

CHANGEFUL RELATIONSHIP BETWEEN $\delta^{13}\text{C}$ AND INDEX OF RING WIDTH

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The tree-ring reported here is the one of pine discs sampled at 3200m a.s.l. in Qongtelian Valley in Tuomu'er Peak region of northwest China. It is found by the correlation analysis that index of ring width is remarkably correlative to the annual mean precipitation while the time lag of tree ring growth to precipitation is two years. The high-frequency change of tree-ring $\delta^{13}\text{C}$ is completely consistent with the fluctuation of annual average temperature observed near the sampling site. As index of ring width is directly compared with $\delta^{13}\text{C}$ of tree-rings, a wholly opposite or consistent relationship does not arise. Instead, it changes with time. Prior to the border of 1961, index of ring width opposites completely to carbon isotopic composition of tree-ring. But both the fluctuations turn to be synchronous after 1961. This kind of changeful relationship is more clearly demonstrated by the correlation coefficients of them in the periods of 5-year and 10-year. It is obviously different from others researchers' results of the relationship between the tree ring width and carbon isotope. We guess that this transformation of correlation is probably relative to the style of climate changes over the past recent century. Briffa K.R et al(1998) has notified that the sensitivity of recent tree-growth to temperature reduced at high northern latitudes. The similar change has also occurred in the tree-ring carbon isotope according to the research in the paper.