

persisting over at least 300 dendroyears. Thus, a precise radiometric dating of this event cannot be expected. However, we can fix the stable isotope increase on the tree-ring scale. A minimum absolute age determination of 11,100 dendroyears for the Late Glacial/Holocene transition has been derived by a correlation of the ^{14}C ages at the end of the 1477-year floating pine chronology with those at the beginning of the 9938-year absolute German oak dendrochronology.

THE USE OF NATURAL ^{14}C AND ^{13}C IN SOILS FOR STUDIES ON GLOBAL CLIMATIC CHANGE

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The amount of the "greenhouse" gases, CO_2 and CH_4 , produced by the decomposition of organic matter in terrestrial and paddy soils and emitted from the soil, can be estimated from depth profiles of the $\delta^{13}\text{C}$ value and ^{14}C activity of soil organic matter, using simple mathematical models. By sampling the soil as thin layers, we can also determine whether the non-gaseous decomposition products are fixed to clay or transported downwards to the groundwater table. The influence of temperature and soil moisture regime on the carbon isotope depth profiles is shown by comparing a range of investigated soils from various climatic regions. A change of vegetation from C_3 to C_4 plants, which might take place during a predicted temperature rise in certain areas, thereby influencing the carbon balance, can be clearly detected by $\delta^{13}\text{C}$ depth profiles.

A HIGH RESOLUTION ^{10}Be RECORD IN POLAR ICE

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A project has been started to establish a ^{10}Be record in Greenland ice with a time resolution of one year. The upper part of a 300 m ice core from Dye 3, Greenland, has been used for this study. The time scale in this core has been determined using acidity peaks caused by volcanic eruptions and annual variations of the H_2O_2 concentration.

The main results obtained so far are:

1. The comparison of the ^{10}Be record with solar activity as determined by sun spots, aurorae and Aa-index reveal a good correlation regarding the 11-year Schwabe cycle as well as the longer-term trends.
2. During the Maunder minimum period (AD 1645–1715), the ^{10}Be concentration is higher by about 50%.
3. The 11-year Schwabe cycle is also present during the Maunder minimum, in spite of the missing sun spots.

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