

Satellite-based Timber Volume Mapping for Paper Industries and Forest Fire Risk Assessment

A unique, highly accurate technique for the mapping of timber volume over extensive areas, as a tool for forest evaluation, for paper industry managers, and in support of forest fire prevention and forest fire fighting.

An operational, cost-effective and reliable *timber volume mapping* technique is available to decision makers and managers in the fields of forestry, environmental and rural planning. High-resolution optic images - e.g. SPOT XS - and radar images - e.g. RADARSAT, ERS - are processed, fused, and modelled, leading to the retrieval of key relevant digital data. The resulting image maps are geo-referenced and geocoded, and fully GPS-compatible. They can be introduced in any modern geographical information system (GIS).

- **Forest fires**, being a potential threat to forests and woodlands worldwide, require fire prevention strategies to be developed. So, one asks questions like: what sort of forest, where, how much?

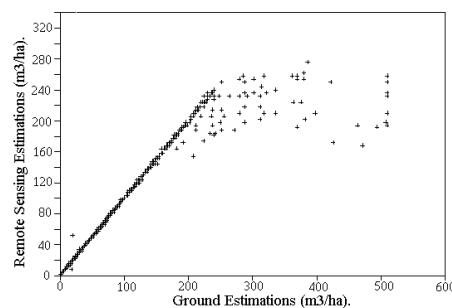
- Top-notch remote sensing techniques may well beat the traditional, tedious ground surveys - for extensive areas particularly. Image processing and modelling procedures will transform (fused) satellite images in digital elevation models (DEM's), communication network maps, forest and land-use inventory maps, and innovative **timber volume maps**.

- The satellite based **timber volume mapping** procedures at our command are

*operational
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- Natural and man-made changes of the woody cover of the earth's surface are taken into account through regular satellite monitoring procedures.

- The **timber volume maps** are of a very high accuracy - less than 15% error up to 200 m³/ha; less than 20% error from 200 to 250 m³/ha.



Timber volume mapping in Sarawak, showing the remote sensing procedure's high consistency with traditionally obtained results.

- Digital products can be presented in any current map projection, and are **fully GIS-compatible**. They may be combined between them and to any GPS-located field observation. Potential disasters may be simulated, and results of any measures-to-be-taken timely evaluated.

References

Oldeman, R.A.A., 1990. *Forests: Elements of Sylvology*. Springer-Verlag Berlin Heidelberg.
Nezry, E. et al. 2000. *Advanced remote sensing techniques for forestry applications: A case study in Sarawak (Malaysia)*. *Proceedings SCI/ISAS Conference, July 23-26th 2000, Orlando, Florida, USA*.