



# Working in Partnership

## Giles Aviation Collaborates with Geomatics at Bath Spa University

### Overview

Bath Spa University's geomatics experts worked with Giles Aviation Ltd to develop a moving map aerial survey flight management and navigation system. This has led to an ongoing collaborative partnership for mutual benefits.

### About the Project

Formed in 2006 by commercial and display pilot Bill Giles, Giles Aviation Ltd undertakes extensive work in the fields of aerial survey, air-to-air photography, and aerial themes for TV/film productions and advertising campaigns. Giles Aviation Ltd uses aircraft like the Piper PA-27 Aztec, which have a full survey modified hull fitted with a number of photo ports that allow both oblique and vertical photography.

Giles Aviation first met with Bath Spa University at a business meeting at Biggin Hill Airport in 2006. This led to the recommendation to explore the scope for collaborative work on small format digital aerial capture and a meeting at the University for a demonstration on how technology could be deployed to mutual benefit. Sample data sets and technical specifications of the system were then compiled and feedback obtained on the performance of the sample datasets.



Giles Aviation

### Benefits

Giles Aviation have commissions to fly several aerial surveys of the British Isles for seal counts, wind farm location, heat loss and asset management purposes. Traditionally navigation for such surveys was by drift sight and heading in conjunction with GPS. This method did not deliver precise enough image coordinates and did not enable precise ( $\pm 10\text{m}$ ) navigation along the flight line. Random image centres do not allow for easy change analysis and geolocation of seal populations. Lost time incidences invoke additional landings and this closes the weather window of opportunities, whilst also increasing the time and cost of operations.

Bath Spa University has proven digital technologies that are able to reduce lost time incidences associated with mis-capture and navigation. Additionally, it has solutions for delivering on-the-fly moving maps directly to the pilot and aerial surveyor. These solutions were applied to the aerial survey process and the resulting system enabled one-shot data capture and navigation.

### Fast Facts

- By working collaboratively, the operational side of the business was improved and client satisfaction increased from an enhanced quality of service
- The project yielded case study material that could be used for teaching purposes
- The initial project has led to other opportunities to work together for mutual benefit

Both Giles Aviation and the University's academics benefited from applying their expertise and knowledge to developing a moving map aerial survey flight management and navigation system. As well as benefiting the operational side of the business and increasing client satisfaction from an enhanced quality of service, the project also gave case study material that could be used for teaching purposes.

## Outcomes

Alexander Koh, the geomatics expert academic at Bath Spa University, has been able to transfer and apply his specialist knowledge to the business needs of Giles Aviation. This has resulted in the development of aircraft camera systems and methodologies for the following types of activity:

- The use of digital video to capture bird populations at potential off-shore wind farm sites around the UK. With the current imperative for the establishment of alternative energy sources, the market for this service is expanding rapidly and Giles Aviation is currently looking to Bath Spa University to help them put additional systems in place in order to respond to market demand. This will enable up to five systems to fly simultaneously and enable Giles Aviation to meet the remits of the Crown Estate.
- The development of aerial camera mounts for very high resolution imaging. Although this is currently work-in-progress, Giles Aviation is confident enough in the quality of the University's support to invest in the purchase of a new sensor and aircraft for use with the mount.
- The application of a variety of geomatics support to enable and enhance the aerial survey activities of the company to encompass cartographic, oblique, reconnaissance and thermal surveys.

Giles Aviation has continued to grow its business since its first contact with Bath Spa University. As well as expanding its staffing levels, the company has re-located to Ashford International Airport. The partnership with the University continues with ongoing testing and discussion of ideas for future developments.

## Perspective

“Working with Bath Spa University is like having our own dedicated R&D team because they are professional, reliable and understand our business environment – and above all, they help us find realistic solutions that improve our business performance.”

**Bill Giles**  
Managing Director  
Giles Aviation Ltd



Giles Aviation

“Application of knowledge is what universities are all about – for both academics and students. Having a long-term partnership with Giles Aviation brings the real world into the picture and provides the catalyst for dynamic development solutions. This collaboration has enhanced the University's position as a one-stop-shop for activities related to aerial surveys.”

**Alexander Koh**  
Principal Lecturer Geomatics  
Bath Spa University



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