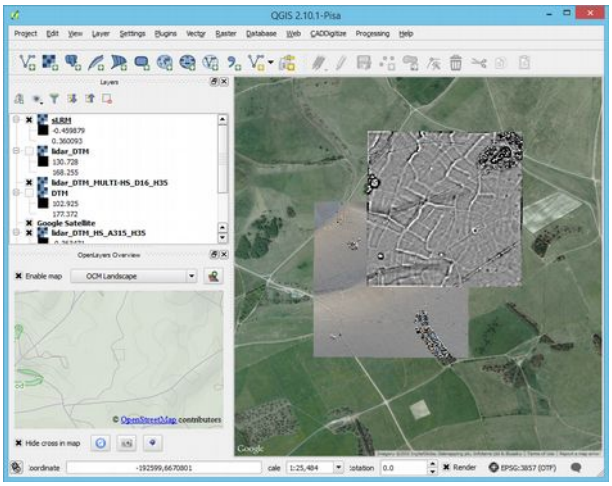
“Making the Most of Lidar Data” Information Sheet

CIFA accredited 1 day training course

In September 2015, the Environment Agency made available its archive of airborne lidar data – providing an extensive 3D model of the ground surface created by airborne laser scanning. Lidar data now covers 72% of England, mainly flood plains, coastal zones and urban areas. This new and freely available data set has enormous potential for archaeologists, historic landscape and conservation use. The Environment Agency will be releasing the full tiled dataset of lidar data gathered since 1998, and a composite set derived from a merged and resampled combination from the tiled set. They will be available under the Open Government Licence through the agency’s Datashare portal. This will all be free of charge, even for commercial use. This exciting development means that cost should no longer be a barrier to using lidar for historic landscape assessment.



But how do you get the best from it?

Our practical, hands on, one day course will show you how! Run by professionals with over eight years experience in using lidar data for historic landscape analysis, this course covers essential concepts needed to understand and efficiently use lidar data for visualization and analysis.

Through a series of presentations, practical guidance and hands on sessions this course will explore how to access, prepare, and manipulate digital lidar data. In addition to the ‘hands on’ practicals, there will be plenty of opportunity for questions and group discussion during the course of the day. You'll use your own laptop and open-source software for the course ensuring that you are fully set up to apply the new skills you've learnt.

Who is the course aimed at?

The course is aimed primarily at archaeological and landscape conservation personnel operating in national agency and local authority heritage environments. However this course will also be of benefit to professionals working in commercial, independent and research environments and to community groups working with airborne lidar data.

Course Aim

"To improve your knowledge and understanding of the use of lidar data for archaeological analysis and interpretation."

Course Objectives

1. To provide theoretical background on the collection of lidar data and its use for historic landscape survey.

2. To provide guidance on how to access the Environment Agency archive and the different types of data available

3. To provide practical guidance on how to prepare and manipulate digital lidar sets.

4. To provide guidance and discussion on the appropriate use of lidar data and some of the pitfalls / problems that might be encountered

This course provides skills and knowledge in support of the following National Occupational Standards AC8 - Undertake analysis and interpretation of archaeological material and data; AC1- Research and analyse information to achieve objectives and AC2 - Conduct non-intrusive archaeological investigations (see Additional Information below for more details).

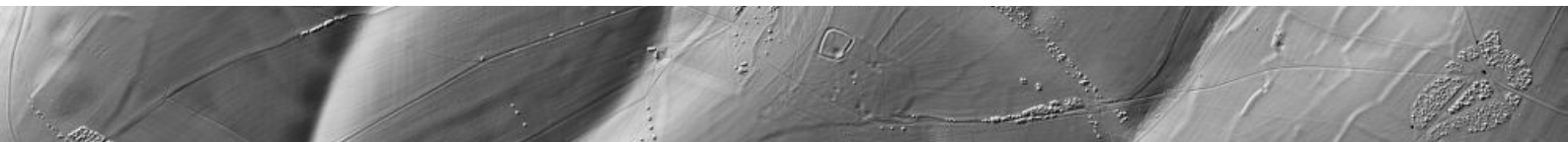
Why should I attend?

