

Date

Thursday 19 July 2007

Title of session

Workshop 2 - Spatial – The Final Frontier?

Name of presenter/chair

Chair: Neil Ackroyd, Director of Data Collection and Management, Ordnance Survey

Presenter: Mark Tabor, Technical Advisor Photogrammetry, Ordnance Survey

Name of rapporteur

Colin Henderson, Ordnance Survey and Selena Patton, Defence Geographic Centre

Presentation title: Remote Sensing technology - A production perspective

From a production perspective technology is now relatively stable. The key component of a more efficient production process is the use of a Digital Mapping Camera (DMC). The Ordnance Survey business case for a DMC is the ability to capture data in the Near Infrared spectrum at the same time as the image as well as the reduced cost as a result of not having to process photographic film. There are a number of options when it comes to DMC cameras; line scanner, multi frame and single frame.

The post processing stage of data capture is complicated because it has to perform the following operations: RAW to intermediate then application of radiometric calibration. Co-registration of the 4 PAN sensors, application of geometric and radiometric transformation parameters, then rectification. Final images are then PAN sharpened.

Current issues with DMCs are that the process of calibration is done at various stages of manufacture with little or no information provided to the end customer. This means that DMC systems are 'black box' systems, they seem to work but you don't really know how.

The future of aerial photography may lie in high altitude long endurance UAV technology. As with most photogrammetric technology it is based on military technology. The advantage is in cost reduction of capture and immediate response to disaster management requirements. Although there are numerous advantages to UAV based capture access to the technology for civilian applications has been limited due to issues with aviation authorities and the current high cost of the technology.

Satellite based remote sensing has been available for a number of years now, the best possible level of accuracy at the current time is 0.41m resolution in panchromatic. TerraSAR-X is a new German radar satellite that was launched in June 2007. It carries a high frequency X-band SAR sensor that can be operated in different modes (resolutions) and polarization. This platform will offer features that have not yet been available from space. It is important for national mapping as it provides land-cover maps, change detection and topography/height.

The future of satellite remote sensing lies in small satellite technology. Systems such as GEMINI, TOPSAT, and DMC all demonstrate that effective space systems can be launched relatively inexpensively.

For production managers the true technology advances will come from better integration of hardware and software. This will provide a better end-to-end production process with the potential for automation and the inevitable cost savings.

Questions	Answers
Luiz Paulo Fortes (Brazil): The Japanese ALO satellite system is missing from your list. Is there any reason for this?	No. It is simply a mistake that the ALO system is missing from the table.
Won't there be a problem with archiving a 100 mega pixel image?	Everyone raises this as an issue, but no-one has looked at it in any detail. The question is do you archive the RAW data or the processed image? This is something that is yet to be resolved.