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Monitoring the Loss of Heritage Assets: Cumbrian Outdoor Heritage Sites

Project Aims

This research project aims to design and critically evaluate a method to monitor visitor behaviour and the physical condition of free-to-enter outdoor heritage sites and monuments in Cumbria.

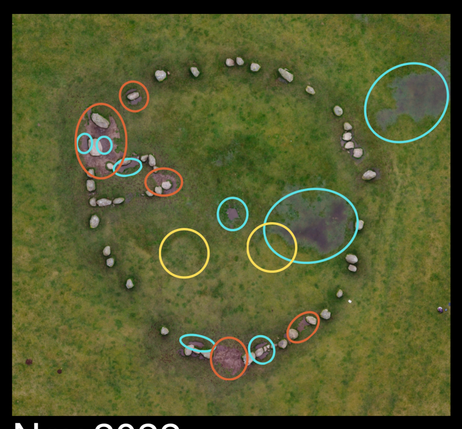
Additionally, it aims to produce a cost-effective toolkit for heritage organisations to use.

Introduction

Fieldwork was carried out at five outdoor heritage sites in Cumbria. Some sites are located inside the Lake District National Park, whilst others are not. The sites studied are Ambleside Roman Fort, Castlerigg Stone Circle, Kendal Castle, Long Meg & Her Daughters Stone Circle and Shap Abbey.

Site Condition Recording

Aerial photography using a UAV was used to record the sites from above repeatedly. The aerial photographs were used to generate 3D models (photogrammetry). The 3D models produced were then visually compared to one another.



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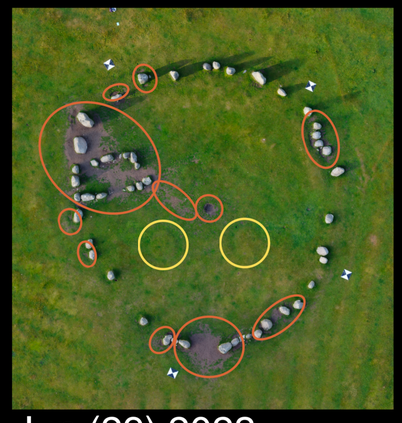

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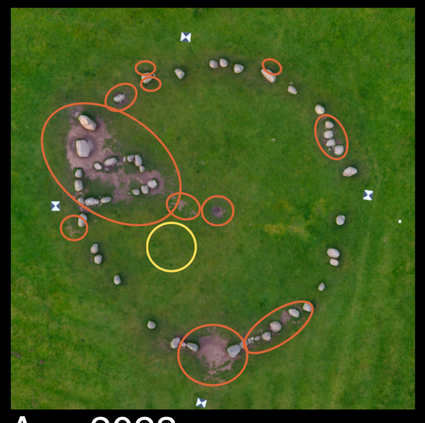

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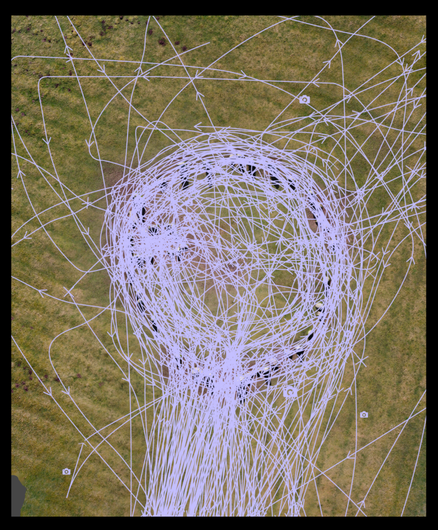
Any areas showing change or interesting features have been circled. Orange circles show areas of ground wear, blue circles show the presence of standing water and yellow circles show subterranean features. It is interesting to note that weather conditions affected the colour and quality of the 3D models produced.

Terrestrial photographs to record site condition in areas showing change highlighted in the 3D models.

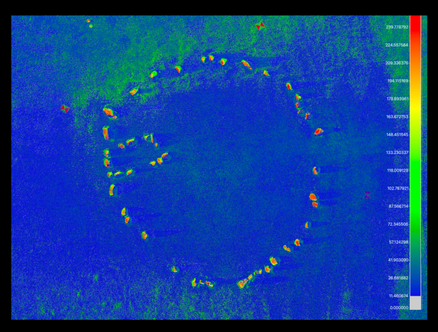
Visitor Routes

A pencil and paper method was used to record visitors' routes around the sites. These maps were then digitised and overlaid over the 3D models. This can highlight areas of 'high traffic' at a site.



Digital Analysis

Using digital analysis software, two 3D models' point clouds can be compared. The difference between the two is highlighted in a colour scale, indicating where physical change has taken place.



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