Lidar data can be a tricky resource to get to grips with. On one hand it appears just like an aerial photograph – a snapshot view of terrain from the air, but the full potential of this 3D data source is rarely used or taken advantage of by historic environment professionals. What's more the subtle topography that typifies archaeological remains can be tricky to identify using traditional methods. In this course, you will be introduced to a series of visualisation techniques that have been specifically developed to support the identification of micro-topography. You will also learn how to integrate lidar data with other data sources to create more complete understanding of the historic environment. Many professionals using lidar data currently use it as like 2D aerial image. This course will show you how to move beyond this and maximise the potential for interpreting and understanding your sites.

Cost and Booking Information?

The course is **£150** per participant, including lunch and refreshments. Paypal payment via our website preferred. Please go to http://www.pushingthesensors.com/booking-form/

Numbers are limited to 8 places so pre-booking is essential and bookings close 2 weeks before the course date (or earlier if all spaces are filled). If you find that you can't attend we will refund the cost of the course minus an administrative fee of £20 until noon 14 days prior to the course date. Refunds will not be made after this point, but transferring your place to another individual or credit for a future course will be considered where possible.



Requirements

You will need to bring your own laptop and mouse [Windows Vista or newer, Mac OS X or linux with at least 8GB RAM, 1GB memory] with the latest version of QGIS installed (don't worry full instructions on how to do this will be sent out with your welcome pack).

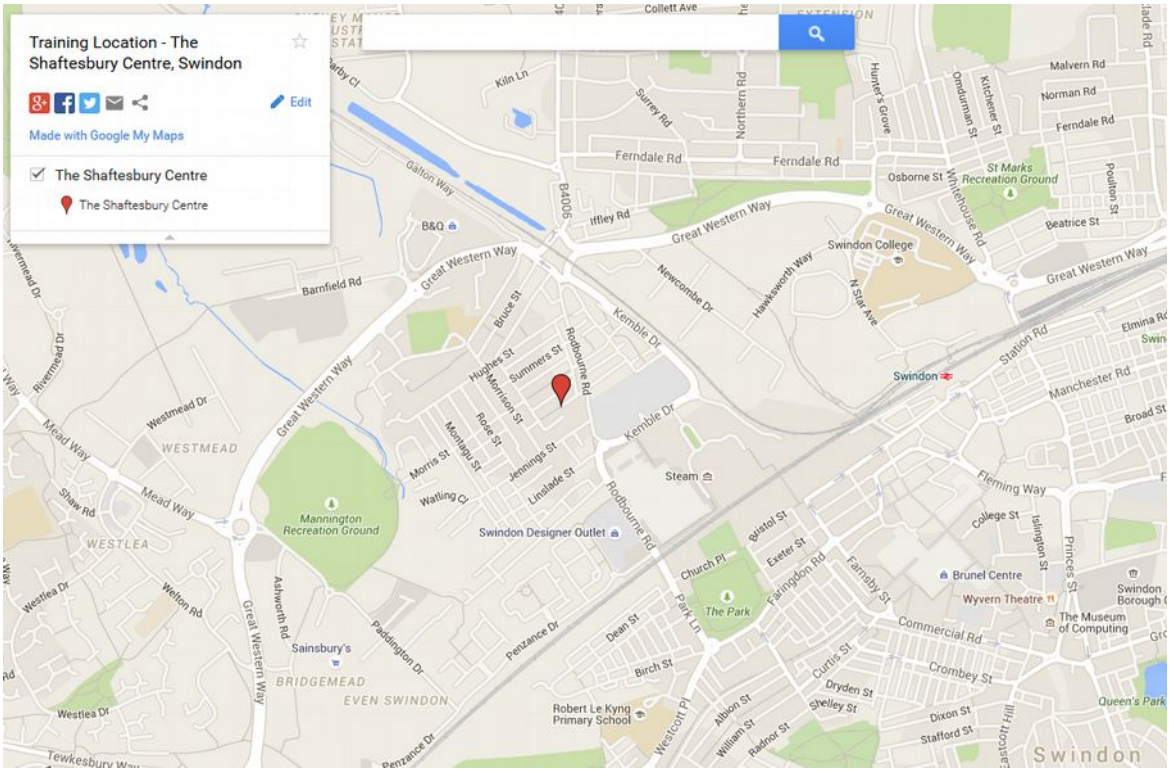
Some previous experience of working with GIS would be an advantage but is not essential.

The Venue

The course will be held at Air Photo Services Ltd, the Shaftesbury Centre, Swindon SN22AZ (within easy reach of Swindon train station). Bus route 5 connects the station to Rodbourne Road and a taxi one- way should be around £5.

