

Cranborne Chase and Chalke Valley Landscape Partnership Scheme

Champions of the Past: Lasers and Landscapes

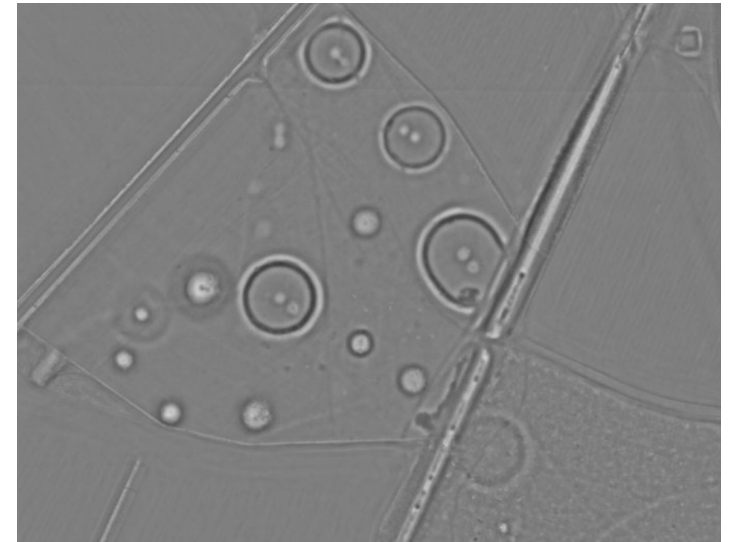
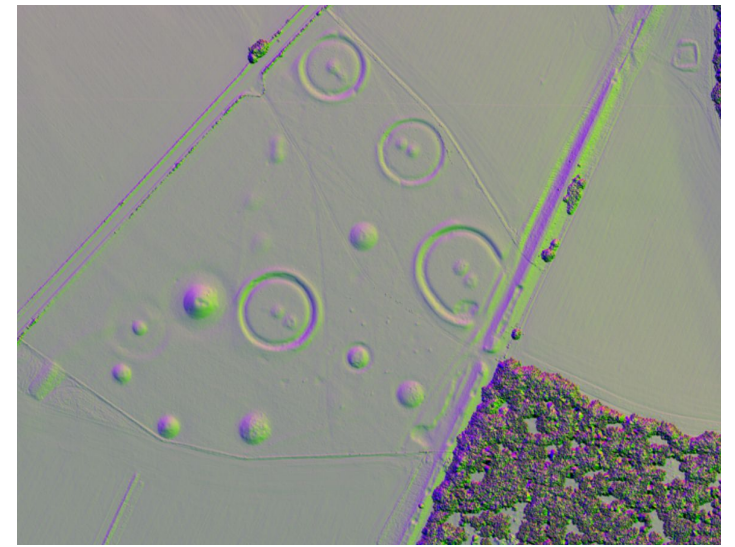


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Lidar Portal Introductory Webinar

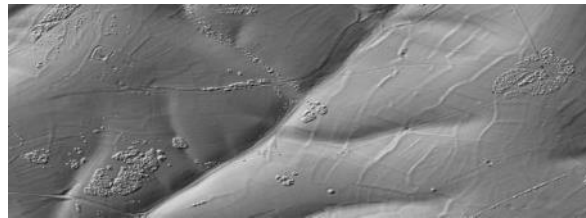
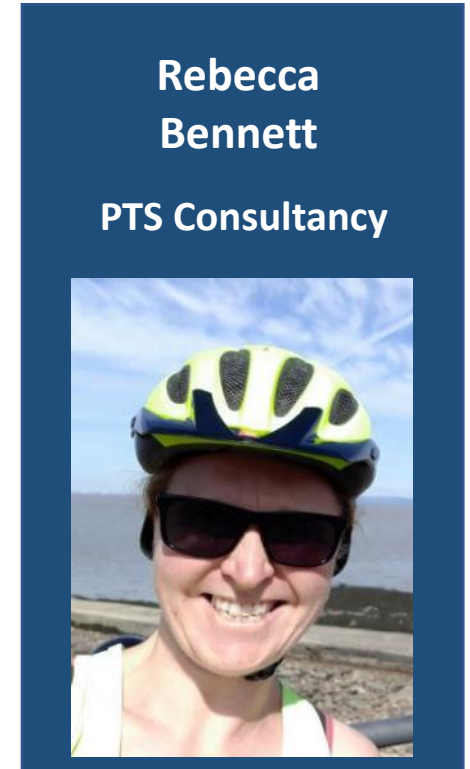
- Introduction to the Chase and Chalke Archaeological Projects “Champions of the Past”
- Lidar Data Collection
- Citizen Science and the Lidar Portal
- Training Taster: Archaeology from the Air: Core Concepts
- Project Outcomes
- What’s next?
- Any Questions?



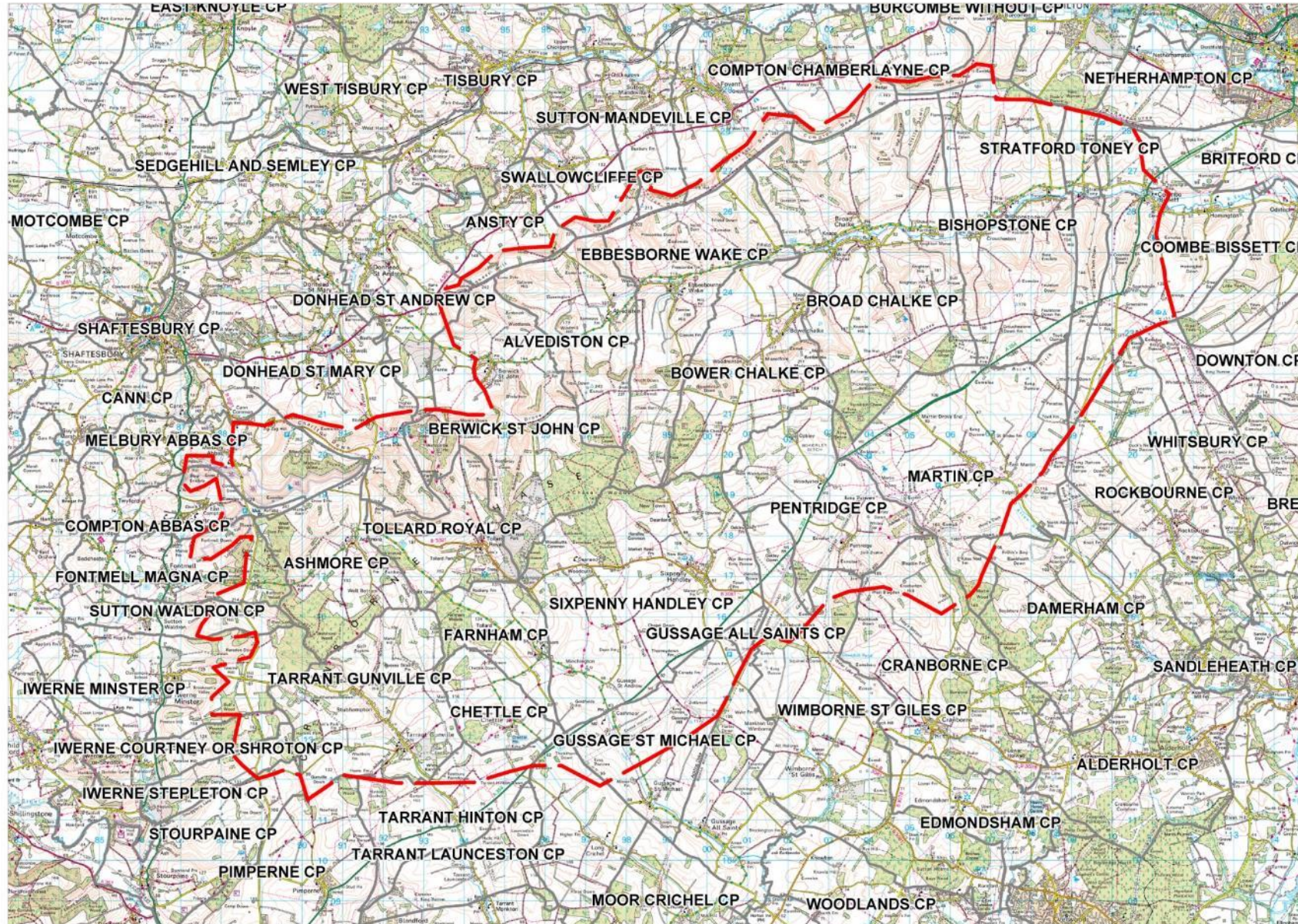
Oakley Down lidar Surface and LRM models



