

IUFRO 4.02.06 – Resource data in boreal and temperate regions
IUFRO 4.02.04 - Geographic and management information systems
Accademia Italiana di Scienze Forestali - AISF
Consiglio per la ricerca e la sperimentazione in agricoltura - CRA
Società Italiana di Selvicoltura ed Ecologia Forestale - SISEF
DIBAF - Università della Tuscia

Workshop

LIDAR APPLICATIONS IN FOREST INVENTORY AND RELATED STATISTICAL ISSUES

DIBAF, via San Camillo de Lellis, Viterbo, Italy

8 May 2013

The increasing availability of space-borne or air-borne lidar data offers the potential to exploit this three-dimensional information, alone or in combination with remotely sensed multispectral images, to support forest inventories for the estimation of forest attributes at various scales. In this perspective, the availability of lidar data can range between full coverage over a given territory, where these data can be exploited as ancillary data known for the entire population, to a sample of the territory based on transects below the flight lines to spot samples within transects, so to adopt e.g. multiphase/multistage estimation approaches. However, the potential to integrate lidar information in forest inventories at various scales under a sound statistical framework is an aspect to be further developed: this research workshop is conceived to give participants hands-on exchanges and experiences about such an issue.

14.30 - *Welcome* (G. Scarascia Mugnozza)

14.45 - *Oral presentations* (chairman: P. Corona)

- *Statistical advancements of lidar applications to support large-scale forest inventory* (T. Gregoire)
- *Design-based treatment of missing data in two-phase forest inventories by using canopy heights from laser scanning* (C. Pisani, P. Corona, G. Chirici, S. Franceschi, D. Maffei, M. Marcheselli, L. Fattorini)
- *Estimation of standing wood volume in forest compartments by exploiting lidar information* (C. Torresan, P. Corona, L. Fattorini, S. Franceschi, G. Scrinzi)
- *Model-based estimations of forest biomass with airborne and satellite optical data: parametric vs non-parametric approaches* (G. Chirici, R. McRoberts, G. Lopez, M. Mura, M. Marchetti)
- *Classification of coppice stands and high forest stands using airborne laser scanning data* (D. Travaglini, F. Bottalico, G. Chirici, P. Corona, M. Marchetti, S. Nocentini)
- *Fusion of airborne lidar and satellite multispectral data for the estimation of timber volume in the Southern Alps* (M. Dalponte, D. Gianelle)
- *Analysis of effects of scanning angle on vegetation metrics derived from airborne laser scanning in a nationwide acquisition* (A. Montagni, H. Olsson)

17.45 - *Overall discussion*

18.00 - *Conclusions* (M. Marchetti)

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