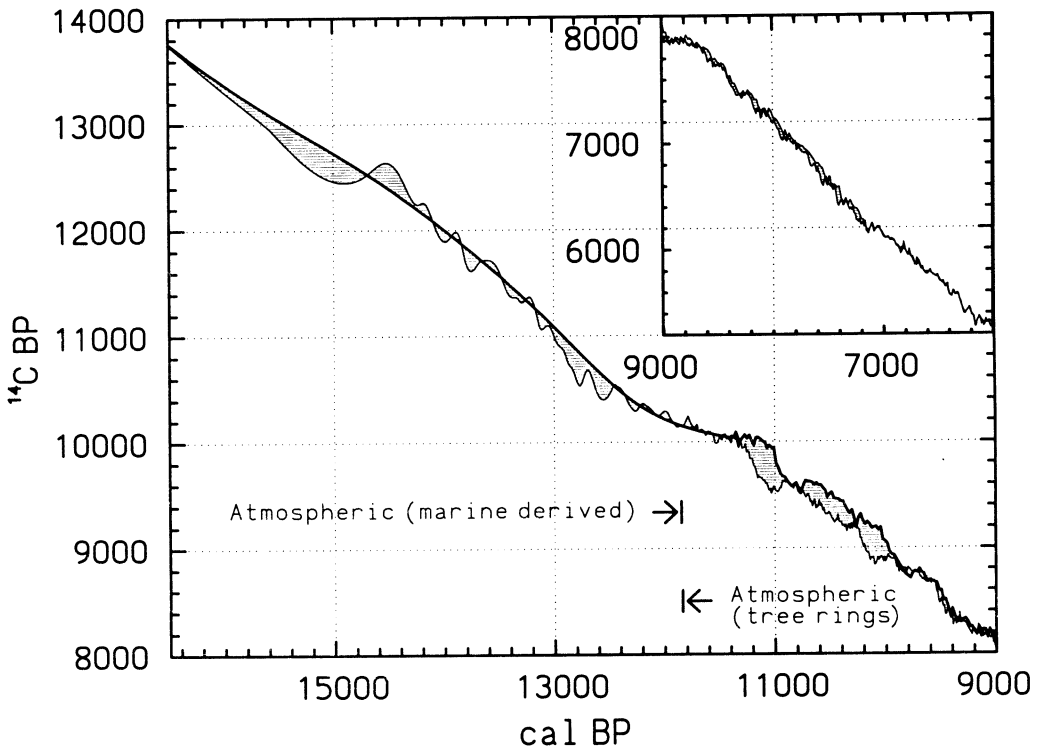

Fig. 2. The new atmospheric INTCAL98 calibration curve, and the "old" curve used since 1993. Prior to 11,800 cal BP the 1993 curve is the smoothest of the two. Given an identical ^{14}C age, the INTCAL98 cal ages are shifted towards the left (older cal BP ages) for the 11,800–7200 cal BP part. Curve differences are minimal (one decade at most) for the 7200–0 cal BP interval.

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