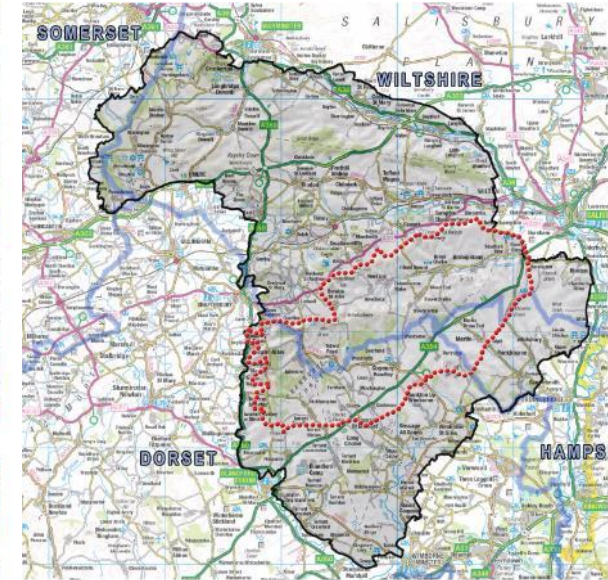
Champions of the Past: Lasers and Landscapes



Chase & Chalke Landscape Partnership Scheme: Our Area



- 254 square km
- Rural communities
- Agricultural landscape
- Naturally, historically and culturally significant



CHASE &
CHALKE
LANDSCAPE
PARTNERSHIP



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Champions of the Past

Summary

To engage with all communities around and within the Chase and Chalke LP to raise awareness and inspire at least 200 new volunteers, train them in new skills, deliver a programme of survey, research and conservation across one of the richest archaeological landscapes in Britain.

Outputs

- 15 archaeological sites in better management and improved condition
- 200 new sites identified, recorded and investigated
- 2 new volunteer groups established
- 475 archaeological volunteers involved in the project
- 30 landowners engaged
- 500 people involved in experience days
- 5,800 people engaged in roadshows and 'Big Dig' events
- 10 events run by volunteers

Outcomes

- Improved conditions of archaeological sites.
- New archaeological sites identified and recorded; existing sites better understood
- This project will create a body of trained volunteers supported on the ground by local leaders.
- Reports disseminated in archaeological publications and through local networks
- Story of area better understood



Champions of the Past

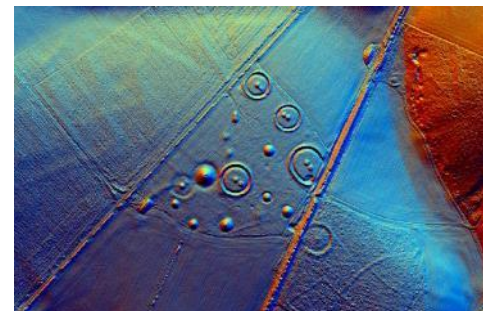
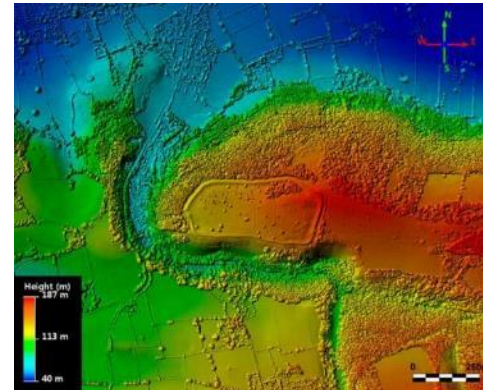
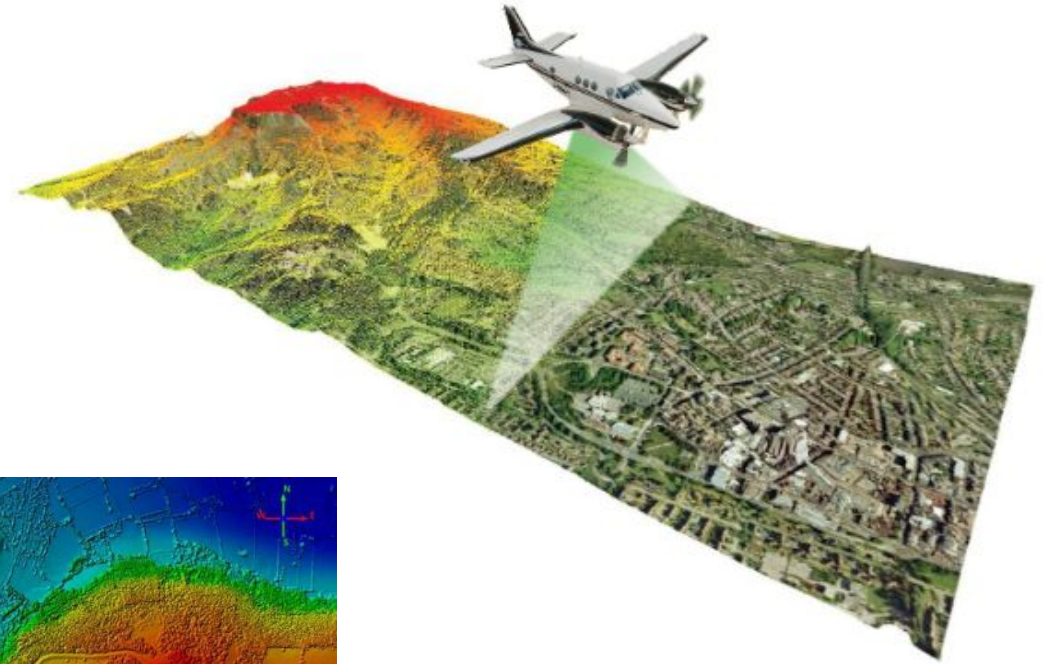
Phase 1: LiDAR Data Collection

