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IntCal04 update - A preliminary extension of the ^{14}C-calendar age curve back to 50 ka

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At the time when data sets for the IntCal04 radiocarbon calibration curve were being compiled, records older than about 26 ka showed large disagreements. As a result, the IntCal04 curve was ended at 26 ka and no rigorous curve was provided for the interval from 26 to 50 ka. Over the past few years, however, several new data sets have been published providing calibration information for this period, including U-Th dated corals, marine and terrestrial sediments linked to calendar chronologies through high-resolution paleoclimate records, and U-Th dated speleothems. These data sets show generally good agreement and define a coherent curve for radiocarbon vs. calendar age from 26-50 ka. These data sets have been combined using the methods of IntCal04 to produce an updated curve anchoring radiocarbon calibration over the full radiocarbon time span. The new curve confirms that atmospheric radiocarbon was greatly elevated during the Glacial period. Geochemical box models suggest that, in addition to increased radiocarbon production in the upper atmosphere, exchange between reservoirs in the global carbon cycle, and ventilation of the deep ocean in particular, were significantly reduced during the Glacial interval.