)-03 **INFLUENCE OF GROWTH TEMPERATURE ON $^{13}C/^{12}C$ RATIOS IN THE WOOD OF TREES**

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The emission of CO_2 into the atmosphere through fossil-fuel burning and through other biospheric sources is registered in the $^{13}C/^{12}C$ ratio in the wood of trees. In order to predict future CO_2 levels in the atmosphere through model evaluation, the past $^{13}C/^{12}C$ record in the tree rings is invaluable. This record is

however superimposed by oscilations which have been attributed to various factors like environmental, nutrient levels in the soil, soil respiration, etc. This investigation reports the influence of the temperature of the locality on the $^{13}C/^{12}C$ record. Trees from six different locations with different annual mean temperatures were investigated. Tree rings were dated and separated from one another. Cellulose which is 40–50% of whole wood was extracted from the tree rings and burnt in a combustion apparatus. The $^{13}C/^{12}C$ ratios were measured in a double focussing mass-spectrometer. The results show that the trees discriminate ^{13}C with increasing growth temperature. The relationship is linear with a correlation coefficient of –0.94 for the investigated temperature range giving a ^{13}C decrease of –0.34% per degree centigrade.