Phase 2: Community Engagement

Phase 3: Cranborne Chase LiDAR Portal

Phase 4: Volunteer training and on site surveys

Phase 5: Geophysical Survey & small-scale excavation



Phase 2: Community Engagement

- Local pop-up events and hands-on activities
- Archaeology walks and talks
- Local Festival of Archaeology events at Salisbury Museum and Blandford Museum
- Online talks (during Covid restrictions)
- Workshops in local schools and with community groups
- Parish presentations to highlight what might be on people's doorsteps that they never know about

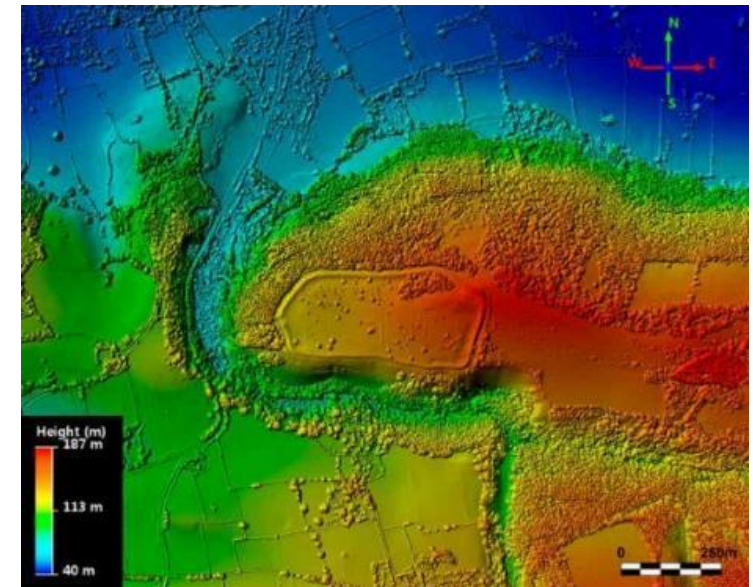
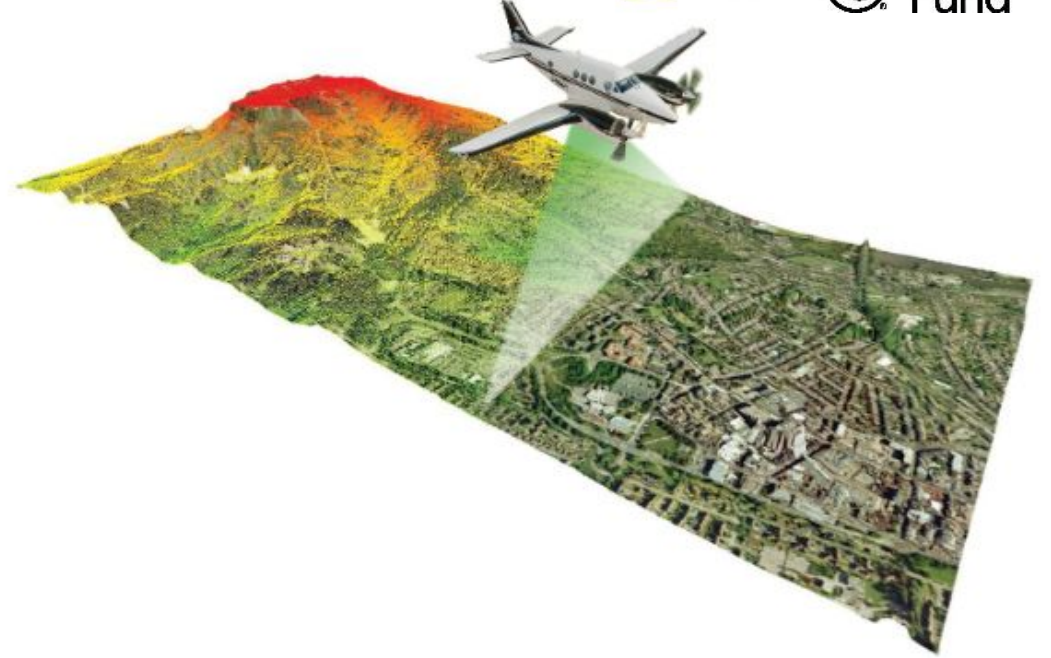


