PRESS RELEASE

Getmapping Plc

In 2000, Getmapping became the first company to provide a seamless aerial photographic survey of England, Wales and lowland Scotland (The Millennium Map). Getmapping also covered new ground by providing access to the entire Millennium Map via its website www.getmapping.com. As a result of these initiatives, aerial photography was transformed from a product that had to be commissioned at great expense on a project-by-project basis to a commodity instantly available to all users at affordable prices. Unsurprisingly, instant access and affordable prices have had a dramatic impact on the aerial photography market, which has grown rapidly over the past five years and it is now seen on a daily basis in the media, estate agents and as an adjunct to most mapping applications.

Inevitably, photography needs to be updated and Getmapping is now in the process of re-flying the entire Millennium Map. This article examines the differences between the original Millennium Map and the new layer. These differences reflect both the evolving requirements of the user base and changes in technology. In particular, we will examine the role of 3D photography in the built-up environment.

The new Millennium Map layer is being captured using a large-format Vexcel Ultracam D digital camera. The Ultracam is a frame-based camera, which captures a rectangular image analogous to a conventional, scanned negative. The process of triangulating and orthorectifying the frames is the same as when using a film-based camera, but it has a number of advantages. The first advantage is the saving in time and cost as there is no film to buy, process or scan. The second advantage is the vast improvement in image quality. There are no marks on the image from the film emulsion or dust in the scanner and every mark on the image represents something on the ground. This means that the digital camera can create more accurate 3D data. The dynamic range of the digital data is also higher than that of a conventional scan and this significantly reduces information loss in shadow areas. The Ultracam also has distinct Red, Green and Blue channels as well as a Near Infra Red (NIR) channel, enabling the data to be used for simple multi-spectral analysis. An example of this is the use of the NIR data to analyse an outbreak of needle blight affecting coniferous pines in the Thetford Forest in Suffolk.

Another change in the second layer of the Millennium Map is the increase in standard resolution from 25cm per pixel to 15 cm. This change was driven by customer demand as many customers, particularly in urban areas, have found that 15 cm data greatly improves its utility. For instance, the visibility of street furniture and road markings allows many new applications in urban planning and maintenance. Hampshire County Council was one of the first customers of the 15cm data. "The level of detail held within a Getmapping image facilitates clear identification of buildings, streetscapes and even types of shrubs. The images provide a real-world picture of immediate currency unlike the information contained within many maps which require a level of further interpretation." Comments Chris Hunt the IT project manager for the Environmental Department within Hampshire County Council.

Getmapping has significantly progressed using the Ultracam D. In the 2005 flying season, 35,000 square kilometres of data were captured. Another 60,000 square kilometres are planned for 2006 as Getmapping will operate a second Ultracam D in Scotland. Customers for the new data include local councils in Whiltshire, Gloucestershire, Stroud and the Cotswolds, South Oxfordshire, West Lancashire, Bedfordshire, Huntingdonshire, East Sussex and Alnwick.

Although from the beginning all the photography was captured in full stereo, in 1999 the Millennium Map was conceived essentially as a two dimensional plan view of the entire country. The stereo data was only used on a project-by-project basis to provide 3D analysis, for instance building heights, for particular customers. However, this two dimensional view is changing as the march of technology and rising user expectations increasingly make a 3D perspective the expected norm.

The concept of the 3D Millennium Map was born in 2003. Getmapping and Intermap signed a strategic partnership agreement to exploit the potential of the Millennium Map laid over the NEXTMap Britain terrain model. The core products of this collaboration are Photoscape 3D, Horizon Simulation's Microsoft Fight Simulator VFR Photo Scenery, and several outdoor 3D mapping products, including Memory Map and Fugawi. Each of these products allows the user to fly over Britain, observing the terrain as if from a low-flying aircraft. When raw data is imported into a 3D GIS package, such as ESRI or LSS, it has numerous professional uses. The main applications relate to the visualisation of proposed civil engineering projects such as wind farms, motorways, quarries or reservoirs.

The Photoscape generation of products is limited to a view in which buildings and trees lie flat on the ground. This is acceptable for many professional applications and is visually satisfactory, provided that the eye-point is kept approximately 1000 feet above the ground. From this height, objects' shadows create the illusion that they are 'standing up'.

Now, the market demands that buildings and trees be represented as 3D objects. The biggest drivers of this demand are the urban planning and property markets. The scarcity of building land (especially in the South) and the complexity and cost of obtaining planning permission for new developments has resulted in a need for detailed 3D models of the built-up environment. Within such plans, new buildings can be visualised and analysed. So far, the high cost of developing such models has proved prohibitive in all but the most highly developed city areas, such as London Boroughs. However, this situation is changing and we believe that 3D modelling is now within the reach of every town.

This breakthrough has come is two distinct areas. The first is the ease of creating the 3D objects themselves. As previously mentioned, a digital Ultracam stereo pair has more potential for 3D analysis than the 'noisy' analogue equivalent and, consequently, the process of extracting good rectilinear building models has become much more automated. In addition, tools such as Envers can be used to extract approximate building height models, costing just a few hundred pounds per square kilometre. Thus, the new Millennium Map already contains the information needed to provide complete 3D models for planning purposes.

The second breakthrough is the cost and power of 3D viewing and analysis tools. In the summer of 2005, Getmapping formed a partnership with Simmersion, an Australian company whose simulation engine Simurban is a leader in the field. Simurban allows a user to load and analyse a 10km by 10km dense urban landscape on an ordinary desk top PC for a fraction of the cost of its competitors.

Armed with the new Millennium Map data and the Simurban viewing and analysis engine, we feel we can offer a cost-effective model of the built environment for every town in the country. The key to success is to start modestly with a complete model at a basic level of fidelity. For example, simple, un-rendered building models sitting on the NEXTMap bare earth terrain models. Gradually this model can be refined and if, for instance, a new hotel complex is proposed in a town centre then the buildings immediately surrounding the

proposed site can 'rendered' in detail using oblique or even ground-based photography. The visual impact of the proposed development, as well as analysis of noise, windfields etc can then be accurately assessed by importing the relevant CAD models into Simurban. This process has already been proved in Australia where a town such as Gosforth, north of Syney, uses a Simurban model to analyse each and every new building development as a compulsory part of the planning approval process. Over time the Gosforth model has become highly detailed, and the urban planners are using it increasingly as their primary analysis tool.

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