

The data used for IntCal04 construction is given in the file IntCal04_rawdata.csv. A summary of the datasets is given below with references to the original datasets. These are catalogued by the institute where the ^{14}C measurements were made in some cases and in others by the first author on the publications. The datasets are also discussed in more detail in Reimer et al. (2004) and Hughen et al. (2004). The model used for dataset construction is presented in (Buck and Blackwell 2004).

Rather than giving midpoints, the cal ages are given as a starting year with a cal yr span. The cal yr span is equivalent to the number of tree-rings, coral rings or varves in a sample. The cal yr span is an estimate for some of the coral datasets. The ^{14}C age BP is the conventional radiocarbon age as defined by Stuiver and Polach (1977) and has been reservoir corrected for marine samples as discussed in Hughen et al. (2004). The total ^{14}C error is the standard measurement error multiplied by a lab error multiplier (between 1.0 and 2.0) as discussed in Reimer et al. (2004) and Hughen et al. (2004) with the uncertainty in the reservoir correction added in quadrature for marine samples. Lab ID's are given when provided by the investigators. Wiggle match error and varve count error apply to the Cariaco Basin varved sediment record only. Dataset numbers have no relationship to publication date but were assigned somewhat randomly in the database with tree-ring datasets numbering from 1 -7 and marine datasets from 10-15. Observation number is simply a count of the number of observations in a particular dataset.

Summary of IntCal04_rawdata.csv

File format: Starting cal age BP, ^{14}C age BP, total ^{14}C error, cal yr span, cal year uncertainty, Wiggle Match error, Varve Count Error, Lab ID, dataset number, observation number

TREE-RINGS

University of Washington

Tree-rings from Pacific Northwest Douglas fir, Californian Sequoia, Alaskan Sitka Spruce, and from the German Oak and Irish Oak chronologies.

Lab code: QL

Dataset number: 1

Stuiver, M., and Braziunas, T. (1993). Sun, ocean, climate and atmospheric ^{14}C : an evaluation of causal and spectral relationships. *Holocene* 3: 289-305.

Stuiver, M., Reimer, P. J., and Braziunas, T. F. (1998). High-precision radiocarbon age calibration for terrestrial and marine samples. *Radiocarbon* 40:1127-1151.

Stuiver, M., Reimer, P. J., and Braziunas, T. F. (1998). High-precision radiocarbon age calibration for terrestrial and marine samples. *Radiocarbon* 40: 1127-1151.

IntCal04_rawdata.csv includes updates to the calendar age of the German Pine measurements and some reinstated tree-rings from German oaks affected by beetles which previously could not be dendrodated (cf. Friedrich et al., 2004)

Queen's University Belfast

Tree-rings from Irish Oak and German Oak chronologies

Lab code: UB

Dataset number: 2

Pearson, G. W., Pilcher, J. R., Baillie, M. G. L., Corbett, D. M., and Qua, F. (1986). High-Precision C-14 Measurement of Irish Oaks to Show the Natural C-14 Variations from AD 1840 to 5210 BC *Radiocarbon* 28: 911-934.

McCormac, F. G., Hogg, A. G., Higham, T. F. G., Lynch-Stieglitz, J., Broecker, W. S., Baillie, M. G. L., Palmer, J., Xiong, L., Pilcher, J. R., Brown, D., and Hoper, S. T. (1998). Temporal variation in the interhemispheric C-14 offset. *Geophysical Research Letters* 25: 1321-1324.

Hogg, A. G., McCormac, F. G., Higham, T. F. G., Reimer, P. J., Baillie, M. G. L., and Palmer, J. G. (2002). High-precision radiocarbon measurements of contemporaneous tree-ring dated wood from the British Isles and New Zealand: AD 1850-950. *Radiocarbon* 44: 633-640.

McCormac, F. G., Bayliss, A., Baillie, M. G. L., and Brown, D. M. (2004). Radiocarbon calibration in the Anglo-Saxon period: AD 495-725. *Radiocarbon* 46: 1123-1125.