Phase 1: LiDAR Data Collection

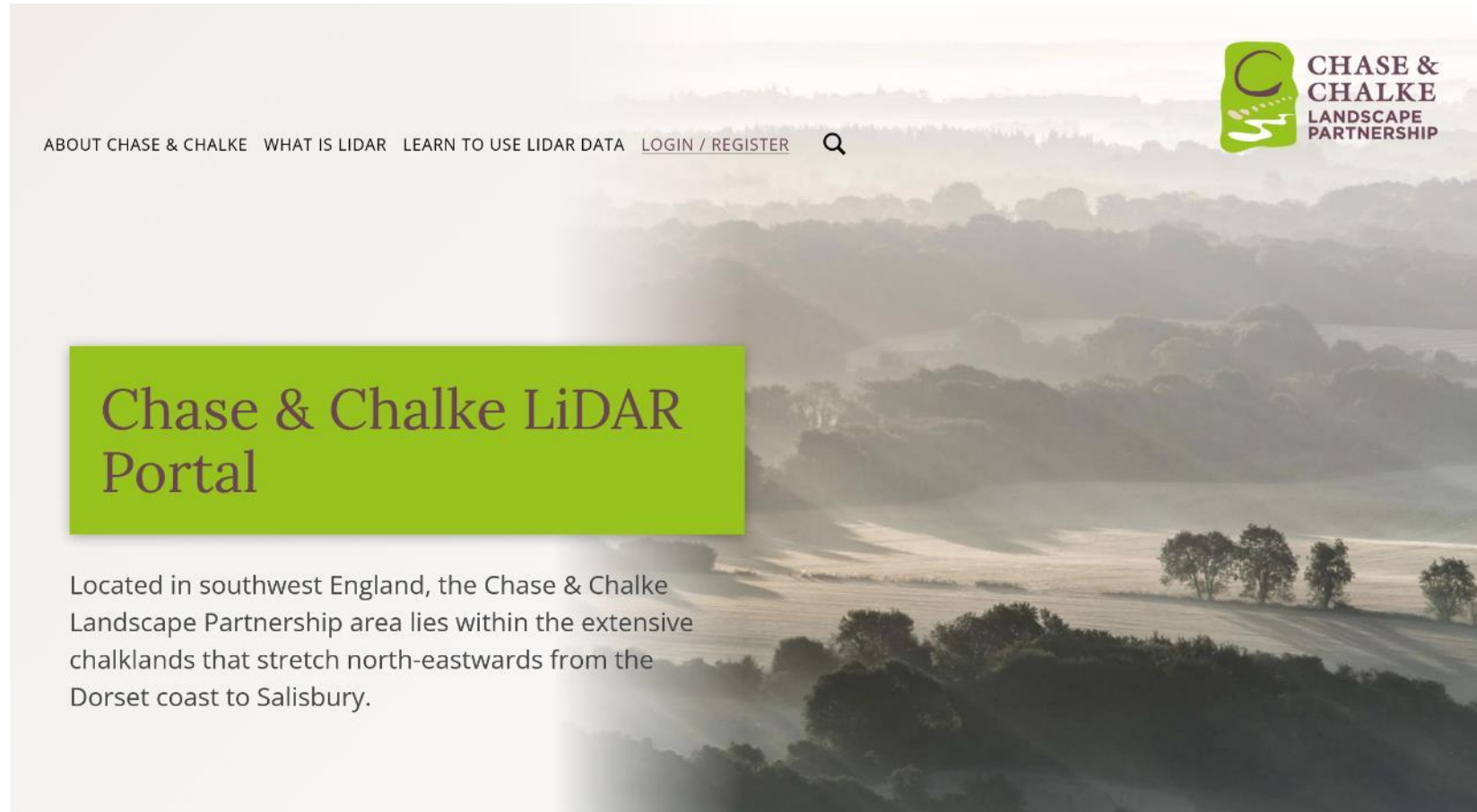
- What is LiDAR?
- Aerial LiDAR data from a 351km² area within the Cranborne Chase AONB and Chalke Valley.
- 16 laser pulses per metre
- LiDAR data was then processed into digital terrain models and digital surface models 25cm resolution



$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$
$$\text{time} = \frac{\text{distance}}{\text{Speed}}$$
$$\text{distance} = \text{speed} \times \text{time}$$



Phase 3: Cranborne Chase LiDAR Portal



- Lidar visualisations as seamless layers
- Historic Environment Record data from Dorset, Hampshire and Wiltshire
- Background modern satellite imagery, Modern and Historic OS mapping
- Professional transcription of four areas
- Online training modules embedded

Phase 3: Cranborne Chase LiDAR Portal

Feature Details ?

Please fill out as many sections as you can (click on the headings to expand)

*Description

*Site Type

Monument Type

Existing HER Reference Number (if multiple, separate with comma)

> Possible Period(s)

> Map Layers Used

> Field Survey?

> Photograph / Screen Shots +

> User Information

Made a Mistake? ?

Dont panic!
- Just [fill out this form](#) to notify the team

Submit

☒ My Features

☒ Reviewed Features

☒ Unreviewed Features

☐ Chase & Chalke Project Area

☐ Sample Lidar Transcriptions

☐ Scheduled Monuments

☐ HER Monuments

☒ lidar local relief model

☐ lidar terrain hillshade

☐ lidar surface hillshade

☐ OS 2nd Edition (1899-1900)

☐ Aerial Photography

☐ Ordnance Survey

☐ Roads

Cranborne Chase Lidar Portal © Cranborne Chase AONB.
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Chase & Chalke Lidar Training

8% COMPLETE Last activity on January 25, 2023 2:15 pm **IN PROGRESS**

Welcome to the Cranborne Chase Lidar Portal! The portal has been created as part of the Chase and Chalke Landscape Partnership and provides a unique opportunity to investigate the rich heritage of this landscape through the lens of a very modern technology.

The Chase and Chalke area is a landscape rich in archaeological heritage, from the enigmatic Neolithic Dorset Cursus to the many Bronze Age burial mounds, Iron age settlements and Roman roads. However hundreds of sites remain unknown and unrecorded and this is where you can help!

In this online course we will give you all the tools you need to become a landscape detective, interpreting the lidar data to discover new features and add depth to our collective understanding of the past.

All the course modules are listed below. You can click on the expand button to see the topics in each module. Click on **Introduction** to get started.



Course Content **Expand All**

- ☒ Introduction 1 Topic **Expand**
- ☒ What is Lidar? 6 Topics **Expand**
- ☐ How is lidar used to understand the historic landscape? 6 Topics **Expand**
- ☐ What can we record? 11 Topics **Expand**
- ☐ Using the Cranborne Chase Lidar Portal 5 Topics **Expand**
- ☐ Lidar Volunteering – Key Information
- ☐ Finish and Further Resources

How does it work?

To identify 200+ new sites we need to recruit and train 200 volunteers to the portal and support 25 of these to develop expert skills in the interpretation of lidar and landscapes



Course Content **Expand All**

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- ☐ Finish and Further Resources



Course Content **Expand All**

- ☒ Introduction 1 Topic **Expand**
- ☒ What is Lidar? 6 Topics **Collapse**
- Lesson Content** 33% COMPLETE | 2/6 Steps
- ☒ Lidar technology – how does it work?
- ☐ How are lidar data collected?
- ☐ Seeing through the trees
- ☐ How are the lidar data processed?
- ☐ Lidar visualisations for archaeology
- ☒ Lidar visualisations for archaeology pt2

Training Taster: Archaeology from the Air Core Concepts

Archaeology from the Air - What are we looking for?

