

Dendrochronology and Its Applications in Human Life

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DESCRIPTION

Dendrochronology is the specific method of dating tree rings to the particular year they were formed. This can provide information for dendroclimatology, the study of climatic and atmospheric conditions during various historical periods from wood. Dendrochronology is beneficial for determining the precise age of samples, especially those that are too recent for radiocarbon dating, which always yields a range rather than a specific date. The most of trimmed timber won't provide a full sample to the edge, which is necessary to determine the exact date the tree died. It also provides information on the occurrence of events and the rates of environmental change, as well as wood discovered in archaeological sites, works of art, and architectural structures like antique panel paintings. It is also used to calibrate radiocarbon ages as a check in radiocarbon dating.

Growth rings

Growth rings, also known as tree rings or annual rings can be seen in horizontal cross sections taken through the trunk of a tree. The vascular cambium, a layer of cells close to the bark that botanists categorise as a lateral meristem, produces growth rings as a result of new cell proliferation this growth in thickness is called as secondary growth. One ring typically denotes the passing of one year in the life of the tree, which is crucial for the title approach. Visible rings are the result of the change in growth rate over the seasons of the year. Exclusion of the bark of the tree in a specific area may cause deformation of the rings as the plant overgrows the scar. Trees that have developed in temperate regions, where the seasons vary more dramatically,

show the rings more clearly. The inner portion of a growth ring forms early in the growing season, when growth is moderately quick It is often referred to as "early wood," "spring wood," or "late-spring wood"; the outer layer is "late wood," which is denser and sometimes referred to as "summer wood" because it is frequently generated in the summer but can also occur in the autumn. For a number of reasons, direct reading of tree ring chronologies is a difficult science. First, alternating unfavourable and favourable conditions, such as midsummer droughts, can lead to many rings forming in a given year, in contrast to the single-ring-per-year paradigm. Additionally, some tree species may have "missing rings," which affects the choice of trees for long-term study. For example, oak and elm trees rarely have missing rings.

Applications

- When the Black Death and a building halt occurred in the fourteenth century, it was challenging for European chronologies based on wooden structures to fill in the gap. The record also includes plagues that were less thoroughly documented.
- Trees in locations with relatively consistent weather produce annual rings with a variety of characteristics based on the seasons, weather, rainfall, temperature, and other factors. It is possible to derive past climate variations from these variations.
- The variation in tree ring growths can be used to identify the location as well as the year because the climate in some places is not uniform. This makes it possible to pinpoint the origin of both ships and smaller wooden objects that have travelled great distances.

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Received: 16-May-2022, Manuscript No. ANTP-22- 18250; **Editor assigned:** 19-May-2022, PreQC No. ANTP-22- 18250 (PQ); **Reviewed:** 03-Jun-2022, QC No. ANTP-22-18250; **Revised:** 09-Jun-2022, Manuscript No. ANTP-22-18250 (R); **Published:** 16-Jun-2022, DOI: 10.35248/2332-0915.22.11.282.

Citation: Karanmiana S (2022) Dendrochronology and Its Applications in Human Life. *Anthropology*.11: 282.

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