Pearson, G. W., Becker, B., and Qua, F. (1993). High-Precision C-14 Measurement of German and Irish Oaks to Show the Natural C-14 Variations from 7890 to 5000 BC. *Radiocarbon* 35: 93-104.

University of Waikato

Tree-rings from Irish Oak chronology

Lab code: Wk

Dataset number 3

McCormac, F. G., Hogg, A. G., Higham, T. F. G., Lynch-Stieglitz, J., Broecker, W. S., Baillie, M. G. L., Palmer, J., Xiong, L., Pilcher, J. R., Brown, D., and Hoper, S. T. (1998). Temporal variation in the interhemispheric C-14 offset. *Geophysical Research Letters* 25: 1321-1324.

Hogg, A. G., McCormac, F. G., Higham, T. F. G., Reimer, P. J., Baillie, M. G. L., and Palmer, J. G. (2002). High-precision radiocarbon measurements of contemporaneous tree-ring dated wood from the British Isles and New Zealand: AD 1850-950. *Radiocarbon* 44: 633-640.

University of Groningen

Tree-rings from German Oak chronology

Lab Code: GrN

Dataset number: 4

de Jong, A. F. M., Becker, B., and Mook, W. G. (1986). High-precision calibration of the radiocarbon time scale, 3930-3230 cal BC. *Radiocarbon* 28: 939-941.

de Jong, A. F. M., Becker, B., and Mook, W. G. (1989). Corrected calibration of the radiocarbon time scale. *Radiocarbon* 31: 201-210.

Vogel, J. C., and van der Plicht, J. (1993). Calibration Curve for Short-Lived Samples, 1900-3900 BC. *Radiocarbon* 35: 87-91.

Heidelberger Akademie der Wissenschaften

Tree-rings from German Oak chronology

Lab code: Hd

Dataset number 5

Kromer, B., and Becker, B. (1993). German Oak and Pine C-14 Calibration, 7200-9439 BC. *Radiocarbon* 35: 125-135.

Kromer, B., and Spurk, M. (1998). Revision and tentative extension of the tree-ring based C-14 calibration, 9200-11,855 cal BP. *Radiocarbon* 40: 1117-1125.

IntCal04_rawdata.csv includes updates to the calendar age of the German Pine measurements and some reinstated tree-rings from German oaks affected by beetles which previously could not be dendrodated (cf. Friedrich et al., 2004) as well as previously unpublished data.

CSIR, Pretoria

Labcode: Pta

Tree-rings from German Oak chronology

Dataset number: 6

Vogel, J. C., and Vanderplicht, J. (1993). Calibration Curve for Short-Lived Samples, 1900-3900 BC. *Radiocarbon* 35: 87-91.

Center for Accelerator Mass Spectrometry

Tree-rings from Irish Oak chronology

Labcode: CAMS

Dataset number: 7

Three decadal measurements of Belfast Irish Oak processed to cellulose at Queen's University Belfast which have not been previously published. Results are from multiple AMS targets with the error taken as the larger of the standard deviation in the mean and square root of the variance.

CORALS and FORAMINIFERA

E. Bard et al.

Corals from Barbados, Tahiti, Mururoa and New Guinea

Labcode: not given

Dataset number: 10

Bard, E, Hamelin, B, Fairbanks, RG, Zindler, A. 1990. Calibration of the ^{14}C timescale over the past 30,000 years using mass spectrometric U-Th ages from Barbados corals. *Nature* 345: 405-410.

Bard E, Arnold M, Hamelin B, Tisnerat-Laborde N, Cabioch G. 1998. Radiocarbon calibration by means of mass spectrometric $^{230}\text{Th}/^{234}\text{U}$ and ^{14}C ages of corals. An updated data base including samples from Barbados, Mururoa and Tahiti. *Radiocarbon* 40: 1085-1092.

Bard, E, Ménot-Combes, G, Rostek, F. 2004/. Present status of radiocarbon calibration and comparison records based on Polynesian corals and Iberian Margin sediments, *Radiocarbon* 46: 1189-1202.

R.G. Fairbanks et al.