1. Topographical features

e.g. Structures, Shadow marks



Fovant Down

2. Proxy indicators

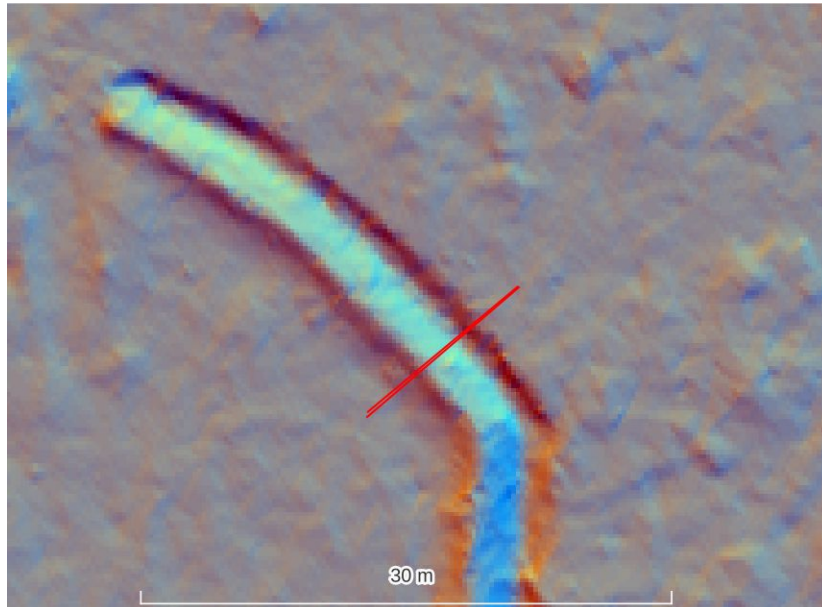
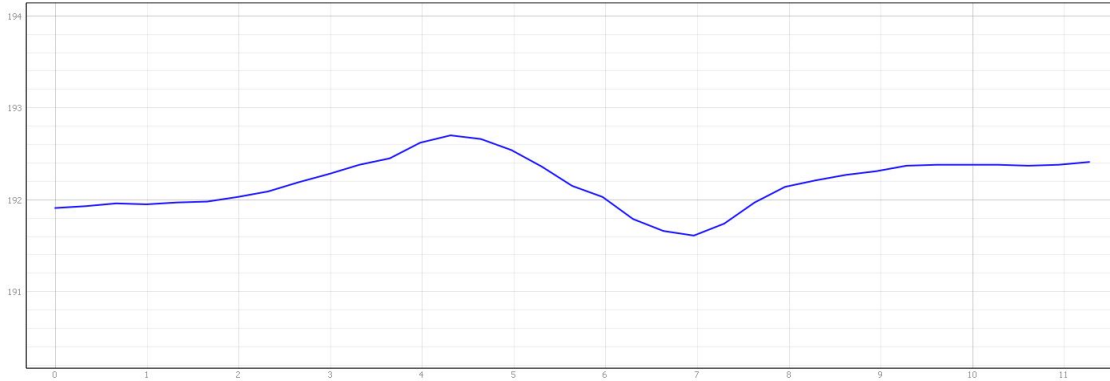
e.g. Crop marks, Soil marks



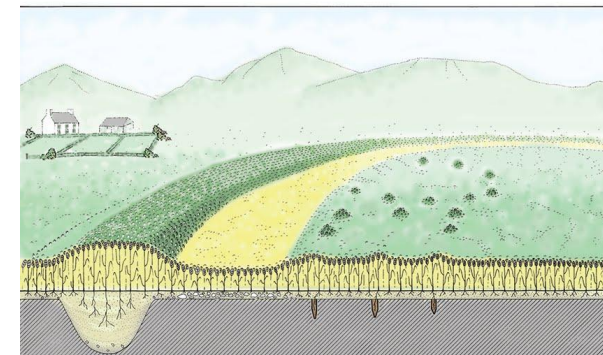
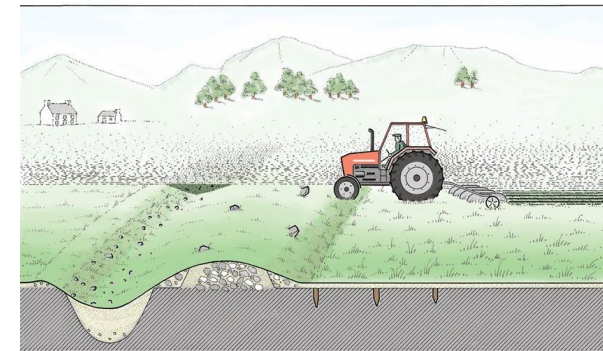
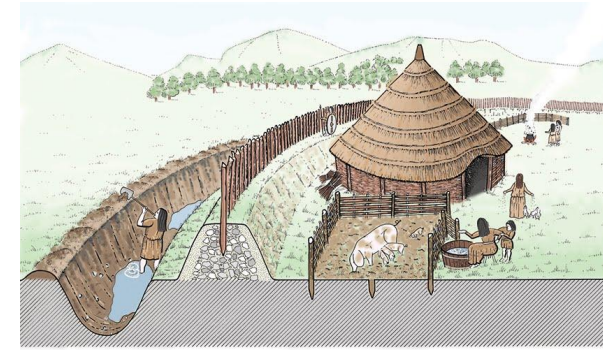
Enclosure Humbys Stock Coppice

Archaeology from the Air - What are we looking for?

1. Topographical features



2. Proxy indicators



Archaeology from the Air - What are we looking for?



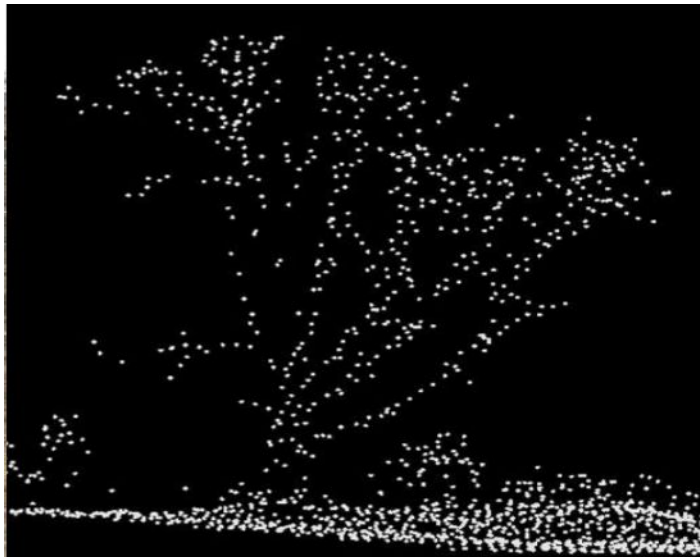
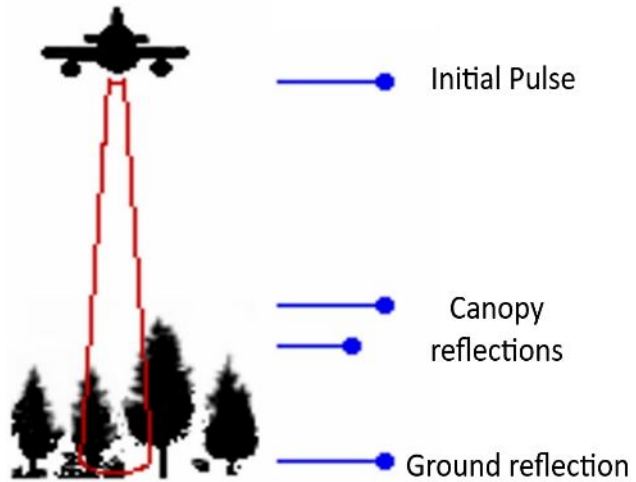
Knowlton



Why does resolution matter?