There is ample free public parking off Morris Street, to the rear of the Shaftesbury Centre building.

The training room is on the second floor with lift access. Please let us know if you will need any specific modifications to make your training day more comfortable.



Travel and Hotel Information

The venue is located 4 miles from junction 15 of the M4 (or 6 miles from junction 16) and within walking distance (20mins) from Swindon town centre and the railway station. Swindon is on the Great Western Bristol-London route, serving London, the Midlands, South West England, the South Coast and South Wales.

If you need to stay overnight there are a range of hotels in Swindon, with the closest to the venue being:

Holiday Inn Express Swindon City Centre, Bridge Street, SN1 1BT
The Great Western Hotel, 73 Station Rd, SN1 1DH
Jurys Inn, Fleming Way, SN1 2NG

Please check online for prices and reviews.

Pre- Course Reading

If you are a super keen bean, you can take a look at the free download from Historic England as a starting point (but bear in mind it was published in 2010 and big advances have been made since then!)

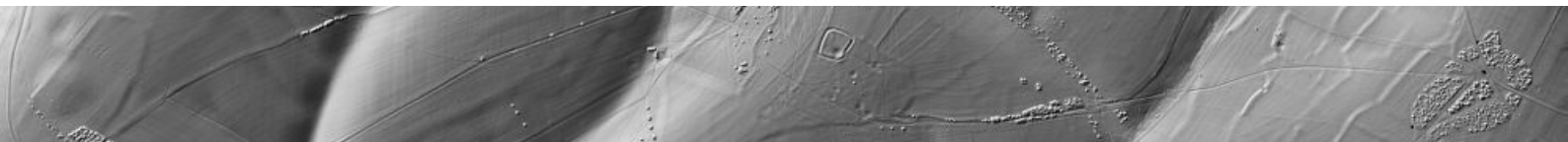
https://content.historicengland.org.uk/images-books/publications/light-fantastic/light-fantastic.pdf/

A short review of common visualisations with links to further reading can be found here:
http://www.rspsoc.org.uk/SIG/ARCHSIG/NEWSLETTER/ArchSIG%20Newsletter%20Spring%202013.pdf

and another nice short paper here:
https://www.academia.edu/14984681/Visualization_of_lidar_raster_DEMs_Guidelines_and_tools?auto=download&campaign=weekly_digest

About the Trainer

Rebecca Bennett is one of the UK's leading researchers in airborne remote sensing including airborne laser scanning (lidar), multi and hyper-spectral imaging for archaeological prospection. Over the last decade she has introduced students and professionals across Europe to the wonders of integrating airborne laser scanned data into their research through the use of open-source software QGIS and GRASS. You can find out more about her interests and publications at www.pushingthesensors.com



Additional Details - National Occupational Standards Outcomes

This course provides skills and knowledge in support of the following National Occupational Standards for Archaeology (ordered by most relevant first).

AC8	**Undertake analysis and interpretation of archaeological material and data**	P1-5 K1-13	**Performance Criteria** • Accurately identify requirements for analysis and interpretation • Identify and apply relevant technical and ethical standards • Analyse and assess the accuracy, currency and completeness of data and identify any additional data and material requirements • Obtain additional data and material from relevant sources as appropriate • Select, propose and agree appropriate methods for analysis and interpretation **Knowledge and Understanding** • How to carry out analysis and interpretation • Data protocols • Relevant technical and ethical standards • Types of analysis and interpretation • Types of method • How to conduct analysis and interpretation • Sources of specialist information and advice • How to observe and measure accurately • How to adapt analysis and interpretation procedures and practices to suit different conditions • How and where to record and store analysis and interpretation data • Types and modes of analysis and interpretation • Circumstances and conditions which can affect analysis and interpretation activities • Data protocols used in different analysis and interpretation methods
AC1	**Research and analyse information to achieve objectives**	P13-14	**Performance Criteria** • Ensure the methods are appropriate to the type of data and the research aims • Analyse information accurately according to the appropriate methodology
AC2	**Conduct non-intrusive archaeological investigations**	P22-P24	**Performance Criteria** • Verify that data collected during investigation is sufficient for analytical purposes and is collated accurately • Check and verify investigation data for accuracy and integrity • Process investigation data accurately and present it in a format that will assist in making a balanced interpretation