Aerial Photomaps Reveal Secrets to Improving Farm Management

Ultra-high-resolution aerial photography and 3D landscape models from Bluesky are helping Outfield Technologies to develop innovative image recognition techniques to improve agricultural land management and crop production. In addition to the pioneering research project, the Bluesky data is also providing estate managers with up-to-date and accurate mapping for subsidy applications, planning proposals and corroboration of existing data and reports.

Supported by the Eastern Agri-Tech Growth Initiative, with funding from the UK Government Local Growth Fund, Outfield commissioned Bluesky to capture 7,000 hectares of 5cm-resolution photography. Covering farmed land, environmental focus areas and woodland on a large estate in East Anglia, the detailed record of land usage and crop types, for example, is helping with the development of machine learning algorithms to accurately identify features across different datasets and landscapes.

Combining neural networks with geospatial data

Outfield Technologies used a host of analysis software including off the shelf, open source and proprietary packages on its platform to derive useful data from drone images and more traditional aerial survey data, commented Jim McDougall, commercial director of the company. By combining neural networks for image recognition with the Bluesky data they are developing an automated classification process to help improve decision making for a range of applications.

Bluesky also supplied Outfield with a photogrammetrically derived 3D model of the estate, a Digital Surface Model or DEM, which includes the earth's surface or terrain and landscape features including buildings and vegetation.

This is a funded research project with a high profile, continued McDougall, and there were also great expectations from the estate for the deliverables derived from the Bluesky data. With little margin for error, it was important that the data collection partner fulfilled not only in terms of competitive pricing but also in quality of data and responsiveness of service.

Useful information derived from aerial imagery

This land assessment tool is being trialled to add to Outfield's existing horticulture management systems. Outfield is a technology company delivering plant level image services for field vegetable growers and orchard producers. By providing these growers with useful information derived from aerial imagery, Outfield helps to improve yield forecasting and sales, maximise outputs and identify problems within a crop.

Outfield's surveying services can offer significant savings compared to traditional foot surveys and the data can be integrated with farm management systems for recording hedgerows and field boundaries, tackling field margin encroachment, precise measurement of net farmed and cropped areas and assessment of woodland areas.