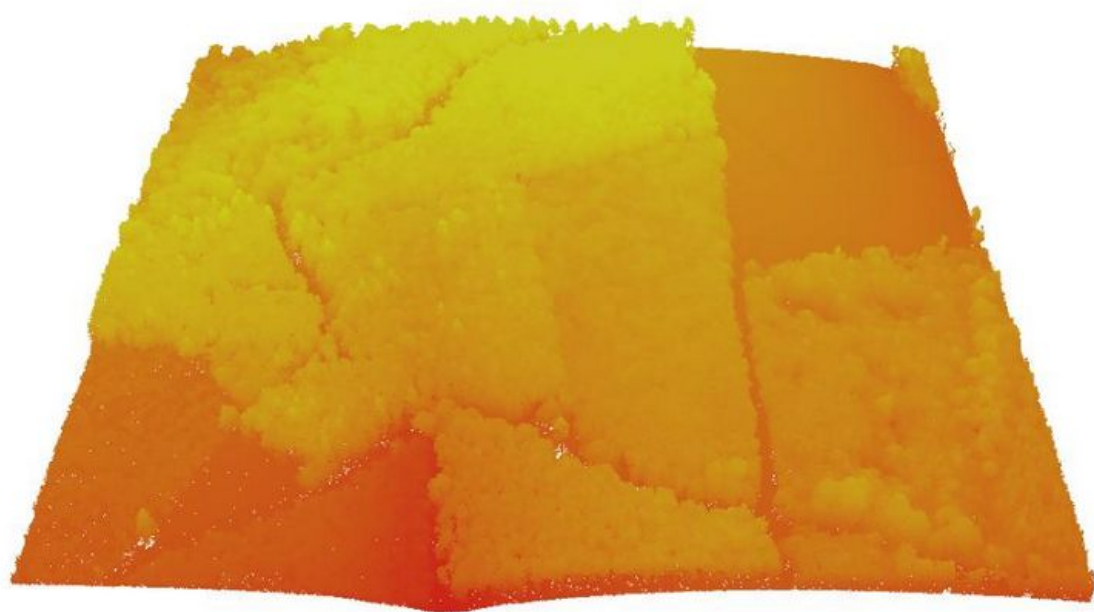


Can lidar “see through” trees?

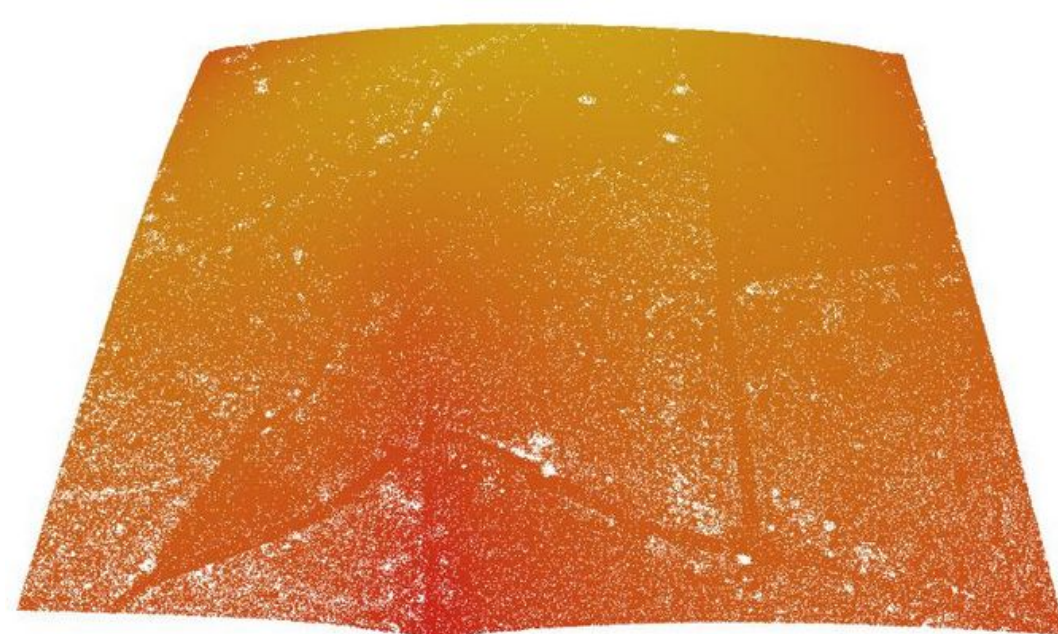


Komorebi
the light that shines between the
leaves of the trees

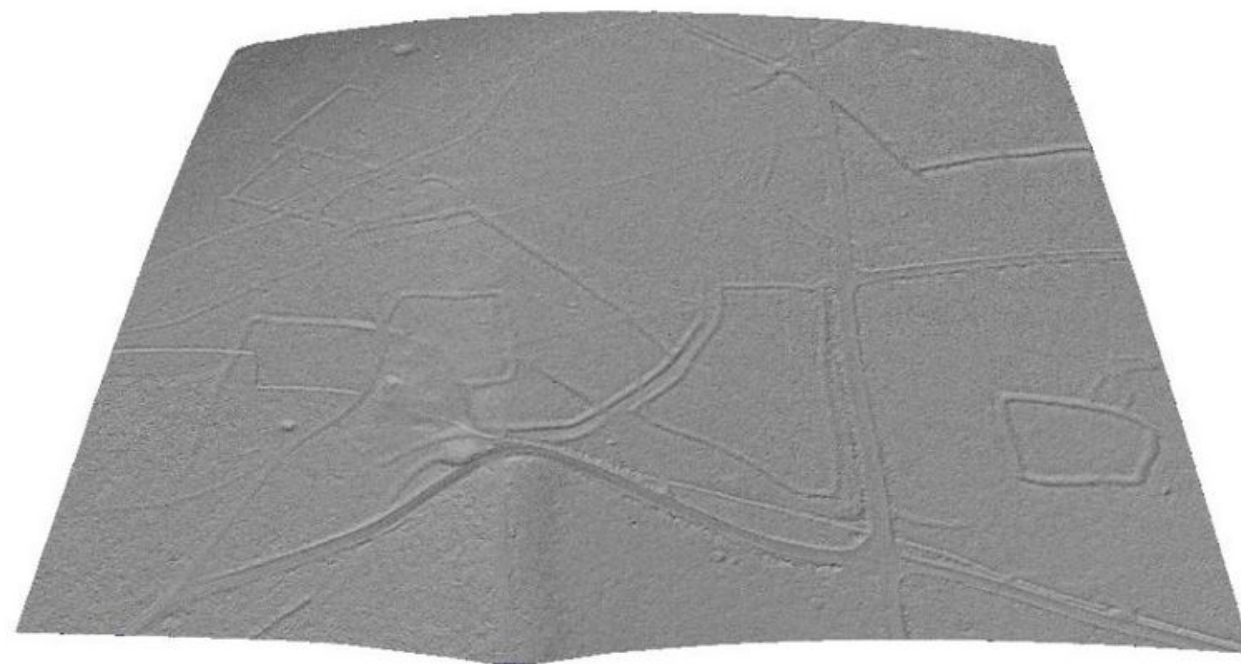
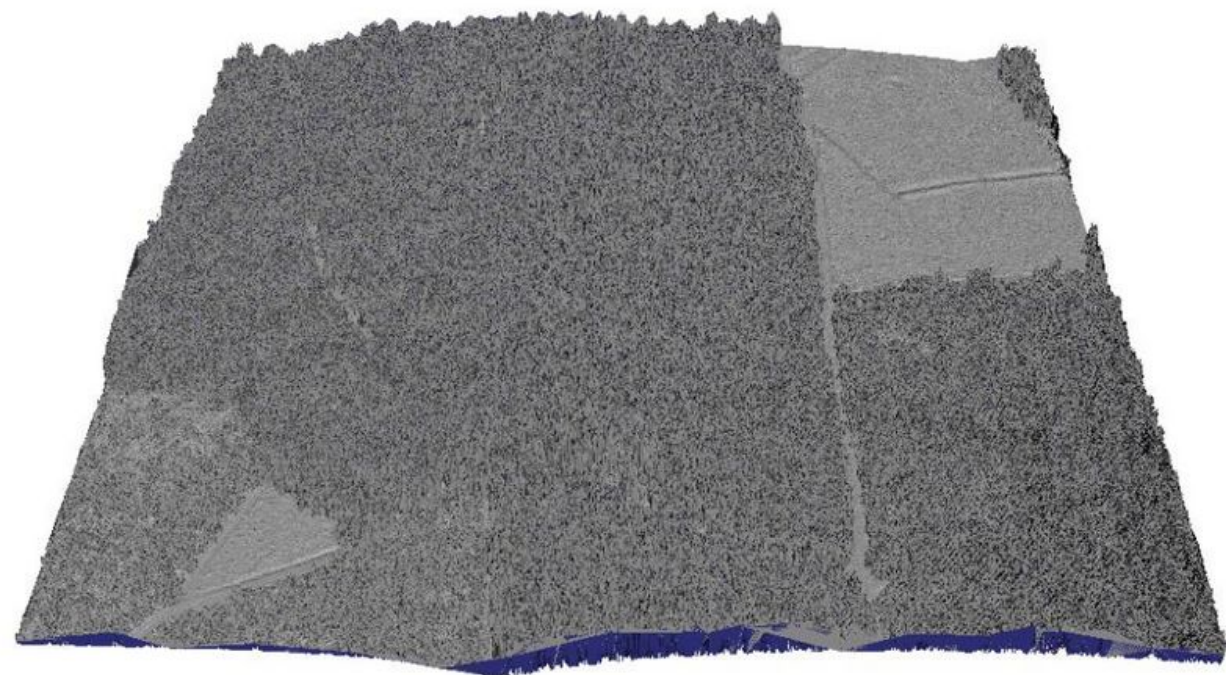




