

Accepted Manuscript

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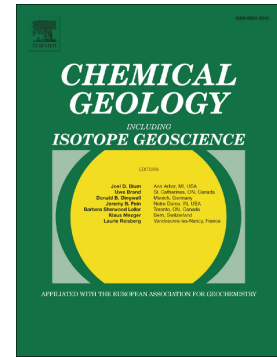
PII: S0009-2541(17)30379-0
DOI: doi: [10.1016/j.chemgeo.2017.06.021](https://doi.org/10.1016/j.chemgeo.2017.06.021)
Reference: CHEMGE 18378

To appear in: *Chemical Geology*

Received date: 27 May 2016
Revised date: 8 June 2017
Accepted date: 16 June 2017

Please cite this article as: N.J. Loader, D. McCarroll, S. Barker, R. Jalkanen, H. Grudd, Inter-annual carbon isotope analysis of tree-rings by laser ablation, *Chemical Geology* (2016), doi: [10.1016/j.chemgeo.2017.06.021](https://doi.org/10.1016/j.chemgeo.2017.06.021)

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Inter-annual carbon isotope analysis of tree-rings by laser ablation

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Abstract

The stable carbon isotopic analysis of tree-rings for environmental, plant physiological and archaeological applications using conventional methods is occasionally limited by physical constraints (narrow rings) or administrative concerns (requirement for non-destructive sampling) that prevent researcher access to scientifically valuable wood samples. Analysis of such archives by laser-ablation can potentially address these issues and facilitate access to restricted archives. Smaller quantities of wood are required for analysis by laser ablation, hence the approach may be considered less-invasive and is virtually non-destructive compared to standard preparation methods. High levels of intra-annual isotopic variability reported elsewhere mean that a single measurement may not faithfully represent the inter-annual isotopic signal, so before such an approach can be used with confidence it is necessary to compare the stable carbon isotopic data produced using these two methods. This paper presents stable carbon isotope ($\delta^{13}\text{C}$) data from the resin-

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