

NRESI RESEARCH COLLOQUIUM SERIES

FRIDAY

Jan. 11, 2008

3:30 - 4:30 pm

**LECTURE
THEATRE**

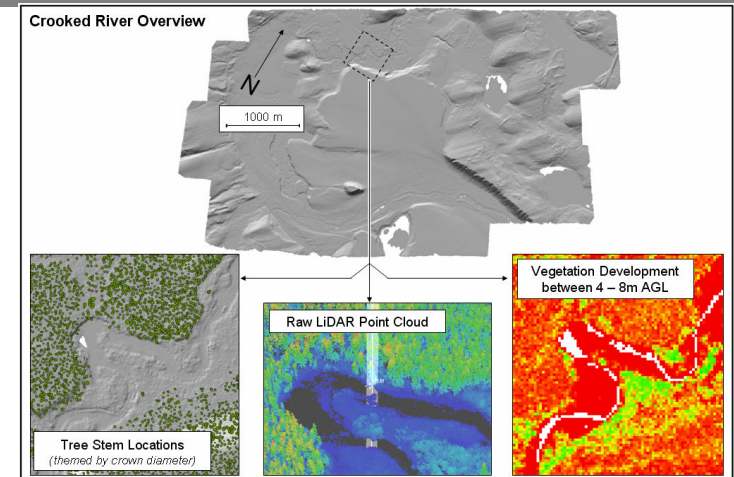
7-150

**LIGHT
REFRESHMENTS
SERVED AT 3:20 PM**

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Light Detection and Ranging Data in Forested Environments

Airborne Light Detection and Ranging (LiDAR) surveys use light energy to produce extremely accurate 3D measurements of ground and vegetation. A survey was performed on three study areas; Crooked River, Kennedy Siding, and the Aleza Lake Research Forest. High resolution data detailing digital elevation models, canopy structural models, and tree stem locations were developed. Methods employed in the development of these models will be presented.

In a previous study, Landsat data was employed to predict carbon and was able to identify large tree carbon stocks with an r^2 value of 0.62. However, it was not possible to develop any models that could describe sub-canopy vegetation components. By comparison, LiDAR methods yielded improved estimations of large tree biomass with an r^2 value of 0.79. The LiDAR data was also able to describe herbaceous ($r^2=0.62$) and secondary canopy structure ($r^2=0.36$) biomass with a reasonable precision, remarkable as no other airborne surveying technology has shown this capability. There is much untapped potential in these datasets including hydrological modelling, analyses of secondary structure underneath MPB attacked stands, and analyses of tree morphology.

We are currently looking for students/professors interested in working on these or other aspects of the LiDAR dataset in the spring or summer of 2008.