



FPS & IUFRO D5.01 Joint Webinar

Resistance Drilling of Standing Trees for Commercial Inventory of Plantation Wood Quality — A Web Platform for Online Processing of Resi Traces

Guest Speaker: Dr. Geoffrey M. Downes

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Moderators: Xiping Wang (Xiping.wang@usda.gov)
Brunela Pollastrelli Rodrigues (brunelr@clermson.edu)

Sponsors: Forest Products Society (FPS) – NDE and Wood Quality TIGs
IUFRO D5.01 Wood & Fiber Quality Group

Registration Link:

<https://forestprod.org/events/EventDetails.aspx?id=1784697&group=>



Speaker Bio:

Dr. Geoff Downes is the Director and Senior Researcher of a private RD&E company, Forest Quality Pty. Ltd. Forest Quality, based in Tasmania, Australia, has a focus on developing and operationalizing non-destructive wood quality assessment technology in commercial

plantations. Geoff has been involved in studying the causes of variability in wood properties for 35 years, with a focus on the physiology of wood formation as affected by environment. He has had some involvement with the application of SilviScan to forestry since starting with CSIRO in 1992. This involved using these high-resolution wood property measurements, together with tree growth (dendrometer) monitoring, to investigate links between environment, growth and sub-annual wood variability. Since 2015, the focus has been on applying resistance drilling to the estimation of wood basic density in standing trees, to support commercial applications.

Abstract

Resistance drilling of standing trees for the estimation of basic density has been the subject of numerous studies over the last several decades. The measurement of the torque experienced by a small diameter drill bit driven through the wood at constant rpm and forward velocity has been found to provide a robust predictor of wood basic density in many commercial plantation species at a coupe/compartement scale. The development of resistance drilling instrumentation has advanced to the point where it can be used routinely for forestry inventory and tree breeding purposes, providing commercially useful assessment of log and wood quality. To facilitate the commercial uptake of resistance drilling, online data processing platforms have been developed and extensively tested over recent years, to the point they are routinely used by forest growers and tree breeders. These platforms rapidly process thousands of traces, generating wood quality metrics that have been linked to log and sawn product properties. The use of the IML PD series (Resi) instruments combined with the rapid online processing brings the cost of wood quality assessment down to commercially affordable levels for routine inventory applications. This presentation will demonstrate the use of features of the web platform, along with the results of validation studies relating Resi-derived metrics with actual wood density and log stiffness values.