Corals from Barbados and Kirimati

Labcode: CAMS and Gif

Dataset number:11

Fairbanks, RG, Mortlock, RA, Chiu, T-C, Guilderson, TP, Cao, L, Kaplan, A, Bloom, A., Marine Radiocarbon Calibration Curve Spanning 7,000 to 50,000 Years B.P. Based on Paired $^{230}\text{Th}/^{234}\text{U}/^{238}\text{U}$ and ^{14}C Dates on Pristine Corals, *Quaternary Science Reviews*, submitted.

R. L. Edwards et al.

Corals from Huon Peninsula, Papua New Guinea

Labcodes: AA and WHOI

Dataset number: 12

Edwards, RL, Beck, JW, Burr, GS, Donahue, DJ, Chappell, JMA. Bloom, AL, Druffel, ERM., Taylor, FW. 1993. A large drop in atmospheric $^{14}\text{C}/^{12}\text{C}$ and reduced melting in the Younger Dryas, documented with ^{230}Th ages of corals. *Science* 260: 962-968.

G.S. Burr et al.

Corals from Vanuatu and Papua New Guinea

Labcode: AA

Dataset number: 13

Burr, GS, Beck, JW, Taylor, FW, Recy, J, Edwards, RL, Cabioch, G, Correge, T, Donahue, DJ, O'Malley, JM. 1998. A high-resolution radiocarbon calibration between 11,700 and 12,400 calendar years BP derived from ^{230}Th ages of corals from Espiritu Santo Island, Vanuatu. *Radiocarbon* 40: 1093-1105.

Burr, GS, Galang, C, Taylor, FW, Gallup, CD, Edwards, RL, Cutler, KB, Quirk, B. 2004. Radiocarbon results from a 13ka BP coral from the Huon Peninsula, Papua New Guinea. *Radiocarbon* 46: 1211-1224

K. B. Cutler et al.

Corals from Vanuatu and Papua New Guinea

Labcode: not given

Dataset number: 14

Cutler, KB, Gray, SC, Burr, GS, Edwards, RL, Taylor, FW, Cabioch, G, Beck, JW, Cheng, H, and Moore, J. 2004. Radiocarbon calibration to 50 kyr BP with paired ^{14}C and ^{230}Th dating of corals from Vanuatu and Papua New Guinea. *Radiocarbon* 46 1127-1160.

K. A. Hughen et al.

Foraminifera from Cariaco Basin varved sediments

Labcode: CAMS

Dataset number: 15

Hughen, KA, Southon, JR, Bertrand, CJH, Frantz, B, Zerbeño, P. 2004. Cariaco Basin calibration update: revisions to calendar and ^{14}C chronologies for core PL07-58PC. *Radiocarbon* 46: 1161-1187.

Hughen KA, Lehman S, Southon J, Overpeck J, Marchal O, Herring C, Turnbull J. 2004. C-14 activity and global carbon cycle changes over the past 50,000 years. *Science* 303 (5655): 202-207.

Hughen, KA, Southon, JR, Lehman, SJ, Overpeck, JT. 2000. Synchronous radiocarbon and climate shifts during the last deglaciation. *Science* 290: 1951-54.

Additional references:

Buck, C. E., and Blackwell, P. G. (2004). Formal statistical models for estimating radiocarbon calibration curves. *Radiocarbon* 46:1093-1102.

Friedrich, M., Remmele, S., Kromer, B., Hofmann, J., Spurk, M., Kaiser, K. F., Orcel, C., and Küppers, M. (2004). The 12,460-year Hohenheim oak and pine tree-ring chronology

from Central Europe - A unique annual record for radiocarbon calibration and palaeo-environment reconstructions. *Radiocarbon* 46: 1111-1122.

Hughen, KA, et al. 2004 Marine04 Marine radiocarbon age calibration, 26 - 0 ka BP. *Radiocarbon* 46: 1059-1086.

Reimer, PJ, et al., 2004, IntCal04 Atmospheric radiocarbon age calibration, 26-0 ka BP, *Radiocarbon* 46:1026-1058

Stuiver, M, and Polach, HA. 1977. Discussion: reporting of ^{14}C data. *Radiocarbon* **19**: 355-363.