IMPACT 08 SEMINAR - WATER MANAGEMENT

The second of seven Impact '08 ICT seminars, of which InternetNZ is a co-sponsor, was held on April 19. The topic was Water Management, and how ICT collaboration technologies are changing the way that water is managed, used and studied.
Unfortunately, technical difficulties prevented the use of the high-speed Access Grid, with those attending at grid nodes in Auckland, Hamilton, Christchurch and Lincoln universities unable to participate.
The seminar proceeded in a condensed face-to-face format for those at the Wellington node, with short PowerPoint presentations from NIWA's manager of operational forecasting Bernard Miville and Dave Loubser from the Ministry for the Environment.
Miville described the range of environmental forecasting undertaken at NIWA – the National Institute of Water and Atmospheric Research. Modeling of weather, ocean storm surges and river flows is done by a high performance computer - Cray T3E: 638 gigaflops; Massively Parallel Processor (MPP) Class.
The Institute's Operational Forecasting System has been developed and is supported by the use of open source tools. They provide a 24×7 automated monitoring system with alerts to pagers, email and SMS. The 'delivery system' – called EcoConnect – is accessible via the web, with users able to access the products through a customisable map interface.
Loubser followed with an informative account of environmental remote sensing work being undertaken by the Ministry for the Environment (MfE).
He précised two of MfE's remote sensing initiatives – LUCAS (Land Use and Carbon Analysis System) and Kiwimage.
LUCAS is being used by New Zealand to meet its obligations under the Kyoto climate change protocol. It requires the generation of maps of New Zealand at 1990, 2008 and 2012 to show land use change.
MfE is mapping 1990 using a mixture of Landsat 4 and SPOT imagery, and has completed its 2008 mapping using SPOT 5 imagery.
"The data is captured primarily for carbon monitoring purposes but is made freely available to all Crown agencies under an all of government licence agreement," says Loubser.
Kiwimage is a collection of government agencies and qualifying non-government emergency agencies that have agreed to pool resources to obtain satellite imagery of New Zealand, its offshore islands, the Ross Dependency and South West Pacific Islands.
The $5 million project uses DigitalGlobe QuickBird satellite imagery, which provides extremely high-resolution images.
Other technologies used include Light Detection and Ranging (LiDaR) – an active remote sensing technology, mainly used in airborne platforms to measure heights for terrain models.
MfE also uses Radar, which has an advantage over LiDaR in that it can be used in all weathers.
"Measuring change through time series' is one of the best environmental measures that Remote Sensing can provide," says Loubser.