

Oblique Airborne Photogrammetry: Users' and Vendors' Views

Today, oblique airborne images are a powerful source of geodata, particularly for applications in urban areas. Although the cost of capturing is higher, object identification and creation of dense 3D point clouds is easier and more reliable compared to conventional vertical imagery. To better understand the current practice and possible user needs, the EuroSDR initiated a survey on the use and expectations of obliques. The questionnaire went online in spring 2014 and was targeted at both users and providers of hardware, software and services. Here, the key findings from the survey are summarised.

In recent years, aerial multi-camera systems which are able to deliver oblique and nadir imagery simultaneously have become standard. The interest in oblique imagery for mapping is primarily driven by the disclosure of the entire façade and, normally, the footprint of buildings. The use has evolved from simple visualisation or reconnaissance to cartographic mapping. The multiple applications of aerial obliques include extraction of dense point clouds for 3D city modelling, identification of structural damage to buildings, road updating, monitoring services, urban area classification and administration services.

EuroSDR Survey

Eleven questions were directed towards users and seven questions to vendors/suppliers. As of October 2014, more than 130 participants had responded to the survey, including 11 vendors. The largest group of respondents comes from academia, followed by national mapping agencies (Table 1).

Users	
Universities/Research Institutes	44.7%
National Mapping Agencies (NMA)	20.6%
Other Users	14.9%
Data or Information Providers	5.7%
Cadastral/Land Administration	3.5%
Municipalities	1.4%
Real Estate Companies	1.4%
Vendors	
Software	5.0%
Hardware	2.8%
Total	100%

Table 1, Classification of respondents.

A key question addressing users was: "In your institution or company, which applications would you see for (or are you already serving with) high-resolution oblique airborne images?". Similarly, vendors were asked: "What do you anticipate is the major application of oblique airborne images?". Figure 1 shows the percentages of positive answers given to the question on the use of obliques (multiple choices are possible); users and vendors largely agree. The respondents from academia and NMAs see mapping of buildings as offering important potential. Dense image matching is also seen as significant, as façades are often visible and therefore buildings can be reconstructed in 3D. Figure 2, which shows a point cloud computed from Microsoft Osprey imagery of Graz (Austria) using the Micmac tool, demonstrates the current level of dense image matching. The denser and more complete 3D point clouds are, the greater the challenge is to transform them into structured and detailed building models. This is still an open and 'hot' research topic.

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