Digital Surface Model



Digital Terrain Model



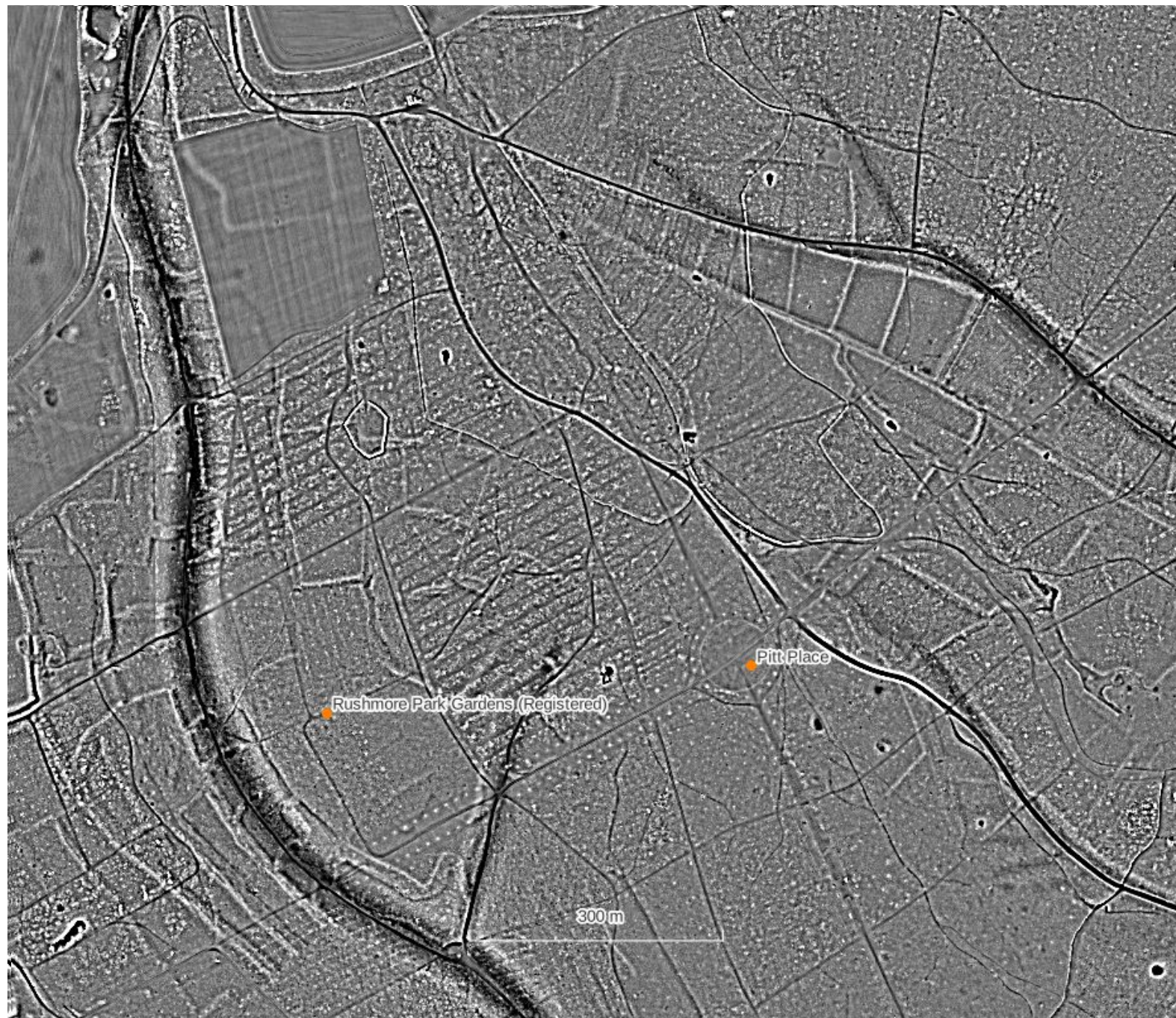
Aerial Photograph

Lidar Surface Model

Lidar Terrain Model

Specialist visualisation

Known Sites



Online Training & Volunteer Support

Detailed online training course

16 lessons
~3hrs to complete

Portal Instruction also available as a pdf

Monthly informal catch ups / mapathons online

Lidar technology – how does it work?




Airborne lidar is a survey method that allows us to make highly accurate 3D models of the ground surface. These models show traces of human activity that help us to understand how communities use the landscape in the present and the past.

