

LOOKING AT LUCAS

+ LAND USE AND CARBON ANALYSIS SYSTEM

+ ISSUE 3 + WINTER 2008 +

Welcome to the third issue of *Looking at LUCAS*, the e-newsletter to keep you informed about progress of the Land Use and Carbon Analysis System (LUCAS) project. We hope you find the newsletter useful and welcome your ideas, feedback and suggestions to lucas@mfe.govt.nz. For further information about the project see the LUCAS web pages at <http://www.mfe.govt.nz/issues/climate/lucas/>

Forests get laser treatment

The LUCAS project has reached a milestone with the completion of the first season of its LiDAR (Light Detection And Ranging) scanning.

Data gathered by airborne LiDAR scanning from 756 forestry plots across New Zealand is being used to identify the carbon contained in forests planted post-1989.

Bridget Geard, LUCAS' planted forests subject matter expert, says LiDAR works by timing the light sent from, and then received by, a specialised instrument in a low-flying aircraft. By taking up to 55,000 time-measurements a second LiDAR can accurately measure distances and can provide detailed three-dimensional representations of the ground surface and vegetation.

She says that while the technology is used elsewhere to take similar measurements, New Zealand is the first country in the world to use LiDAR to assist in Kyoto reporting obligations. Peter Stephens, the LUCAS designer, is presenting a paper on LiDAR to the SilviLaser conference in Edinburgh next month.

The LUCAS project will use the LiDAR data to identify the total amount of carbon in each forest plot. The readings obtained are calibrated against data recorded in the field and forest carbon models.

The next stage of the project is to get the data analysed to help calculate the average carbon stock per area in New Zealand's post-1989 forests.

The field measurement carbon inventory programme is currently underway with 300 of the 756 sites flown by LiDAR being sampled in order to compare and calibrate the LiDAR data.



Figure 1 Aerial photograph of a plot site surveyed by LiDAR. (Plot site is defined by the shaded box.)

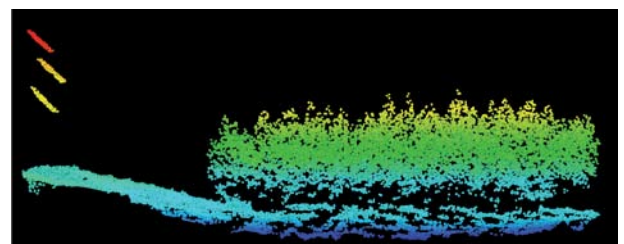


Figure 2 Cross-section view of LiDAR data of the shaded box shown in the aerial photograph above (notice to the left the three lines show the LiDAR returns from the power lines running through the photograph).

Update on SPOT 5 Satellite Imagery

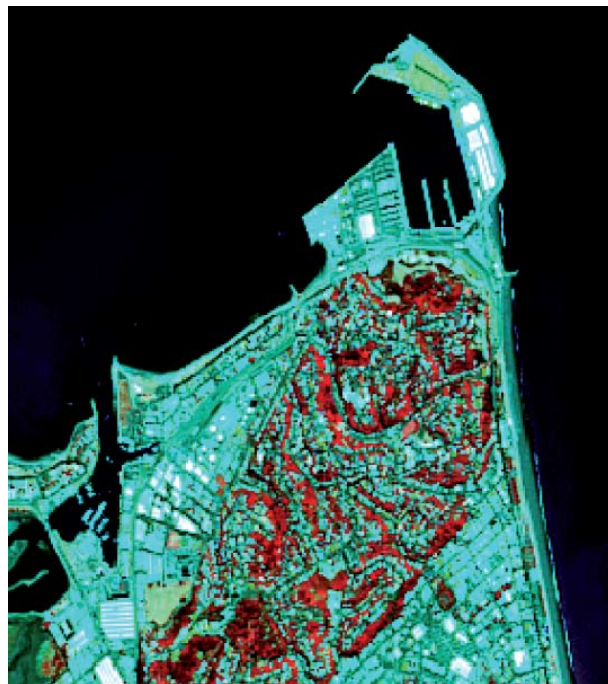
The Ministry for the Environment has negotiated an all-of-government purchase agreement for SPOT 5 satellite imagery, making the imagery available to all government departments, crown entities, and local authorities.

Over the past two summers, cloud-free imagery of the entire country has been captured. This is being used to map land use at the start of the first commitment period of the Kyoto Protocol. Each image covers 60 sq km and has a spatial resolution, or pixel size, of 10 m.

Photo Competition

The LUCAS project team is introducing a photo competition in each issue to see if readers can identify the part of New Zealand depicted in SPOT 5 satellite imagery. The locality in the image to the right will appear in Issue 4 of *Looking at LUCAS*.

Those who can guess the location of the satellite imagery can win a *Maps of Environment New Zealand 2007* poster. You can get a copy of the SPOT 5 satellite photo by emailing LUCAS (see details below).



+ NEED MORE INFORMATION?

The New Zealand Land Use and Carbon Analysis System is a programme of work to measure and monitor the amount of carbon (carbon stocks) held in New Zealand's forests and soils.

Carbon stock information is required for New Zealand's reporting requirements under the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC).

LUCAS is an important part of the government's climate change policy package and will help inform New Zealand's future international climate change negotiations.

If you require more information about the LUCAS project, available SPOT 5 imagery, the LUCAS web pages, or the LiDAR forest inventory programme, please email lucas@mfe.govt.nz

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