

Digital geospatial data, information and printed maps

CASE STUDY

Mapping agency uses versatile photogrammetry tool to maintain geospatial database

Customer: Ordnance Survey®, Southampton, UK,

Industry: National Mapping Agency of Great Britain

Background

Ordnance Survey is the national mapping agency of Great Britain and a leading supplier of digital geospatial data, information and printed maps. Ordnance Survey creates and maintains the geographic framework of Great Britain for its product known as OS MasterMap™, which is designed for use with geographical information systems (GIS) and databases. OS MasterMap contains over 440 million man-made and natural landscape features, which provide definitive, intelligent and accessible geographic information for all of Great Britain. The content of OS MasterMap is continually updated on a daily basis as new and altered features are added through a combination of ground surveys and aerial photogrammetric data capture.

The challenge

For Ordnance Survey's Photogrammetric Services Department, the challenge of maintaining OS MasterMap to the currency and quality demanded by its customers ensures that all aspects of the production operation are constantly evaluated. This includes the technology, infrastructure, processes and procedures as well as the skill sets of the people employed in the area. As a result, significant investment has been made in new photogrammetric systems that allow high quality data to be produced more efficiently and therefore reduce the time from photogrammetric acquisition to data extraction.

Over the last few years the type of data collected through the photogrammetric production flowline has also increased so that high resolution orthorectified images and digital terrain models (DTMs) are now routine outputs alongside traditional topographic vector mapping. To adjust to these changes, Ordnance Survey requires a robust photogrammetry tool that is flexible, accurate, and easy to learn and use by a wide range of skill sets, and allows them to maintain their production rates at the required level.

The evaluation

To address these needs, Ordnance Survey relies on the innovative photogrammetric processes built into SOCET SET®. Since the late 1990s, Ordnance Survey has gradually built up a large component of workstations which are used on a wide range of production flowlines.

For vector mapping, SOCET SET is currently used with Laser-Scan's LAMPS2 software for the extraction of significant large scale topographic features. This system has been instrumental in helping Ordnance Survey deliver its Positional Accuracy Improvement



“As part of a major investment program, which will result in new processes and systems for the collection, storage and maintenance of Ordnance Survey data, Ordnance Survey has chosen SOCET for ArcGIS to be its key photogrammetric capture tool. It is critical that we have the capability to maintain and update the National Geospatial Database in an Arc environment.”

Mark Tabor

*Technical Advisor, Photogrammetry,
Ordnance Survey*

program, which has enabled the repositioning of existing database features to ensure that their accuracy is consistent, while at the same time preserving existing attribution data primarily in the form of unique topographic identifiers (TOIDS). The success of SOCET SET has ensured that it will also be used in the next generation of Ordnance Survey data capture systems when it will be interfaced with a new object editor based on ESRI®'s ArcGIS® 9.0, which will allow maintenance in a seamless data structure.

In addition, Ordnance Survey uses another group of SOCET SET workstations on flowlines which generate high-resolution 25 cm color orthorectified images, and to produce DTMs at a 2 m grid spacing to an accuracy of between 0.5 m – 2.0 m depending on terrain type. This requires the development of customized scripts to ensure that the input of data can be managed with optimum efficiency.

SOCET SET is also being used to optimize methods for quality control of image data, and for the input and manipulation of LIDAR data and other height datasets. SOCET SET's extensive functionality for editing DTMs, its range of import formats, and snap-to-ground functionality all expedite heighting of existing 2D features, making it an ideal tool for this process.

Conclusion

Ordnance Survey has used SOCET SET in several powerful ways as its workflows have evolved. SOCET SET's DevKit SDK allowed Laser-Scan engineers to interface their LAMPS2 product to SOCET SET for update of existing maps held in digital form. More recently, a contract has been signed to implement SOCET for ArcGIS, reflecting Ordnance Survey's decision to use the ESRI Geodatabase as the single repository for all of their topographic data. Meanwhile, SOCET SET's productivity and versatility, its scripts functionality, and its rich toolset for DTM editing ensure a central role in the vibrant new workflows for DTM generation and orthorectification.

For more information, visit www.socetgxp.com.