A lidar sensor uses a laser to measure the distance between the aircraft and the ground. By recording millions of these measurements we can create a record of the relative heights of the ground surface. The laser also reflects off trees and buildings, cars, cows and cursus monuments – anything present in the landscape at the time of the survey is recorded.



The principle behind lidar survey is simple. If you know the speed something is travelling at and the time it takes to get from A to B, you can calculate the distance between A and B.

In this case we know the speed of the laser (S = Speed of Light), and we can time how long it takes to get from the sensor to the object it reflects from (T) so we can work out the distance (D) between the sensor and the reflecting object.

$$\begin{aligned} \text{speed} &= \frac{\text{distance}}{\text{time}} \\ \text{time} &= \frac{\text{distance}}{\text{speed}} \\ \text{distance} &= \text{speed} \times \text{time} \end{aligned}$$


This is of course an over-simplification. You need to do a lot of clever corrections for the movement of the plane and the real-world location of the aircraft using GPS to get accurate measurements but it gives you a feel for how the technology works.

< Previous Lesson

Back to Lesson

Next Topic >

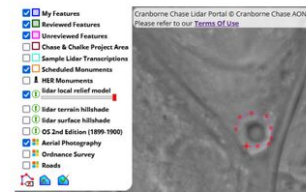
Recording Features: Mapping a Feature



Once you have added the feature data to the record form it's time to put it on the map. We will do this by drawing a shape around the visible extent of the feature(s) being recorded.

Only one map feature is allowed per record so make sure that the polygon you draw has all the relevant features inside.

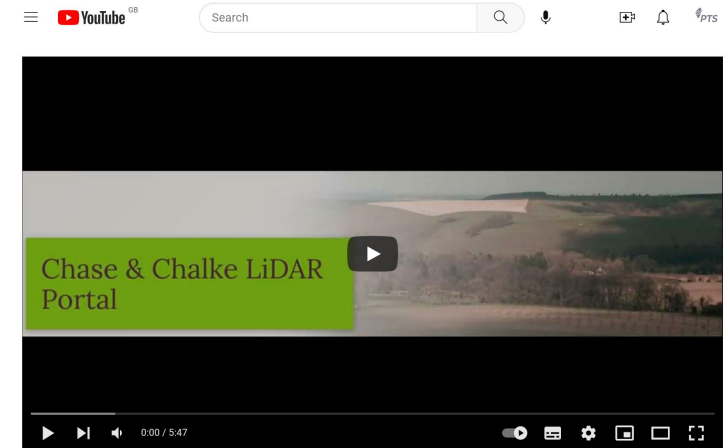
Drawing a Polygon Shape



1. Zoom and pan the map until your target feature is comfortably at the centre of the window
2. Select the draw polygon tool 
3. Click to start drawing your polygon
4. Double click to close the polygon

If you are happy with the polygon extent it's time to submit your record.

Submit



Chase and Chalke Lidar Portal How to Add a Feature

[Online training materials preview](#)

Online Training & Volunteer Support

Sample Transcriptions and Illustrated Monument Thesaurus

Feature Details

Please fill out as many sections as you can (click on the headings to expand)

Description

Site Type

Monument Type

Existing HER Reference Number (if multiple, separate with comma)

Possible Period(s)

Map Layers Used

Field Survey?

Photograph / Screen Shots

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☐ Aerial Photography

☐ Ordnance Survey

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Sample Lidar Transcriptions : Ditch

Sample Lidar Transcriptions

Site Type

Ditch

Monument Type

Unassigned

Description

Linear ditch that appears to form part of a more extensive modern drainage system. No dating evidence. Digitised at 1:2500

HER Ref

Period

Uncertain

Ditch

Chase & Chalke Lidar Training > What can we record? > Ditch

IN PROGRESS

LESSON PROGRESS

0% COMPLETE

A long and narrow hollow or trench dug in the ground, often used to carry water though it may be dry for much of the year.

Woodland Down Ditch

Within this category you have the following sub-types:

- **Practice Trench**
 - A system of trenches dug by troops for practice purposes.
- **Ring Ditch**
 - Circular or near circular ditches, usually seen as cropmarks. Use the term where the function is unknown. Ring ditches may be the remains of ploughed out round barrows, round houses, or of modern features such as searchlight emplacements.

Practice Trenches, Salisbury Plain

Ring ditches showing as crop marks and not visible in the lidar

< Previous Topic

Mark Complete ✓

Next Topic >

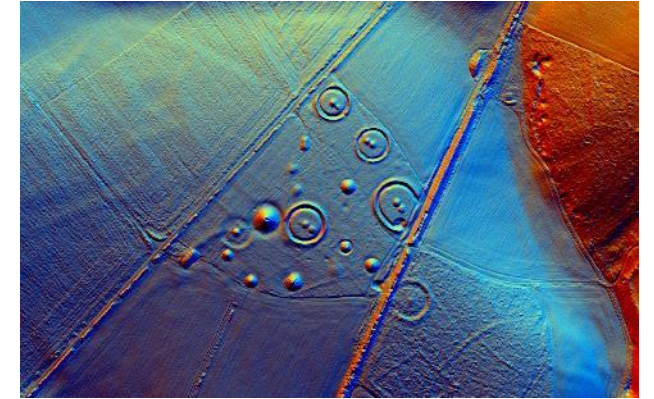
Phase 4: Volunteer training and on site surveys

- Recruit around 200 new volunteers to be involved in the project at some level
- Professional training and guidance for volunteers
- Hands-on experience of recognising and recording archaeological sites in the landscape
- Data collection in the form of written and photographic records
- Further our understanding of the archaeological landscape
- Support local people and individuals to learn more about their landscape



Champions of the Past Legacy

- **2 new volunteer groups** established to secure the longer-term community involvement in the archaeological heritage of the area.
- New local research group focussing on the archaeology of their area, **a new volunteer survey group** perhaps supported by existing groups (AVAS and EDAS), a practical conservation group focussed on protecting and conserving archaeological sites.
- **15 archaeological sites will be in better management** and improved condition.
- **200 new sites identified**, recorded and investigated as a result of the LiDAR survey results and ground-truthing, being better understood and appreciated.
- A total of **475 archaeological volunteers** involved in the project, with **30 landowners engaged**, **500 people** involved in experience days and **5,800 people** engaged through community engagement activities (pop-ups and events)
- A target of **10 events being run by volunteers** and members of the local community supported by the Chase & Chalke team.



Become part of the story

- Sign up to the portal

<https://cranbornechaselidar.org.uk>

- Register to become a volunteer on the Chase & Chalke Volunteer & Training Hub (for info about other LSP and Champions of the Past events)

<http://bttr.im/cnmw2>

- Do the Online Training

<https://cranbornechaselidar.org.uk/courses/chase-and-chalke-lidar-training/>

- Any problems? Email the portal team
rebecca@pushingthesensors.com

