



**Figure 7.21.**  $\delta^{15}\text{N}$  excess ( $\delta^{15}\text{N} - \delta^{40}\text{Ar}/4$ ) of gas bubbles (open and closed circles represent measurements from different laboratories) and  $\delta^{18}\text{O}$  of ice (straight line with steps) from the GISP2 ice core in Greenland across the warming transition between the last glacial period and the Bølling Transition at 14 665 y BP.  $\delta^{15}\text{N}_{\text{excess}}$  is a tracer of the magnitude of the abrupt temperature change at the beginning of the Bølling Transition. Curves are model results that predict the isotope effect for different sudden temperature changes. Redrawn from Severinghaus and Brook (1999).